99/4A

INDEPENDENT BI-MONTHLY MAGAZINE FOR THE USERS OF THE T.I. 99/4a HOME COMPUTER

PARCO Electrics

TEXAS

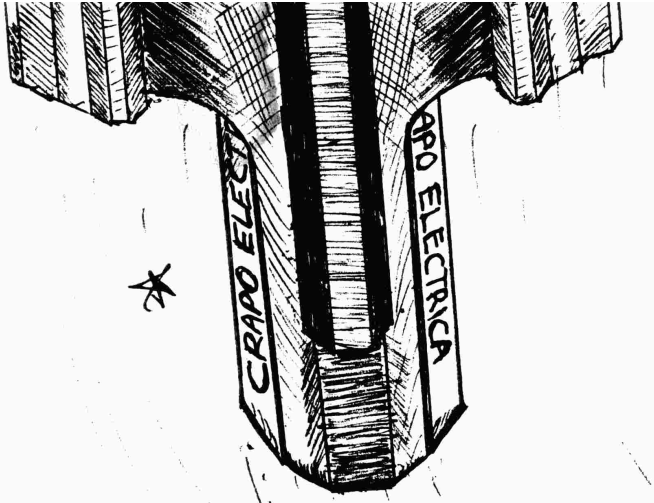
the State of the Art (graphics special)

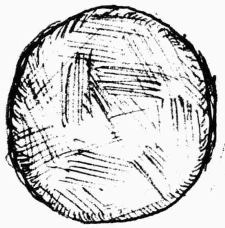
IN THIS ISSUE:

* PROGRAM LISTING
  (including:
  WORD PROCESSOR
  & BASEBALL)
* NEW MODULE REVIEWS
* FEATURES/NEWS
* HINTS & TIPS

and much more

VOLUME 1
ISSUE 5





THE PARCO STORY - continued

Frankly Poorish, Commander of the starship CRAPO ELECTRICA, put down his Beano and called for Officer Petty Gripe. "Have you been debriefed?" he enquired, at which PG blushed. "Not since the time I ran into the stumps and got caught in the gully, sir, why?" "Well we have been picking up signals from opposing forces, PG." Not one for getting flustered, FP carefully folded his empty crisp packet and placed it in his glasses case, then screwed up his glasses and threw them in the bin. "It looks pretty damned serious. From what we can tell there are several adversaries; STAINLESS UNDERWEAR, INTRIGUING UNDERWEAR and TIMELESS UNDERWEAR to name but six(three pairs). Then there is...." (Loud fanfare) "....THE ARCADE HARDWARE SHOP...." PG froze. Apart from the expression 'Mailshot' these were the words that he least liked to hear. "What have you got in your sandwich box?" asked FP. "Oh, just the usual, sir." replied PG doing an immediate stocktake. "One jam and fishpaste sandwich and six of Ruby's cakes - one flapjack, one coconut pyramid (with cherry), one shortcake (triangular), one currant bun (currants: 17, I think), bakewell tart (approx 2oz.) and a chocolate crispy cake, sir!" "Pretty damn deadly," agreed FP, "but maybe not quite enough fire-power for this job. What we need is a secret weapon, and here she is now!" Enter the lovely Salad Rosebowl. All rosy cheeks and assets that could not be ignored. Actually she applied for the post being hopelessly attracted to the idea of joining a Male Order Company....

The formula was perfect. Salad charmed the socks off, Petty worked the socks off, and Frankly bought the socks off and sold them to snake-charmers as sleeping bags. As the light-years flew by, CRAPO became the 99/4runners over the GALAXY of Tecasus.

1983 brought a bombshell. With little warning, and even less logic, The Masters of 99 decided to turn their backs on their devotees. Now it was every man for himself, and only the daring would survive. Frankly took on more recruitments in the shape of Miss Steponyer Shoes and Mr Hardly Didmore. Now Crapo was a force tò be reckoned with. "I reckon we are a force to be reckoned with, crew." reckoned FP. Gradually the opposition was reduced. Crapo was the only ship sending out enough parcels of hope to the starving masses in the galaxy of tecasus, and their operation became so effective that people began to think that they were themselves the Masters. Like it or Lubbock, Devonia had become the centra Brittanicum for 99.

"Time for a mailshot, I think!" blurted Frankly, "I said time for a mailshot...." his eyes glanced quickly aound the room. "....could have sworn Gripe was here just now...."

To be continued....

TEXAS

'Scuse the pun, but you should know us by now! GRAPHICS is the theme of the feature you will find in this issue, also you probably noticed it on the cover. It seemed appropriate, since there are a number of good graphics programs around these days. Combined with the TI's eminence in that area, what you have is very exciting. We review GRAPHX, which requires an 'Expanded System', ARTIST which runs with Minimemory, and we include two arty listings. MONKEY GRAPHICS needs Extended Basic, and PAINTING which runs on the Basic machine. You can't say that we don't try to cater for all needs!

Last time the theme was 'STILL HERE'. Perhaps this one should really be 'GONE'. No, don't panic, we've only moved across town!

New address is:-

2, Devonshire Court,
Heathpark,
Honiton,
Devon.

As usual, we love to see you, so if you are in the area, come and visit the smart new purpose-built HQ!

Hopefully you will agree that the magazine gets better - thankyou for all your kind comments, and thankyou for your continued support. We hope you enjoy the graphics special, and we are proud of the Krunchers published in this issue.

Happy Tapping,

Harry 'Function' Pridmore
on behalf of PARCO

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99/4A MAGAZINE
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LETTERS

LETTERS LETTERS LETTERS LETTERS

Dear Function and Quit,

Being inspired by your eloquently titled editorial "off yer butt", I decided to write and put down a few of my thoughts and ideas.

I don´t have any great pearls of widom or revolutionary programming techniques to pass on, being somewhat of a learner, still, I am hoping however that my ramblings may give the editors or some of the more expert readers the basis for some informative articles.-

- I really would appreciate just reading about people´s experiences with FORTH and PASCAL. I actually bought a Jupiter ´Ace´ from Boldfield Computing (£26!) to get an idea of what FORTH was like. It seems quite powerful and much easier to grasp than Assembly Language -

- I would also like to hear from people who have been using a modem. Can we hear from anyone who uses Prestel or any other similar service?

- Finally, and at risk of boring you, I would like to explain that I work for an engineering company who design and manufacture equipment for the oil and gas industry. My company have recently purchased an IBM Pc and a Hewlett Packard 9816. I´ve enjoyed getting to know these two machines and having a go at writing programs which may actually be of practical use at work. Unfortunately, due to our very heavy workload, I always seem to end up working on the computer during my dinner hour or ´after hours´. Since I don´t particularly enjoy spending over half my life in the office, I have found that a practical solution is to write the programs on my TI at home, and then convert them for use on the IBM Pc. With the relatively simple programs I am writing at the moment IBM Basic is not so different from TI Extended Basic. My reason for telling you all this is really just to illustrate one practical use the TI99/4a has been put to, and also to stimulate some correspondence from anyone else who has been using their TI for engineering design/calculations or information management related to engineering.

After reading through this lot you´re probably sorry that you persuaded someone to get ´off their butt´ and write to you!

Lawrence Gray

PS. Congratulations on issue 3 - very professional looking. I was impressed by all the listings you included. I also enjoy typing out all the little subroutines, such as those in ´Sound Advice´, ´Bright Sparks´ and ´Can´t do That´ - keep them coming!

Thankyou Lawrence, we always appreciate people taking the trouble to respond to our challenges.

Dear Sir,

- I wonder if you can give me any advice regarding marketing programs. I am just near to completing what I think is a somewhat more original program than my competition entry, and better on graphics too. Should I simply send a copy to you for assessment or what? -

Dave Trevorrow

We are always interested to see your programs. Sadly the cassette market is very poor, since modules came down in price, so there is limited opportunity there. On the other hand, we can publish programs in this mag - but please be patient, as there is a massive backlog. An SAE is required if you do send anything in.

Dear Sir,

Having read in the December issue of your magazine the report on M.A.S.H. I ordered and duly received same. Having played tne game I feel that the two best points are missed by the reviewer.

1) The grapnics are superb, including the 3D effect of helicopters.

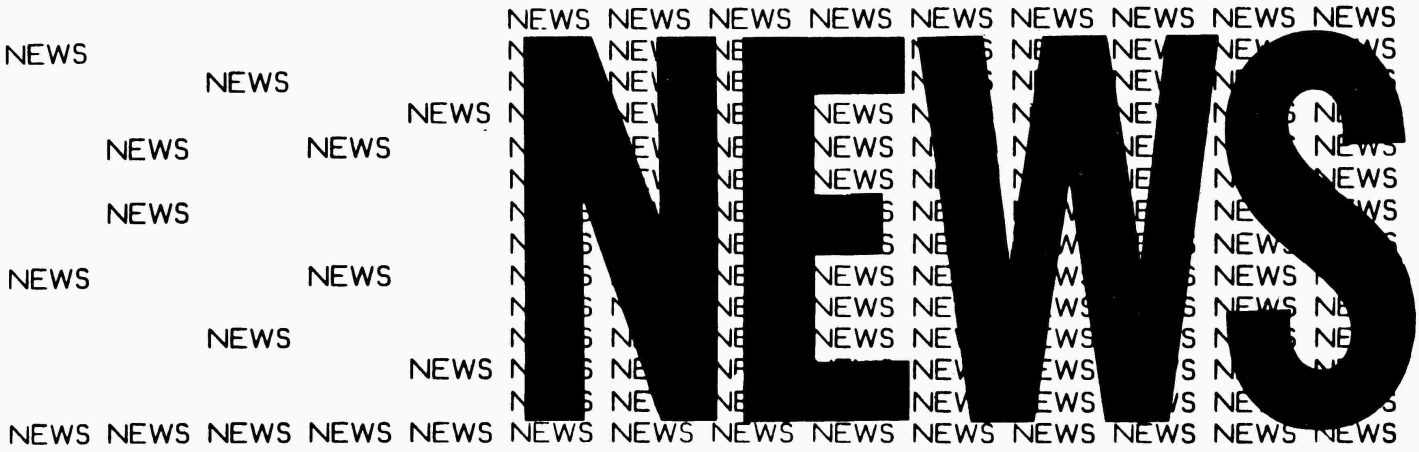
2) The ability of tne module to adjust to the less skilled player is in my opinion the greatest asset, as anyone with children of different ages will agree, as it is possible for the younger child to win even against an adult.

P.Barratt

O.K., now how's about a module that enables one harrassed adult to compete against his brignt-spark kids, thus salvaging some semblance of pride?

Richard Speed
18, The Spinney,
Burgess Hill,
West Sussex.
RH15 8AG.
Tel. 41796

PS. Who´s this ´Ed´ bloke who keeps butting in?



WE'VE MOVED!

In case you hadn't heard already, or noticed elsewhere in this magazine, PARCO has a new address. Anyone who has visited us in Honiton will know that space has been limited, and departments scattered. Now, however, we are pleased to say that we have room to move, with Shop/Office and wharehouse all under one roof. Naturally it is a busy time, but an exciting one. Please note the new address for your orders, also for reference should you decide to call in.

PARCO ELECTRICS
2, Devonshire Court
Heathpark
Honiton
Devon

MINER'S RETURN!

That widely-acclaimed classic MINER 2049'er has come to surface again - no idea how long for, so get in there quick if you don't already have a copy! All the rave reviews are justified, so don't miss out this time.

WHAT'S NEW???

Special consignment of DIG DUG on the shelf here. Rare ATARISOFT module many of you have asked about. Review of Dig Dug elsewhere in this mag, also CONGO BONGO which has arrived recently. Check out ARTIST (Minimemory) which is reviewed in our Graphics feature, also DRONE (arcade) and SAGA of the DRAGONSLAYER (adventure) - both in TI Basic. How about cassette/disk labels that you can wipe off and rewrite on? Why didn't anyone think of it before? See review in this issue. Will try to review all items mentioned here in time; plus other new goodies on the way from USA.

CONGRATULATIONS

Well done Morris Smith, of Bexley. Morris won our recent word-search competition (subtitled 'What a load of Hustle'!) Consequently, he has taken delivery of one Home Computer Maintenance Kit, with which he is very pleased. Thankyou everyone who entered, you all spotted the subtle message: PARCO ELECTRICS ARE THE BEST - please don't forget that it was not us who contrived that! Don't forget either that you can buy the Kits from us if you're interested.

GOING BACKWARDS

If you don't already have all the issues of '99/4a', they are still available. This is issue 5, and 1-4 are £2.25 each if you need any of them.

WHAT'S COMING?

Next issue we plan to feature SOUND. Reviews, tips and programs that major on music, speech, or sound effects will be in evidence; maybe you have something that you could contribute to this end? Please write to us with any comments or questions.

SURPRISE PACKAGES

Staggering is the best way to describe recent sales of the Collins Educational STARTER/GAMESWRITER packs. Not only are complete sets on offer at a ridiculously low price, but they are still getting rave reviews around the place.

Hi there,

Shakespeare once said, "If music be the food of love, play on". Play on what you might ask, well you have at your fingertips one of the finest computers for programming music on - that is unless you happen to own the Yamaha CX-5M as well as your Texas TI99/4a.

The TI is capable of superlative music either written in CALL SOUND statements or in DATA form. Let me first of all start at the beginning as far as a program in music is concerned, and try to explain an easy to understand way of doing this.

As will be seen in the User's Reference Guide on page 89, there are a range of musical tone frequencies ranging from 110 (low A) climbing three octaves to 1760 (top A). I frequently find when I write music on the TI that in fact I need some notes above 1760, so I will how I arrive at the right tone frequency and number to match, without having to do it by trial and error. To explain this properly you will need your book open at page 89. Suppose you want B flat above the A(1760) - first of all get a piece of paper and a pencil to write down the values of A below 1760 (which is 880); now look at B flat above 880 (it should be 932) and take the 880 from 932 - you are left with 52. Divide this number by 2 then add the 26 to the 52 for a total of 78 - o.k. so far! Now add the 78 to the 1760 and you get a total frequency value of 1838 which just happens to be B flat above 1760. This method works most of the time for values above 1760, although on occasions you might find that the frequency is slightly low or high and will only require adding or subtracting to achieve the right value. This pre-supposes that you have a musical ear and some kind of musical insrument at your disposal.

Now to a simple way of programming music using the CALL SOUND statement, and putting in a counter melody, or 'backing track'. Let's take the first three bars of a tune. You have to remember that to have one note playing whilst holding another for a count of two or three, you have to tie over the notes in the CALL SOUND statements. Here is a short example:-

```
10 CALL SOUND(200,262,0)
20 CALL SOUND(200,262,2,330,0)
30 CALL SOUND(200,262,2,392,0)
40 CALL SOUND(200,262,2,523,0)
```

What you have just heard is an arpeggio in C, but holding the low C at the same time. Try altering the value 200 to a higher value so that you can hear the note being held. This is the way in which all counter-melodies are written in the CALL SOUND statement. Now to that tune, just using the first three bars, first of all I have written it in CALL SOUND statements, and then in DATA so that you can see the difference. By the way, when putting a counter melody in DATA, all the main melody is written first, then the counte melody is put on the line underneath, as the example will show.

CALL SOUND ROUTINE

```
10 CALL CLEAR
20 D=300
30 FOR A=1 TO 3
40 CALL SOUND(D,880,0,147,2)
50 CALL SOUND(D,880,0,220,2)
60 CALL SOUND(D,880,0,185,2)
70 CALL SOUND(D,880,0,220,2)
80 CALL SOUND(D,880,0,147,2)
90 CALL SOUND(D,880,0,220,2)
100 CALL SOUND(D,880,0,185,2)
110 CALL SOUND(D,880,0,220,2)
120 CALL SOUND(D,880,0,147,2)
130 CALL SOUND(D,880,0,110,2)
140 CALL SOUND(D,784,0,147,2)
150 CALL SOUND(D,740,0,147,2)
160 CALL SOUND(D,659,0,110,2)
170 CALL SOUND(D,587,0,110,2)
180 CALL SOUND(D,554,0,165,2)
190 CALL SOUND(D,880,0,165,2)
```

```
200 CALL SOUND(D,880,0,110,2)
210 CALL SOUND(D,554,0,110,2)
220 CALL SOUND(D,494,0,165,2)
230 CALL SOUND(D,784,0,165,2)
240 CALL SOUND(D,784,0,110,2)
250 CALL SOUND(D,494,0,110,2)
260 D=D-180
270 NEXT A
```

DATA ROUTINE - same three bars

```
10 CALL CLEAR
20 DIM A(22),B(22)
30 D=500
40 FOR I=1 TO 22
50 READ A(I)
60 NEXT I
70 FOR I=1 TO 22
80 READ B(I)
90 NEXT I
100 FOR C=1 TO 3
110 D=D-180
120 FOR I=1 TO 22
130 CALL SOUND(D,A(I),0,B(I)
,2)
140 NEXT I
150 NEXT C
160 DATA 880,880,880,880,880
,880,880,880,880,880,784,740
,659,587,554,880,880,554,494
,784,784,494
170 DATA 147,220,185,220,147
,220,185,220,147,110,147,147
,110,110,165,165,110,110,165
,165,110,110
```

So far we have only used two of the three music channels. To write a third part harmony, it is a simple task of just doing what you have been doing with the second part, but remember:- to hold a note over whilst one or two others are being played you must tie that note over two CALL SOUND statements or more, as you require. The use of FOR/NEXT statements to repeat bars of music is fine, but please do not use them inside a CALL SOUND statement to pause the beat of the music; I will explain that part later on.

Suppose you want to write a tune which has for example 20 notes in it, of which 4 of these notes in the middle are the same value for both main and counter melody. You need not write all tese notes at all, just enclose one of the notes in a FOR/NEXT statement, and it will be played for whatever number you placed in the loop. Let us now suppose we have written our 20 notes and want to repeat only 6 of them before jumping to the CODA (End routine). At the line after the 6th note just place IF A=2 then ??? (whatever line note 21 is on). Don't forget to place FOR A=1 to 2 at the start of your program, otherwise the IF THEN will not work. On now to not using the FOR/NEXT inside your program to pause it, and what might happen if your program is getting near 'MEMORY FULL'. Talking of Memory Full, you will be able to program more in the CALL SOUND statements than you can in DATA. If you doubt that, I can prove it with a recording of 'Nola' that I started in DATA. I got three quarters of the way through it and got a 'Memory Full' message. I have since programmed it again in CALL SOUND and finished it with a little bit of memory left (Not a lot!). Where was I - oh yes - if you want a pause in your program for say 1 to 100 or 1 to 250 even, with CALL SOUND please do not use a loop. It will work fine whilst the program is in its early stages, but by the time you get somewhere near the end of it, it will slow down somewhat, and you will have to alter them all over again to make your program work as before. Sometimes quite drastic changes are needed to bring it back on line. So how do I get a pause? Quite simply by using a CALL SOUND with a volume value of 30.

e.g. CALL SOUND(200,262,30)
or CALL SOUND(450,110,30)

Run these two and see if you can hear them. The values 200 and 450 are examples - you will have to find your own values for pause length, the volume value 30 is the part of the program line which keeps it all quiet.

Well, that's all for now. If you have any problems in music making, please ask, I may be able to help.

Cheerio,

Paul Templar.

HELP

This time we are printing a letter that we recieved from Mr Ian Goodall, of Norwich. Some adventurers prefer not to be helped too much, so they had better turn a blind eye to this page!

Dear Sir,

Having recently purchased RETURN TO PIRATES ISLE I have now completed it. I enjoyed every minute of it, and this is now added to the others I have done, Scott Adams Adventures 1,2,4,5,6,7,9,10,11 and 12. I have also finished the Hulk and Spiderman on a friend's computer. I have enclosed a nearly complete solution for the game.

The numbers refer to these below:

1: Go	24: Painting	47: Blade
2: Examine	25: With	48: Dig
3: Move	26: Frame	49: Drop
4: Take	27: Twice	50: Give
5: Dock	28: Mask	51: All
6: Glue	29: Lens	52: Rum
7: Box	30: Algae	53: Map
8: Make	31: Rock	54: Sail
9: In	32: Under	55: Start
10: Bed	33: Unscrew	56: Stop
11: To	34: Via	57: Remember
12: Engine	35: Swim	58: Book
13: Snail	36: Beam	59: Hold
14: Hammer	37: Ceiling	60: Sign
15: Feel	38: Beach	61: Pool
16: East	39: Opening	62: Keep
17: Depths	40: Button	63: Wrap
18: Spit	41: From	64: Until
19: Fan	42: Wait	65: Chest
20: Press	43: By	66: Raincoat
21: Pirate	44: Oyster	67: Outside
22: Open	45: Silt	68: Porthole
23: Top	46: Boat	69: Current
70: Find	71: Up	

For a diamond ring: 3,10
a diamond watch: 1,23,10
rare stamps: 22,7,25,14
gold earings: 2,21,27
piece of amber: 4,31,2,31,2,30
a screwdriver: 1,12,2,12
a map: 33,26,2,24
a Rembrandt: 2,24,27
aquavision: 33,29,8,6,25,30,6,29,9,28
good clear aquavision: 18,28
a silver dollar: 35,16,32,5,34,17,35,71
a diamond pin: 2,36
a diamond brooch: 2,37,20,40,42,42,42,20,40,2,19
doubloons: 15,45,43,38,32,17
a pearl: 4,44,9,45,32,46.22,44,25,13,16,41,17
crew: 48,38,25,47.50,52,11,21

Routine for chest and book: 25,53,25,21,55,12,54,46,56,12,20,40.35,17.4,65.1,46.20,40,55,12,54,46

For storing: 32,46,15,46,35,39,57,58,49,51.4,60,49,9,59,43,61

Storing book: 62,9,65,64,43,60

Storing painting: 63,9,66,67,68,57,58

Storing stamps: 49,9,69,43,46,70,9,39

I hope they are of some help to you!

Yours faithfully,

Ian Goodall

(and we all say 'Goodall' Ian - Ed)

KEYBOARD KRUNCHERS

Hello again, ready for some more finger-jogging? Go on, convince them that it'll do them good. Tell them they're a bit out of shape and need some exercise. Don't stand for any nonsense!

Not wishing to sound biased, but here are three crackers. If we were to show you the programs running, you'd see that they're worth the hassle of typing in. For EB games freaks we feature BASICBALL, written by Robert A.Batts who worked for T.I. in England, until he recently moved back to T.I. USA. This Extended Basic game is better than many that have been commercially produced by other software houses (no names....no pack-drill). Same goes for the T.I. Basic game. We told you to watch out for Sam Nash - he wrote the brilliant STATISTICAL GRAPHICS program in the last issue. This time he sends us on a MISSION to MYCLON. Somehow Sam has managed to cram four games into one this time, in this multi-satge epic.
For the serious minded, we have a much requested utility: a Word Processor.
For those of you who have EB and some form of printer facility, this will be invaluable. Although designed to be disk -based, TI WORD can be adapted to suit the cassette user if necessary.
Richard Owen, author of TI WORD is very happy to deal with any enquiries regarding the program. You will find his address within the program listing.

Let's see what you make of this lot.....

KEYBOARD KRUNCHERS
99/4a Magazine
Parco Electrics
2 Devonshire Court
Heathpark
Honiton
Devon

KRUNCH * KRUNCH

KRUNCH

KRUNCH

KRUNCH * KRUNCH * KRUNCH

****
***** BASICBALL **** Robert A Batts ****
****

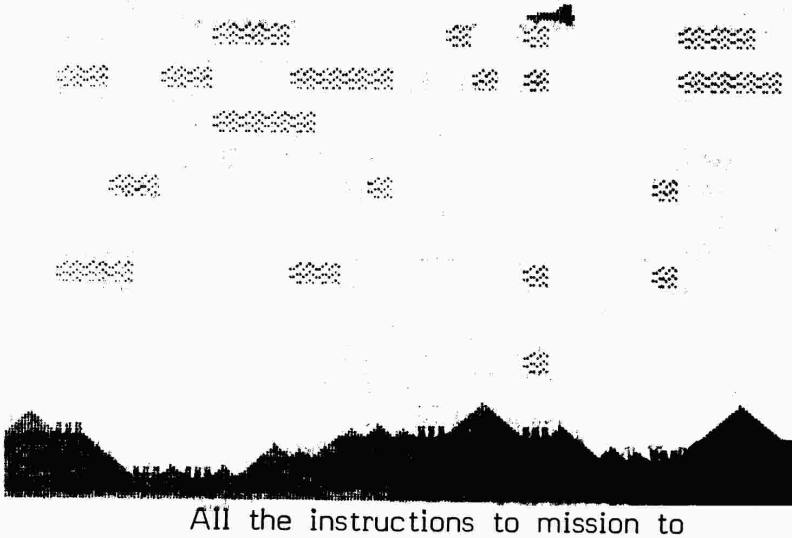
Extended Basic
Joysticks (pair)

This is a realistic arcade version of Baseball for two players. Each has a team; one fielding while the other bats. The fielding side has a pitcher who automatically pitches the ball, while the fielders are moved around by joystick control. The other player must strike the ball with a forward or backward move of his joystick, timed carefully as the ball is in flight. The rest of the game is pretty self explanatory, based on the principles of the real game. Now get baseball batting with Basicball by Mr Batts in Extended Basic. Basically we think you'll be bowled over.

****
** MISSION to MYCLON ** Sam Nash **
****

MYCLON screen dump

TI Basic
Keyboard



All the instructions to mission to Myclon are included within the program, so get Krunching right away!

****
**** TI WORD ****** Richard Owen ****
****

Extended Basic
Printer
Disc System Pref.

TI WORD will enable you to type letters or documents 'on screen', and have the ability to edit during the session, or after outputting to printer and/or disc. Obviously a program of this size cannot contain all the features of a genuine word processor, but the functions described here and within the program (including print format options) make this a very useful and worthwile program. Note that your address can be incorporated into the listing, so that it can be invoked at the touch of a button!

Keys used:-

~ to end choice
* to see again (only in view, hard copy, edit.

Create or continue:-

Fctn/1 delete+backspace
Fctn/3 erase a line
Fctn/6 go down 4 lines (paragraph)
Fctn/4 is disabled
Fctn/= is disabled with 32k RAM.

NB. (MAKE LINE 160 a REM IF YOU DON'T HAVE MEMORY EXP.)

Menu

keys 1-8 active
Ctrl/A gives address

Please don't forget that any queries regarding this program should be directed to Richard Owen at the address in the listing.

****

BASICBALL

```
100 CALL CLEAR :: GOSUB 1190
 :: CALL DELSPRITE(ALL):: CA
LL MAGNIFY(1):: CALL CLEAR :
: FOR A=1 TO 14 :: CALL COLO
R(A,2,1):: NEXT A :: CALL SC
REEN(7)
110 PRINT "     B A S I C B
 A L L": :"IS A COMPUTERISED
 VERSION OFAMERICA'S MOST PO
PULAR SPORTB A S E B A L L."
:
120 PRINT "  IT IS A TWO PL
AYER GAME  REQUIRING,JOYSTIC
KS AND A   KEEN EYE FOR BATT
ING AND    CATCHING."
130 PRINT "   PRO GAMES LAST
 9 INNINGS,HOWEVER YOU MAY C
HOOSE ANY  NUMBER OF INNINGS
." :: PRINT "          TO P
LAY":"  THE  W H I T E S O
X  BATFIRST WITH JOYSTICK #2
."
140 PRINT "THE  P A N T H E
R S   THREEOUTFIELDERS ARE C
ONTROLLED  WITH JOYSTICK #1.
  THEY MOVETO CATCH THE BALL
...IF...THE"
150 PRINT "OTHER PLAYER CAN
HIT IT.":" AFTER 3 OUTS THE
OTHER TEAMIS AT BAT. THAT'S
AN INNING." :: PRINT " * PRE
SS ANY KEY TO BEGIN *"
160 GOSUB 1080 :: CALL CLEAR
 :: RANDOMIZE :: FOR A=5 TO
8 :: CALL COLOR(A,16,1):: NE
XT A :: CALL CHAR(58,"1010",
47,"0000")
170 DISPLAY AT(9,9):"     B
A S I C B A L L": :"BY": :"R
OBERT A BATTS": :"COPYRIGHT
1984" :: CALL A(500):: CALL
SCREEN(2):: B=16 :: C=2
180 CALL CHAR(33,"0000000000
00073A000000031DEA55AA010E75
AA55AA55AAFFFFFEF8E080"):: C
ALL CHAR(37,"7F1F07010000000
0FFFFFFFF7F1F070155AB53A757A
F5FBFFFFFFFFFFEF8E080")
190 CALL CHAR(41,"FEF8E08000
000000FFFFFFFFFFFFFFFF",44,"
55AA55AA55AA95FA0000",47,"55
CAF5FCFFFFFFFF")
200 CALL CHAR(63,"0010543A0D
1C3701000082A5CB038EC80",95,"
0000"):: CALL CHAR(104,"95AA
D5EAE5EAF5FA55AA55AA55AA55AA
FDFEFFFFFFFFFFFF55AA55AAD5CA
E5F2")
210 CALL CHAR(108,"F1FCFEFFF
FFFFFF80F05EAA55AA55AA",118
,"5FBF7FFFFFFFFFF"):: CALL
CHAR(110,"000000C078AF55AA00
0000000000E0BC53AF7FFFFFFFFF
FF55AA55AA54AB5F7F")
220 CALL CHAR(114,"54AB4FBFF
FFFFFFF55AA55A94FBFFFFF55AA5
5A953AB57AF3F7FFFFFFFFFFFFF"
)
230 CALL CHAR(136,"55AA55AA5
5AA55BF55AA55AA55CAF9FE55AA5
5AA55A75FFF55A75F7FFFFFFFFF"
)
240 CALL CHAR(140,"95EAF9FEF
FFFFFFFD5F2FEFFFFFFFFFF55AA5
5AA95EAFDFF55AA55AAF5FCFFFF"
)
250 CALL CHAR(99,"00087F1C1C
1414001B1B7C38386C0000AA55AA
55AA55AA",120,"00000000030C3
0C0")
260 CALL CHAR(121,"030C30C00
00000003CFF81FF3C000000C0300
C030000000000000000C0300C03"
):: CALL CHAR(128,"0F03",129
,"C0F0FC3F0F030")
270 CALL CHAR(130,"00000000C
0F0FC3F00000000030F3FFC030F3
FFCF0C00000F0C0"):: CALL CHA
R(134,"C0F0FC3F0F0300003C3C0
8"):: PRINT TAB(10);"!";CHR$
(34);"#iiiimno"
280 PRINT TAB(7);"!";CHR$(34
);"#iiiiiiiiimno" :: PRINT
TAB(4);"!";CHR$(34);"#iiiiqr
****/";CHR$(137);"iiiimno"
290 PRINT "!";CHR$(34);"#iii
ii";CHR$(138);CHR$(139);"()
   %&";CHR$(140);CHR$(142);"
iiiiimno" :: PRINT "hiiii";C
HR$(136);"sp()        %&";CH
R$(141);CHR$(143);",iiii'"
300 PRINT "jkiqr*()
   %&*/";CHR$(137);"itu" ::
PRINT "$lp*()
 %&*";CHR$(141);"v$" :: PRIN
T "%&()                    %
&()" :: PRINT : : : : : : :
: :: FOR D=1 TO 3 :: FOR E=1
 TO 3
310 CALL HCHAR(19+D,7+D+D+E,
127+E):: CALL HCHAR(16+D,13+
D+D+E,127+E):: CALL HCHAR(20
-D,8+D+D+E,130+E)
320 CALL HCHAR(20-D,23+D+D,1
21):: CALL HCHAR(20-D,22+D+D
,120):: CALL HCHAR(19-D,10-D
-D,124):: CALL HCHAR(20-D,11
-D-D,123)
330 CALL HCHAR(23-D,14+D+D+E
,130+E):: NEXT E :: NEXT D :
: CALL VCHAR(1,1,32,48):: CA
LL VCHAR(1,31,32,48):: A$="0
084442E14040A12" :: B$="0020
287C22314844"
340 C$="10103C5454181818" ::
 D$="08083C4A38480808" :: E$
="090A3C4818284808" :: F$="6
8180C0A18284808" :: G$="1010
3E585A141010"
350 CALL HCHAR(17,17,134)::
CALL COLOR(1,15,3,2,15,3,3,1
6,2,4,16,2,10,15,3,11,15,3,1
2,16,3,13,12,3,14,15,3)
360 CALL COLOR(9,6,1):: CALL
 HCHAR(1,1,101,192)
370 DISPLAY AT(5,16):"  INNI
NG ~ ";1 :: DISPLAY AT(3,1):
"WHITESOX--";,"     OUTS ~";
F :: DISPLAY AT(5,1):"PANTHE
RS--";,"   INNING ~";1
380 G=1 :: H=2 :: DISPLAY AT
(7,5):"__HOW_MANY_INNINGS__"
 :: GOSUB 1080 :: I=J-48 ::
IF I<1 OR I>9 THEN 380 ELSE
DISPLAY AT(7,5)SIZE(20):" "
390 CALL SPRITE(#28,135,15,1
76,125,#9,100,C,178,125,#8,9
9,2,85,124)
400 CALL SPRITE(#27,135,15,1
52,75,#13,64,C,144,80,#14,64
,C,99,85,#15,64,C,130,95)
410 CALL SPRITE(#26,135,15,1
52,173,#11,64,C,144,178,#17,
63,C,99,175)
420 CALL SPRITE(#25,135,15,1
30,125,#12,64,C,123,131,#16,
63,C,90,130):: CALL SPRITE(#
24,122,11,149,124)
```

```
430 CALL CHAR(97,C$):: CALL
SPRITE(#2,97,C,142,124)
440 CALL CHAR(70,A$):: IF F>
-3 THEN 480
450 IF B=16 THEN B,G=2 :: C=
16 :: H=1 :: GOTO 470
460 B=16 :: C,H=2 :: G=1
470 F=0 :: DISPLAY AT(3,16):
"    OUTS "";F :: K=K+.5 ::
L=INT(K)+1 :: IF L=I+1 THEN
1040 ELSE DISPLAY AT(5,16):"
  INNING "";L :: CALL DELSPR
ITE(#4,#5,#6):: GOTO 390
480 GOSUB 1320 :: IF M<=0 TH
EN DISPLAY AT(1,16):"  BATTE
R UP " :: CALL DELSPRITE(#20
,#21,#22,#23)
490 CALL SPRITE(#3,70,B,169,
121):: CALL DELSPRITE(#1)::
FOR N=1 TO 150 :: NEXT N ::
GOSUB 1320 :: CALL CHAR(70,B
$):: O=(RND*36)-18 :: CALL C
HAR(70,A$):: FOR N=1 TO 10 :
: GOSUB 1320
500 NEXT N :: CALL CHAR(97,D
$):: GOSUB 1320 :: CALL CHAR
(97,E$,97,F$,97,G$):: CALL M
OTION(#14,0,0,#16,0,0,#17,0,
0)
510 CALL SOUND(100,-5,5):: C
ALL SPRITE(#10,58,5,145,122,
18,3,#1,58,16,145,122,18,3):
: CALL POSITION(#4,P,Q,#5,P,
R,#6,P,S)
520 CALL CHAR(97,C$):: T=1 :
: CALL JOYST(H,E,D):: IF D<>
0 THEN CALL CHAR(70,B$):: GO
TO 560
530 FOR U=1 TO 2 :: CALL JOY
ST(H,E,D):: IF D<>0 THEN 550
540 NEXT U :: CALL JOYST(H,E
,D):: IF D<>0 THEN CALL CHAR
(70,B$):: GOTO 560 ELSE 560
550 CALL CHAR(70,B$):: CALL
MOTION(#1,-26,O,#10,-7,O)::
CALL SOUND(1,-7,0):: M=0 ::
GOTO 580
560 CALL CHAR(70,B$):: CALL
DELSPRITE(#10,#1):: CALL SOU
ND(30,110,0):: M=M+1 :: DISP
LAY AT(1,16):"  STRIKE";M ::
 GOSUB 1320 :: IF M=3 THEN 5
70 ELSE 440
570 M=0 :: V=-1 :: GOTO 670
580 GOSUB 1320 :: CALL DELSP
RITE(#3):: GOSUB 1000 :: IF
S=75 THEN GOSUB 1030
590 IF R=124 THEN GOSUB 1020
600 IF Q=164 THEN GOSUB 1010
610 FOR W=1 TO 4 :: GOSUB 13
20 :: IF W<4 THEN 630
620 CALL DELSPRITE(#10):: CA
LL MOTION(#1,0,0):: GOTO 640
630 CALL MOTION(#1,W*2.5,0)
640 CALL COINC(#1,#16,5,V)::
 CALL COINC(#1,#17,5,P):: CA
LL COINC(#1,#14,5,X):: IF V+
P+X=-1 THEN 660
650 NEXT W
660 V=V+X+P :: CALL MOTION(#
14,0,0,#16,0,0,#17,0,0,#1,0,
0):: CALL POSITION(#1,Y,Z)::
 CALL DELSPRITE(#10,#1):: IF
 V<>-1 THEN 720
670 CALL SOUND(100,220,0)::
DISPLAY AT(1,16):"     OUT"
:: CALL SOUND(100,110,0):: F
=F+V :: DISPLAY AT(3,16):"
  OUTS "";F
680 CALL MOTION(#7,8,4,#4,0,
0,#5,0,0,#6,0,0):: CALL A(70
):: CALL DELSPRITE(#7):: IF
Q=164 THEN GOSUB 900
690 IF R=124 THEN GOSUB 920
700 IF S=75 THEN GOSUB 940
710 GOTO 440
720 CALL SOUND(100,550,0)::
DISPLAY AT(1,16):"  BASE HIT
"
730 IF S<>75 THEN 750
740 CALL COINC(#6,#28,8,AA):
: IF AA THEN GOSUB 950 ELSE
740
750 IF R<>124 THEN 770
760 CALL COINC(#5,#27,8,BA):
: IF BA THEN GOSUB 930 ELSE
760
770 IF Q<>164 THEN 790
780 CALL COINC(#4,#25,8,CA):
: IF CA THEN GOSUB 910 ELSE
780
790 IF T<>1 THEN 820
800 CALL COINC(#7,#26,8,DA):
: IF DA THEN GOSUB 890 ELSE
800
810 GOSUB 1320 :: CALL MOTIO
N(#14,0,0,#16,0,0,#17,0,0)
820 IF Z<35 OR Z>218 THEN 83
0 ELSE 440
830 CALL SOUND(-100,-5,10)::
 DISPLAY AT(1,16):"  HOME R
UN" :: CALL POSITION(#4,P,Q,
#5,P,R,#6,P,S,#7,P,T):: IF S
=75 THEN GOSUB 1030
840 IF R=124 THEN GOSUB 1020
850 IF Q=164 THEN GOSUB 1010
860 IF Q+R+S=0 THEN 870 ELSE
 730
870 CALL SPRITE(#20,72,16,16
0,100,-20,-20,#21,73,16,168,
108,-20,-20)
880 CALL SPRITE(#22,77,16,18
0,130,-20,-20,#23,65,16,188,
138,-20,-20):: GOTO 440
890 CALL DELSPRITE(#7)
900 CALL SPRITE(#4,63,B,144,
164):: RETURN
910 CALL DELSPRITE(#4)
920 CALL SPRITE(#5,63,B,124,
124):: RETURN
930 CALL DELSPRITE(#5)
940 CALL SPRITE(#6,64,B,145,
75):: RETURN
950 CALL MOTION(#6,15,5):: I
F B=16 THEN 970
960 EA=EA+AA :: CALL SOUND(2
000,-6,3):: DISPLAY AT(5,1):
"PANTHERS";EA,"  INNING " "
;L :: GOTO 980
970 FA=FA+AA :: CALL SOUND(2
000,-6,3):: DISPLAY AT(3,1):
"WHITESOX";FA,"     OUTS "";
F
980 FOR A=1 TO 5 :: CALL COL
OR(10,A+4,3):: NEXT A :: CAL
L COLOR(10,15,3):: CALL DELS
PRITE(#6):: RETURN
990 GOTO 440
1000 CALL SPRITE(#7,64,B,168
,130,-1,2):: RETURN
1010 CALL MOTION(#4,-1,-2)::
 RETURN
1020 CALL MOTION(#5,2,-4)::
RETURN
1030 CALL MOTION(#6,2,4):: R
ETURN
1040 FOR D=1 TO 5 :: CALL SO
UND(100,220*D,0):: DISPLAY A
T(7,9):"            " :: DISP
LAY AT(7,9):"_GAME_OVER_" ::
 FOR E=1 TO 20 :: NEXT E ::
NEXT D :: DISPLAY AT(7,2):"_
WANT_TO_PLAY_AGAIN_[Y_N]_"
1050 CALL KEY(3,J,GA):: IF J
=89 THEN 1060 ELSE IF J=78 T
HEN 1070 ELSE 1050
1060 DISPLAY AT(7,2)SIZE(27)
:" " :: K,M,FA,EA=0 :: CALL
DELSPRITE(#4,#5,#6):: B=16 :
: C,H=2 :: G=1 :: GOTO 370
1070 CALL CLEAR :: END
1080 RESTORE 1130
1090 READ HA :: CALL KEY(0,J
,GA):: IF J<>-1 THEN 1180
1100 IF HA<>1 THEN 1120
1110 RESTORE 1130 :: GOTO 10
90
1120 CALL SOUND(-100,HA,0)::
 GOTO 1090
1130 DATA 392,392,392,392,65
6,656,587,587,523,523,440,44
0,523,523,523,523,523,30000
1140 DATA 392,392,392,392,39
2,30000,392,392,392,392,656,
656,587,587,523,523,440,440,
523,523,523
1150 DATA 30000,30000,587,30
000,587,30000,587,30000,494,
494,523,523,587,587,656,656,
656
1160 DATA 523,523,440,440,44
0,440,656,656,30000,656,3000
0,656,656,689,689,784,784,88
0,880,689,689,587,587
1170 DATA 523,523,523,523,1
1180 RETURN
1190 CALL SCREEN(2):: CALL M
AGNIFY(2)
1200 CALL COLOR(2,16,1,3,11,
1,4,11,1,5,4,1,6,4,1,7,4,1,8
,4,1,9,8,1,10,8,1,11,8,1,12,
8,1)
1210 CALL CHAR(128,"FDFDCDCD
FDFDC1C1FBFB9B9BFBFB9B9BF7F7
3636F6F66737DFDF1B1B1B1BDFDF
"):: CALL COLOR(13,5,16,14,7
,16)
1220 CALL CHAR(132,"AA55AA55
AA55AA55",136,"00F48485C5858
5F5000101DD51D111DC000100951
911519100000007744474177"):
FOR A=2 TO 5 :: CALL HCHAR(A
,3,132,6):: NEXT A
1230 FOR A=4 TO 7 :: CALL HC
HAR(3,A,124+A):: CALL HCHAR(
4,A,132+A):: NEXT A :: DISPL
AY AT(4,10):"P R E S E N T S
" :: CALL HCHAR(5,12,ASC("-"
),15):: RESTORE 1300
1240 FOR A=1 TO 9 :: READ IA
,JA,D,E :: CALL SPRITE(#A,IA
,JA,D,E):: CALL SOUND(100,11
0*A,0):: NEXT A :: DISPLAY A
T(18,13):"BY": :TAB(7);"robe
rt a batts": :TAB(7);"copyri
ght 1984"
1250 DISPLAY AT(24,1):" * PR
ESS ANY KEY TO BEGIN * "
1260 CALL MOTION(#1,0,8,#9,0
,-8,#2,0,6,#8,0,-6,#3,0,4,#7
,0,-4,#4,0,2,#6,0,-2)
1270 CALL POSITION(#1,D,E)::
 IF E>105 THEN CALL SOUND(10
0,330,0):: GOTO 1280 ELSE CA
LL KEY(0,J,M):: IF M<>0 THEN
 RETURN ELSE GOTO 1270
1280 CALL MOTION(#1,0,-8,#9,
0,8,#2,0,-6,#8,0,6,#3,0,-4,#
7,0,4,#4,0,-2,#6,0,2)
1290 CALL POSITION(#1,D,E)::
 IF E<48 THEN CALL SOUND(100
,110,0):: GOTO 1260 ELSE CAL
L KEY(0,J,M):: IF M<>0 THEN
RETURN ELSE 1290
1300 DATA 66,15,49,49,65,14,
65,65,83,13,81,81,73,12,97,9
7,67,10,113,113,66,12,97,129
,65,13,81,145
1310 DATA 76,14,65,161,76,15
,49,177
1320 CALL JOYST(G,E,D):: CAL
L POSITION(#14,KA,LA,#17,MA,
NA):: CALL GCHAR((KA+7)/8,(L
A+7)/8,OA):: CALL GCHAR((MA+
7)/8,(NA+7)/8,PA)
1330 IF KA<60 OR KA>155 OR L
A<55 OR LA>140 OR OA>43 OR P
A>43 THEN D,E=0 :: CALL LOCA
TE(#14,99,85,#16,90,130,#17,
99,175)
```

```
1340 CALL MOTION(#14,-D,E,#1
6,-D,E,#17,-D,E):: RETURN
1350 SUB A(A):: FOR B=1 TO A
:: NEXT B :: SUBEND
```

MISSION TO MYCLON

```
100 RN=.5
110 CALL CLEAR
120 F=0
130 RANDOMIZE
140 FOR C=9 TO 12
150 CALL COLOR(C,15,1)
160 NEXT C
170 CALL SCREEN(2)
180 W$="mission to myclon"
190 R=12
200 C=9
210 GOSUB 3240
220 FOR D=0 TO 30 STEP .2
230 CALL SOUND(60,880,D,-7,D
)
240 NEXT D
250 R=1
260 CALL CLEAR
270 PRINT "do you want instr
uctions?"::"y or n"
280 CALL KEY(3,K,S)
290 IF K=78 THEN 320
300 IF K=89 THEN 310 ELSE 28
0
310 I=1
320 DATA 33,00002,60,0000000
000004,64,00000000004,94,8
330 DATA 58,24FFFFFF7E3C3C18
,92,00001C3C3E1E0C
340 DATA 128,0000000F7F7F18,
129,0E1E3EFEFFFF1E06
350 DATA 66,081001201C622C24
360 DATA 34,2424242424242424
,35,0808080808080808,36,0000
00FF
370 DATA 65,00081C3E7F14
380 DATA 77,81C1E1E0E04,80,0
000000103878783
390 DATA 40,FFFFFFFFFFFFFFFF
,41,0103070F1F3F7FFF,42,80C0
E0F0F8FCFEFF,43,000000000010
387E,44,00000010183C7EFF
400 DATA 88,00000000DBDBDBDB
,90,00,67,1225C80235C80235
410 PRINT ::"using a color o
r bw tv?"::"c or b"
420 CALL KEY(3,K,S)
430 IF K=67 THEN 450
440 IF K=66 THEN 560 ELSE 42
0
450 CALL CLEAR
460 CALL COLOR(1,6,1)
470 CALL COLOR(2,11,1)
480 CALL COLOR(3,16,1)
490 CALL COLOR(4,16,1)
500 CALL COLOR(5,10,1)
510 CALL COLOR(6,4,1)
520 CALL COLOR(7,12,1)
530 CALL COLOR(8,14,1)
540 CALL COLOR(13,15,1)
550 GOTO 630
560 CALL CLEAR
570 B1=1
580 FOR C=1 TO 7
590 CALL COLOR(C,15,1)
600 NEXT C
610 CALL COLOR(8,8,1)
620 CALL COLOR(13,16,1)
630 RESTORE
640 FOR RD=1 TO 23
650 READ CN,H$
660 CALL CHAR(CN,H$)
670 NEXT RD
680 PRINT "enter skill level
"::
690 INPUT "1-6 ":AL
700 IF (AL<1)+(AL>6)THEN 690
710 AL=AL*9
720 ALI=AL*2/3
730 CALL CLEAR
740 IF I=1 THEN 3950 ELSE 43
10
750 PRINT "alien nastiness s
trength";(RN-.4)*10
760 FOR D=1 TO 500
770 NEXT D
780 CALL CLEAR
790 FOR S=1 TO 120
800 ON INT(RND*4)+1 GOTO 810
,830,850,870
810 ST=33
820 GOTO 880
830 ST=60
840 GOTO 880
850 ST=64
860 GOTO 880
870 ST=94
880 CALL HCHAR(RND*23+1,RND*
31+1,ST)
890 NEXT S
900 B=2
910 MSR=4
920 N=12
930 G=32
940 MSC=12
950 DIM A$(59)
960 V=6
970 Y=23
980 FOR U=1 TO V
990 RESTORE 1220
1000 FOR RD=0 TO Y
1010 READ A$(RD)
1020 CALL HCHAR(3,MSC,32)
1030 CALL KEY(3,K,S)
1040 MSD=MSD-(K=68)+(K=83)-(
MSD<-9)+(MSD>9)
1050 MSC=MSC+MSD
1060 MSC=MSC-(29*(MSC<4))+(2
8*(MSC>29))
1070 CALL GCHAR(MSR,MSC,G)
1080 CALL HCHAR(3,MSC,66)
1090 CALL HCHAR(MSR,MSC,58)
1100 CALL SOUND(-1000,110,9,
-4,9)
1110 IF (G<>65)*(G<>77)*(G<>
80)*(G<>92)THEN 1130
1120 GOSUB 2930
1130 IF K<>32 THEN 1150
1140 GOSUB 3080
1150 PRINT A$(RD)
1160 NEXT RD
1170 NEXT U
1180 V=1
1190 Y=59
1200 IF U=2 THEN 1820
1210 GOTO 980
1220 DATA ZM !\  M <M   @  P
   @   <
1230 DATA Z!       @  \  M
 < P P
1240 DATA Z  @ \   \   !  <
M  <
1250 DATA !  M <P   @^\  @ ^
   ! M! \
1260 DATA Z  !   ^   !M   @
\  < @
1270 DATA Z@M CM<    ^   M!
\ P   \ @
1280 DATA Z  <   P !  @
  M M!
1290 DATA Z ^  !P     <!   M
@  @  ^
1300 DATA Z M  <   @\P   !
 @  P
1310 DATA Z   !  ^M       <
  P <  @
1320 DATA Z^\ !     !  \\  @
   PM!
1330 DATA Z @M   ^ P  !
 P M   ^
1340 DATA Z    ^M   @     \!
  !   \
1350 DATA @P    @    <M    !
!  M ^ M
1360 DATA Z  !    M  <  @
^  \   @
1370 DATA Z^  \   @  P  !  M
 !
1380 DATA Z   M    @  M    !
  < P  \!
1390 DATA < \  !  @     M<
 ! P
1400 DATA ZM     M    P   !
  \  <
1410 DATA Z  \   ^   \ ^  \
!    !
1420 DATA Z  !  MM @P  <   \
  <<  @
1430 DATA ZM   ^@    <  P\!@
M  ^  @
1440 DATA <  @M   !     <
@M @ ^^ !
1450 DATA Z   @    PP <    M
P   !@ M
1460 DATA @    !  <   @A!
<  @  !@
1470 DATA Z @    <       ^
< <  @  !
1480 DATA <!   @      A A @@
      <
1490 DATA Z  !@   <  <     !
 <   <
1500 DATA Z <    !   A@  A
@ !  @
1510 DATA <   ^   A <  !  <
A @   <
1520 DATA Z  @  @A A<  @   A
 A  @  ^
1530 DATA @ !   A < A !   A@
  A  !!
1540 DATA Z    A     A!  A
< A  ^^!
1550 DATA ^  ^A    <  A A!
    A @
1560 DATA Z  A   @     A   @
     A  <
1570 DATA Z@A <  !       @
<   ! A!
1580 DATA <A     @      !
  ^    A
1590 DATA Z  ^       !
<   @
1600 DATA Z <     !   !
<  @
1610 DATA <   @          !
!  <   <@
1620 DATA Z      @   @     <
   ! !
1630 DATA Z ^  ^    !    <
 @  !
1640 DATA <    !          @
       <
1650 DATA Z@      !    <   !
  @ @
1660 DATA Z @    <  ^     !
  @ <  <
1670 DATA Z<   ^       @ @
  @ !
1680 DATA Z  <    !   !   <
  @   !!
1690 DATA Z   <@        <
!  < <
1700 DATA @ ! @^^ <    ^
 ^  <!
1710 DATA Z^         <    <
 !  @
1720 DATA Z       <  ^  !
@ @    !
1730 DATA Z  <  !         @
  !  <
1740 DATA Z@  <     !
!  @
1750 DATA Z       <     @
! ^ <   @
1760 DATA <  !       <     @
 <
1770 DATA Z @    !      ^
^   ^   @
```

```
1780 DATA @    <     <  @  ^
 ^   !
1790 DATA Z <  @   !   <  !
 !  @<
1800 DATA !     @      @   @
   <<  ^
1810 DATA Z   ^    @   ! !
   @    !
1820 CALL SOUND(500,1760,2)
1830 CALL SOUND(400,880,2)
1840 N=19
1850 MSR=3
1860 AC=INT(14*RND)+MSC-4
1870 AC=AC+AD
1880 AC=AC-(29*(AC<2))+(29*(
AC>30))
1890 CALL HCHAR(21,1,32,32)
1900 CALL HCHAR(21,AC,65)
1910 CALL KEY(3,K,S)
1920 CALL HCHAR(MSR,MSC,32)
1930 MSC=MSC-2*(K=68)+2*(K=8
3)
1940 MSC=MSC-(29*(MSC<2))+(2
9*(MSC>30))
1950 AD=INT(MSC-AC)
1960 CALL HCHAR(MSR,MSC,58)
1970 IF K<>32 THEN 2000
1980 GOSUB 3080
1990 IF AL<ALI THEN 2070
2000 IF (RND>RN)+(ABS(MSC-AC
)>2)THEN 1870
2010 CALL VCHAR(1,AC,35,19)
2020 CALL VCHAR(1,AC,32,19)
2030 CALL SOUND(-100,1000,4,
-7,0)
2040 IF AC<>MSC THEN 1860
2050 GOSUB 2980
2060 GOTO 1860
2070 CALL CLEAR
2080 IF B1=1 THEN 2110
2090 B=5
2100 GOTO 2120
2110 B=2
2120 CALL SCREEN(B)
2130 PRINT "      CCC      C
 CCC    CCC "
2140 PRINT :"CC  CC   CCCC
 CCCC    CCCC"
2150 PRINT :"      CCCC"
2160 PRINT ::"  CC        CC
       CC"
2170 PRINT :::"CCC      CC
    CC   CC"
2180 PRINT :::"    CC
     CC"
2190 PRINT :"
 ,         ,"
2200 PRINT "X          +,+X)
(*X,     )(*"
2210 PRINT ",+      ,+)(((((
((((*,+X)(((("
2220 PRINT "((*X,X,)(((((((((
((((((((((((("
2230 CALL HCHAR(23,31,40,2)
2240 CALL HCHAR(22,31,40,2)
2250 CALL HCHAR(21,2,42)
2260 CALL HCHAR(24,1,40,32)
2270 CALL HCHAR(23,1,40,4)
2280 CALL HCHAR(22,1,40,3)
2290 CALL HCHAR(22,4,42)
2300 CALL HCHAR(21,1,41)
2310 MSR=2
2320 N=17
2330 AC=31
2340 AR=15
2350 CALL HCHAR(2,1,32,32)
2360 FOR MSC=31 TO 4 STEP -1
2370 CALL HCHAR(MSR,MSC,129)
2380 CALL HCHAR(MSR,MSC-1,12
8)
2390 CALL SOUND(-1000,110,9,
-4,9)
2400 CALL HCHAR(MSR,MSC-1,32
,2)
2410 CALL KEY(3,K,S)
2420 IF K=88 THEN 2450
2430 NEXT MSC
2440 GOTO 2360
2450 LDC=MSC-2
2460 LDR=2
2470 CALL HCHAR(2,MSC-1,32,2
)
2480 MSC=MSC-1
2490 MSC=MSC-29*(MSC=2)
2500 CALL HCHAR(MSR,MSC-1,12
8)
2510 CALL HCHAR(MSR,MSC,129)
2520 FOR LD=1 TO 2
2530 CALL SOUND(-1000,880,20
,-7,20)
2540 CALL KEY(3,K,S)
2550 IF K<>32 THEN 2570
2560 GOSUB 3080
2570 IF AL=0 THEN 3690
2580 IF AL<0 THEN 2830
2590 IF (AR=7)+(AR=10)+(AR=1
4)+(AR=18)+(AR=3)+(AR=5)THEN
 2690
2600 IF (AR+3<LDR)+(AR-3>LDR
)+(AC<=LDC)+(RND>RN)THEN 269
0
2610 CALL HCHAR(AR,1,36,AC-1
)
2620 CALL HCHAR(AR,1,32,AC-1
)
2630 CALL SCREEN(15)
2640 CALL SCREEN(8)
2650 CALL SOUND(-100,660,2,-
7,2)
2660 IF AR<>LDR THEN 2690
2670 CALL SOUND(-200,-7,0)
2680 GOSUB 2980
2690 CALL HCHAR(AR,AC,AG)
2700 AD=(AR>LDR)-(AR<LDR)
2710 AC=AC-2
2720 AC=AC-30*(AC<2)
2730 AR=AR+AD
2740 AR=AR-(AR=2)+(AR=20)
2750 CALL GCHAR(AR,AC,AG)
2760 CALL HCHAR(AR,AC,65)
2770 IF AG<>128 THEN 2830
2780 CALL SOUND(500,-6,0)
2790 GOSUB 2930
2800 AL=AL-1
2810 AG=32
2820 GOTO 2350
2830 CALL HCHAR(LDR,LDC,32)
2840 LDC=LDC-1
2850 LDR=LDR-(K=88)+(K=69)
2860 LDR=LDR-(LDR=0)
2870 LDC=LDC-30*(LDC=1)
2880 CALL GCHAR(LDR,LDC,G)
2890 CALL HCHAR(LDR,LDC,128)
2900 IF (G=32)+(G=31)THEN 29
10 ELSE 3370
2910 NEXT LD
2920 GOTO 2470
2930 FOR A=30 TO 0 STEP -5
2940 CALL SOUND(-100,110,A,-
5,0)
2950 CALL SCREEN(10)
2960 CALL SCREEN(8)
2970 NEXT A
2980 SH=SH-1
2990 IF F=6 THEN 3820
3000 IF SH>4 THEN 3070
3010 W$="warning"
3020 GOSUB 3230
3030 W$="shield level low"
3040 GOSUB 3230
3050 IF SH>2 THEN 3070
3060 GOSUB 3770
3070 RETURN
3080 IF AM<1 THEN 3220
3090 CALL VCHAR(MSR+1,MSC,34
,N)
3100 CALL VCHAR(MSR+1,MSC,32
,N)
3110 CALL SOUND(-100,-7,3,50
0,3)
3120 IF MSC<>AC THEN 3140
3130 AL=AL-1
3140 AM=AM-1
3150 IF AM>4 THEN 3220
3160 W$="warning"
3170 GOSUB 3230
3180 W$="laser reserves low"
3190 GOSUB 3230
3200 IF AM>2 THEN 3220
3210 GOSUB 3770
3220 RETURN
3230 C=3
3240 IF (R<>1)+(C<>3)THEN 32
90
3250 FOR D=1 TO 10
3260 CALL SOUND(-100,800,3,-
1,3)
3270 CALL SOUND(-200,600,2,-
1,2)
3280 NEXT D
3290 FOR Q=1 TO LEN(W$)
3300 CH=ASC(SEG$(W$,Q,1))
3310 CALL HCHAR(R,C,CH)
3320 C=C+1
3330 NEXT Q
3340 IF R<>1 THEN 3360
3350 CALL HCHAR(1,3,32,30)
3360 RETURN
3370 IF G=88 THEN 3420
3380 IF G=128 THEN 3450
3390 GOSUB 2930
3400 CALL HCHAR(LDR,LDC,G)
3410 GOTO 2350
3420 F=F+1
3430 CALL SOUND(300,687,3,-1
,3)
3440 GOTO 2520
3450 W$="docking o.k."
3460 C=4
3470 CALL SOUND(300,1200,2)
3480 CALL SOUND(200,1800,2)
3490 GOSUB 3240
3500 IF F=6 THEN 3540
3510 W$="mission incomplete"
3520 GOSUB 3230
3530 GOTO 2520
3540 W$="mission completed"
3550 CALL SOUND(300,3000,2,-
1,2)
3560 CALL SOUND(400,2500,2,-
1,2)
3570 C=4
3580 GOSUB 3240
3590 W$="press a for nastier
 aliens"
3600 GOSUB 3230
3610 CALL KEY(3,K,S)
3620 W$="any other key to fi
nish"
3630 GOSUB 3230
3640 IF K=65 THEN 3670
3650 IF S=0 THEN 3590
3660 END
3670 RN=RN+.1
3680 GOTO 110
3690 CALL HCHAR(AR,AC,66)
3700 CALL SCREEN(4)
3710 CALL SCREEN(15)
3720 CALL SCREEN(8)
3730 CALL SOUND(1000,-7,2)
3740 CALL HCHAR(AR,AC,32)
3750 AL=-1
3760 GOTO 2580
3770 CALL SOUND(200,3200,3,-
2,3)
3780 W$=" situation critical
"
3790 GOSUB 3230
3800 IF SH<0 THEN 3820
3810 RETURN
3820 CALL CLEAR
3830 CALL SCREEN(7)
3840 CALL SOUND(4250,-7,0)
3850 CALL SCREEN(2)
3860 PRINT "     mission abo
rted"
3870 PRINT ::::::SH;" shield
s left"
3880 PRINT ::AM;" laser rese
rves left"
3890 IF F<>6 THEN 3910
```

```
3900 PRINT ::"lander destroy
ed with all   gallium canist
ers on board"
3910 CALL SOUND(4250,-7,2)
3920 FOR D=1 TO 1000
3930 NEXT D
3940 GOTO 3660
3950 PRINT " 5 years ago sta
rship europacrash landed on
the planet  myclon in the fa
r distant"
3960 PRINT "reaches of our g
alaxy":"unfortunately all th
e crew  were eaten by the mi
cis."
3970 PRINT "the micis are a
hostile raceof humanoids wit
h odd eatinghabits;":" it so
 happened that europas"
3980 PRINT "cargo was six cr
ates of tx9 gallium;a new ve
ry efficientnuclear fuel whi
ch is scarceon earth."
3990 PRINT " you have volunt
eered to    pilot the americ
ana;an old  but trusty star
cruiser to"
4000 PRINT "retrieve the tx9
 before the micis try to eat
 it.":"
4010 INPUT "press enter":I$
4020 CALL CLEAR
4030 PRINT "the mission to m
yclon will  be in four stage
s.":::
4040 INPUT "press enter":I$
4050 CALL CLEAR
4060 PRINT "1..manouver thro
ugh a meteorbelt"
4070 PRINT "using left and r
ight arrow  keys to avoid th
e meteors orthe space bar to
 blast a waywith the laser."
4080 PRINT ::"2..fight the m
yclon guard A the same keys
are used.":"after winning th
e battle the"
4090 PRINT "americana will g
o into orbitaround the alien
 planet"::
4100 INPUT "press enter":I$
4110 CALL CLEAR
4120 PRINT "3..retrieve the
tx9 X":"pressing  the down k
ey will undock the shuttle."
4130 PRINT "avoid  electrost
orm clouds Cand the myclon i
nterceptors."
4140 PRINT "you must collect
 all the tx9to succeed the m
ission":" only the up and do
wn keys"
4150 PRINT "can be used to a
lter the    shuttles altitud
e but the   laser on the ame
ricana can"
4160 PRINT "be fired using t
he space barso the intercept
ors and the clouds can be cl
eared.":"
4170 INPUT "press enter":I$
4180 CALL CLEAR
4190 PRINT "4..ascend to doc
k with the  americana;with a
ll the tx9  fuel packs the s
huttle is"
4200 PRINT "especially vuner
able and anycrash with the g
round or hitby a myclon inte
rceptor or"
4210 PRINT "entering a storm
 cloud or   crashing into th
e americana will result in f
ailure of   the mission.":::
4220 INPUT "press enter":I$
4230 CALL CLEAR
4240 PRINT "the americana is
 an old shipand the amount o
f energy it can carry is res
tricted.you must choose!":
4250 PRINT "shield levels":"
and":"laser reserves"::"when
 all the laser reserves are
used up the laser will"
4260 PRINT "not work":"any c
rash collision or hit  by a
myclon craft will causethe l
oss of a shield"
4270 PRINT "lose the all shi
elds and themission will be
in immediatedanger.":
4280 INPUT "press enter":I$
4290 CALL CLEAR
4300 PRINT "you must choose
a balance ofshield and laser
 strengh to enable you to be
st carry outthe mission"
4310 PRINT "a combined total
 of 60 unitsof shields and l
aser allowed":
4320 INPUT "enter shield uni
ts ":SH
4330 PRINT
4340 INPUT "enter laser unit
s ":AM
4350 IF (SH+AM)>60 THEN 4300
4360 CALL CLEAR
4370 GOTO 750
```

T I — L O A D E R

```
100 CALL CLEAR :: REM ***TI
WORD***::REM ***BY RICHARD O
WEN 1984***
110 REM ***INITIALIZATION***
120 REM ***SCREEN=4-22 BY 3-
30***
130 REM ***STOP FROM BREAKIN
G OUT OF PROGRAM(FCTN+4)***
140 ON BREAK NEXT
150 REM ***STOP QUITING FROM
 PROGRAM(FCTN+=)***
160 CALL INIT :: CALL LOAD(-
31806,16)
170 REM ***SOME VARIABLES***
180 DIM A$(300),B$(300)
190 Q=1
200 R=3
210 CO=2
220 REM ***ONLY 300 LINES***
230 REM***MENU***
240 CALL SCREEN(2)
250 REM ***PRODUCE SCREEN***
260 D=0
270 DISPLAY AT(1,3)ERASE ALL
:"Press"
280 FOR C=3 TO 19 STEP 2
290 D=D+1
300 READ C$
310 DISPLAY AT(C,8):D;" for
";C$
320 NEXT C
330 DISPLAY AT(23,1):"Type a
'~'to end choice"
340 FOR A=0 TO 14 :: CALL CO
LOR(A,16,1):: NEXT A
350 RESTORE
360 REM ***CHECK FOR KEY(0-9
,CTRL+A)***
370 CALL KEY(0,K,S):: IF S=0
 THEN 370
380 CALL SOUND(-100,-1,0)
390 REM ***KEY=CTRL+A***
400 IF K=129 THEN 3280
410 K=K-48
420 REM ***KEY VALIDATION***
430 REM ***KEY INSIDE TOTAL
RANGE***
440 IF K<0 OR K>9 THEN 370
450 REM ***FIRST RUN AND KEY
<4 ***
460 IF Q=1 AND K>4 THEN DISP
LAY AT(22,1):"PLEASE TYPE A
1,2 OR 3 FIRST" ELSE 490470
GOTO 370
480 REM ***CHANGE TO NOT FIR
ST RUN***
490 Q=2
500 REM ***GOSUB DIFFERENT O
PTIONS***
510 ON K GOSUB 3480,570,530,
2810,670,1320,1500,2040,2980
520 GOTO 230
530 REM *********
540 REM ***END***
550 REM *********
560 END
570 REM ************
580 REM ***CREATE***
590 REM ************
600 DISPLAY AT(12,8)ERASE AL
L:"PLEASE WAIT..."
610 REM ***CLEAR VARIABLES**
*
620 FOR C=1 TO 300
630 B$(C)=""
640 NEXT C
650 R=3
660 B=0
670 REM ******************
680 REM ***AND CONTINUE***
690 REM ******************
700 CALL CLEAR
710 R=R+1
720 CO=2
730 B=B+1
740 DISPLAY AT(1,8):"***TI-W
ORD***"
750 DISPLAY AT(2,4):"Type a'
~'to end choice"
760 CALL HCHAR(R,CO,K)
770 REM ***COLUMN [&ROW] INC
REASE***
780 CO=CO+1 :: IF CO<31 THEN
 810 ELSE R=R+1 :: IF R<23 T
HEN 790 ELSE R=3 :: CALL CLE
AR
790 CO=3
800 REM ***DISABLE AUTO-REPE
AT***
810 CALL KEY(0,K,S):: CALL H
CHAR(R,CO,95):: IF S<1 THEN
810
820 CALL SOUND(-100,-1,10)
830 REM ***ASCII CHARACTERS*
**
840 IF K>31 THEN 1020
850 REM ***FUNCTION KEYS***
860 IF K>13 THEN 810
870 ON K GOSUB 810,810,950,8
10,810,810,900,810,810,810,1
290,1100,1180
880 GOTO 810
890 REM ***ERASE KEY(FCTN+3)
***
900 B$(B)=""
910 DISPLAY AT(R,1):""
920 CO=2
930 GOTO 740
940 REM ***DELETE BACKSPACE
KEY(FCTN+1)***
950 CALL HCHAR(R,CO,32):: IF
 R<4 AND CO<3 THEN CO=3 ELSE
 IF CO>3 THEN CO=CO-1 ELSE I
F CO>3 THEN 960 ELSE R=R-1 :
: CO=30
960 IF CO<=2 THEN RETURN
970 LEEN=LEN(B$(B))-1
980 IF B$(B)="" THEN RETURN
990 B$(B)=SEG$(B$(B),1,LEEN)
1000 RETURN
1010 REM ***ASCII CHARACTERS
***
1020 B$(B)=B$(B)&CHR$(K)
1030 REM ***CHECK IF STRING
B$(B)<80 CHARACTERS LONG***
1040 IF LEN(B$(B))<80 THEN 7
```

```
60
1050 CALL KEY(0,K,S):: IF S=
0 THEN 1050 ELSE IF K=13 THE
N 1220 ELSE IF K<>8 THEN 105
0
1060 LEEN=LEN(B$(B))-1
1070 B$(B)=SEG$(B$(B),1,LEEN
)
1080 GOTO 810
1090 REM ***DOWN 3 ROWS(FCTN
+6)***
1100 FOR B=B TO B+3
1110 A$(B)=""
1120 R=R+1
1130 IF R<23 THEN 1140 ELSE
CALL CLEAR :: R=3
1140 CO=2
1150 NEXT B
1160 GOTO 740
1170 REM ***ENTER***
1180 IF B$(B)<>"~" THEN 1220
1190 B$(B)=""
1200 B=B-1
1210 GOTO 230
1220 CALL HCHAR(R,CO,32)
1230 A$(B)=B$(B)
1240 IF R<23 THEN 1270
1250 CALL CLEAR
1260 R=4
1270 IF B>300 THEN 230
1280 GOTO 710
1290 REM ***UP ARROW(FCTN+E)
***
1300 CALL HCHAR(R,CO,32)
1310 B=B-1 :: R=R-1 :: RETUR
N
1320 REM **********
1330 REM ***VIEW***
1340 REM **********
1350 DISPLAY AT(1,8)ERASE AL
L:"***TI-WORD***"
1360 DISPLAY "Type a'~'to en
d choice":"or a'*'to see aga
in"
1370 FOR C=1 TO 200
1380 NEXT C
1390 FOR C=1 TO B
1400 DISPLAY AT(1,8):"***TI-
WORD***"
1410 DISPLAY A$(C)
1420 IF B>125 THEN 1460
1430 REM ***CHECK TO SCROLL(
ANY KEY)***
1440 CALL KEY(0,K,S):: IF S=
0 THEN 1440
1450 NEXT C
1460 CALL KEY(0,K,S):: IF S=
0 THEN 1460
1470 IF K=ASC("~")THEN 230
1480 IF K=ASC("*")THEN 1320
1490 GOTO 1460
1500 REM ***************
1510 REM ***HARD-COPY***
1520 REM ***************
1530 ON ERROR 1500
1540 DISPLAY AT(1,8)ERASE AL
L:"***TI-WORD***"
1550 DISPLAY AT(8,1):"DO YOU
 WANT CENTRALIZED"
1560 ACCEPT AT(8,26)VALIDATE
("YN"):C$
1570 DISPLAY AT(12,1):"ENTER
 CODE OF PRINTER."
1580 ACCEPT AT(13,1):N$
1590 IF N$="~" THEN 230
1600 DISPLAY AT(16,1):"ANY C
ODES ?(Y/N)"
1610 ACCEPT AT(16,24)SIZE(1)
VALIDATE("YN"):C$
1620 IF C$="N" THEN 1770
1630 DISPLAY AT(18,1):"LINE
LENGTH..."
1640 ACCEPT AT(18,25)SIZE(3)
VALIDATE(DIGIT):L
1650 DISPLAY AT(18,1):"MARGI
N..."
1660 ACCEPT AT(18,25)SIZE(2)
VALIDATE(DIGIT):M
1670 IF M>1 AND C$="Y" THEN
1550
1680 DISPLAY AT(18,1):"LINE
FEED.(144=1 INCH"
1690 ACCEPT AT(18,25)SIZE(3)
VALIDATE(DIGIT):LF
1700 DISPLAY AT(18,1):"CONDE
NSED?(Y/N)"
1710 ACCEPT AT(18,25)SIZE(1)
VALIDATE("YN"):LE$
1720 DISPLAY AT(18,1):"ENLAR
GED?(Y/N)"
1730 ACCEPT AT(18,25)SIZE(1)
VALIDATE("YN"):LD$
1740 IF LE$="Y" AND LD$="Y"
THEN 1790
1750 IF LE$="Y" AND LD$="N"
THEN 1810
1760 IF LD$="Y" AND LE$="N"
THEN 1830
1770 LD=18 :: LE=18
1780 GOTO 1850
1790 LD=14 :: LE=15
1800 GOTO 1860
1810 LD=15 :: LE=15
1820 GOTO 1860
1830 LD=14 :: LE=14
1840 GOTO 1860
1850 L=80 :: LF=24 :: LE=18
:: M=1
1860 OPEN #1:N$,VARIABLE L
1870 ON ERROR 2020
1880 PRINT #1:CHR$(27);"E"
1890 PRINT #1:CHR$(27);"A"&C
HR$(LF)
1900 FOR C=1 TO B
1910 IF C$="Y" THEN GOSUB 32
40
1920 CALL KEY(0,K,S):: IF S=
0 THEN 1940 ELSE 1930
1930 DISPLAY AT(16,1):"MARGI
N:" :: ACCEPT AT(16,9):M
1940 PRINT A$(C)
1950 PRINT #1:TAB(M);CHR$(LE
)&CHR$(LD);A$(C)
1960 NEXT C
1970 PRINT #1:CHR$(7)
1980 DISPLAY AT(18,1):"FORM
FEED?(Y/N)"
1990 ACCEPT AT(18,18)VALIDAT
E("YN")SIZE(1):FF$
2000 IF FF$="N" THEN 2020 EL
SE PRINT #1:CHR$(12):: GOTO
1980
2010 PRINT #1:CHR$(18)
2020 CLOSE #1
2030 CALL KEY(0,K,S):: IF S=
0 THEN 2030 ELSE IF K=ASC("*
")THEN 1600 ELSE 230
2040 REM **********
2050 REM ***EDIT***
2060 REM **********
2070 R=22 :: CO=1 :: D=1
2080 DISPLAY AT(2,8)ERASE AL
L:"***TI-WORD***"
2090 DISPLAY :"Type a'~'to e
nd choice":
2100 FOR CC=1 TO B
2110 DISPLAY AT(2,8):"***TI-
WORD***"
2120 DISPLAY D;" ";A$(D):: D
=D+1
2130 CALL KEY(0,K,S):: IF S=
0 THEN 2130
2140 NEXT CC
2150 DISPLAY "WHICH LINE?":"
IF YOU WISH TO SEE AGAIN":"T
YPE A'*'ELSE TYPE A NUMBER"
2160 ACCEPT VALIDATE(DIGIT,"
~*")SIZE(3):SL$
2170 IF SL$="~" THEN 230 ELS
E IF SL$="*" THEN 2040
2180 IF SL$="" THEN 2160 ELS
E IF VAL(SL$)<1 OR VAL(SL$)>
300 THEN 2160
2190 SL=VAL(SL$)
2200 REM *EDITING*
2210 DISPLAY AT(1,8)ERASE AL
L:"***TI-WORD***"
2220 DISPLAY AT(24,1):"Type
a'~'to end choice"
2230 DISPLAY A$(SL)
2240 PRINT : : :
2250 A$(SL)=""
2260 CALL HCHAR(R-10,CO,GET)
2270 CO=CO+1
2280 IF CO<=29 THEN 2300
2290 R=R+1 :: CO=2
2300 CALL HCHAR(R,CO,30)
2310 CALL KEY(0,K,S):: IF S=
0 THEN 2300
2320 IF K<>13 THEN 2350
2330 CALL HCHAR(R,CO-1,32)
2340 RETURN
2350 IF K<>11 THEN 2400
2360 CALL HCHAR(R,CO,32)
2370 R=R-1
2380 CALL HCHAR(R,CO,30)
2390 GOTO 2300
2400 IF K<>10 THEN 2440
2410 CALL HCHAR(R,CO,32)
2420 R=R+1
2430 CALL HCHAR(R,CO,30):: G
OTO 2300
2440 IF K<>1 THEN 2490
2450 CALL GCHAR(R,CO+1,GET)
2460 CALL HCHAR(R,CO,32)
2470 A$(SL)=A$(SL)&CHR$(GET)
2480 GOTO 2600
2490 IF K<>8 THEN 2550
2500 CALL HCHAR(R,CO,32)
2510 CO=CO-1
2520 IF CO>3 THEN 2530 ELSE
CO=3
2530 CALL HCHAR(R,CO,30)
2540 GOTO 2300
2550 IF K<>9 THEN 2620
2560 CALL HCHAR(R,CO,32)
2570 CO=CO+1
2580 CALL HCHAR(R,CO,30)
2590 GOTO 2300
2600 CALL HCHAR(R-10,CO,GET)
2610 GOTO 2260
2620 A$(SL)=A$(SL)&CHR$(K)
2630 GET=K
2640 GOTO 2260
2810 REM **********
2820 REM ***LOAD***
2830 REM **********
2840 ON ERROR 2810
2850 DISPLAY AT(1,8)ERASE AL
L:"***TI-WORD***"
2860 DISPLAY AT(2,8):"*LOAD
     *"
2870 DISPLAY AT(13,1):"WHERE
 IS THE DATA-BASE?"
2880 ACCEPT AT(14,13):N$
2890 IF N$="~" THEN 230
2900 OPEN #3:N$,VARIABLE,INP
UT
2910 ON ERROR 2960
2920 INPUT #3:B
2930 FOR C=1 TO B
2940 LINPUT #3:A$(C)
2950 NEXT C
2960 CLOSE #3
2970 RETURN
2980 REM **********
2990 REM ***SAVE***
3000 REM **********
3010 ON ERROR 2980
3020 DISPLAY AT(1,8)ERASE AL
L:"***TI-WORD***"
3030 DISPLAY AT(2,8):"*SAVE
     *"
3040 DISPLAY AT(12,1):"DELET
E/SAVE?(1/2)" :: ACCEPT AT(1
2,20)VALIDATE("12"):K
3050 IF K=2 THEN 3090 ELSE D
ISPLAY AT(16,1):"FILENAME? "
 :: ACCEPT AT(16,13):D$
```

```
3060 ON ERROR 3050
3070 DELETE D$
3080 RETURN
3090 DISPLAY AT(13,1):"WHERE
 IS THE DATA-BASE?"
3100 ACCEPT AT(14,13):N$
3110 IF N$="^" THEN 230
3120 IF N$="CS1" OR N$="CS2"
 THEN 3090
3130 OPEN #2:N$,OUTPUT,VARIA
BLE
3140 PRINT #2:B
3150 FOR C=1 TO B
3160 PRINT #2:A$(C)
3170 NEXT C
3180 CLOSE #2
3190 RETURN
3200 IF K<>1 THEN 2490 ELSE
CALL GCHAR(R,CO+1,GET)
3210 A$(SL)=A$(SL)&CHR$(GET)
3220 GOTO 2600
3230 DATA CATALOGUE,CREATE,E
ND,LOAD,CONTINUE,VIEW,HARD-C
OPY,EDIT,SAVE
3240 REM ***CENTRALIZED***
3250 LE=LEN(A$(C))/2
3260 M=(L/2)-LE
3270 RETURN
3280 REM ********************
****
3290 REM ***ADDRESS OF AUTHO
R***
3300 REM ********************
****
3310 CALL CLEAR
3320 DISPLAY AT(1,1):"IF YOU
 FIND ERRORS,"
3330 DISPLAY AT(2,1):"BUGS O
R OTHERS,PLEASE"
3340 DISPLAY AT(3,1):"CONTAC
T:"
3350 DISPLAY AT(6,1):"Richar
d Owen."
3360 DISPLAY AT(7,1):"17,Hig
hfield Ave,"
3370 DISPLAY AT(8,1):"Litcha
rd,"
3380 DISPLAY AT(9,1):"Bridge
nd,"
3390 DISPLAY AT(10,1):"Mid-G
lam."
3400 DISPLAY AT(11,1):"CF31
1QR."
3410 DISPLAY AT(15,1):"If wr
iting,please enclose an"
3420 DISPLAY AT(16,1):"S.A.E
.,which when error is"
3430 DISPLAY AT(17,1):"recti
fied will be returned"
3440 DISPLAY AT(22,1):"for o
ther programming help"
3450 DISPLAY AT(23,1):"pleas
e also contact author"
3460 DISPLAY AT(24,1):"at ab
ove address."
3470 CALL KEY(0,K,S):: IF S=
0 THEN 3470 ELSE 230
3480 REM ***************
3490 REM ***CATALOGUE***
3500 REM ***************
3510 CALL CAT
3520 RETURN
3530 SUB CAT
3540 CALL SCREEN(2)
3550 CALL CHAR(131,RPT$("FF0
0",4))
3560 CALL COLOR(13,5,1)
3570 CALL CLEAR
3580 OPEN #4:"DSK1.",INPUT ,
RELATIVE,INTERNAL
3590 INPUT #4:A$,J,J,K
3600 DISPLAY AT(1,10):"***TI
-WORD***"
3610 DISPLAY AT(2,1):"DSK1.
-DISKNAME= ";A$:"AVAILABLE=
";K;" USED= ";J-K
3620 DISPLAY AT(4,1):"------
----------------------"
3630 DISPLAY AT(5,1):"--- FI
LENAME ------ SIZE ---"
3640 DISPLAY AT(6,1):"------
----------------------"
3650 FOR L=7 TO 24
3660 INPUT #4:A$,A,J,K
3670 IF LEN(A$)=0 THEN 3710
3680 DISPLAY AT(L,1):A$
3690 DISPLAY AT(L,22):J
3700 NEXT L
3701 CALL KEY(0,K,S):: IF S=
0 THEN 3701 ELSE IF K<>13 TH
EN 3710
3702 CALL HCHAR(7,1,32,576):
: GOTO 3650
3710 CLOSE #4
3720 CALL KEY(0,K,S):: IF S=
0 THEN 3720
3730 SUBEND
```

T.I.TBITS

99/4a Magazine
Parco Electrics
2 Devonshire Court
Heathpark
Honiton
Devon

Here's a selection of interesting, albeit sometimes useless hints and tips for you to peruse. If you enjoy this sort of thing, why not send your own TItbits in?

Let's kick off with a couple of short but relevant GRAPHICS related programs. They both 'mix' the 16 basic colours to create over 100 shades. Graham Farncombe, author of our excellent DRONE game sent this one:-

```
100 CALL CLEAR
110 CALL SCREEN(2)
120 FOR G=2 TO 8
130 CALL COLOR(G,15,2)
140 NEXT G
150 X=6
160 CH=96
170 FOR I=1 TO 8
180 CALL CHAR(CH,"AA55AA55AA
55AA55")
190 CALL VCHAR(1,X,CH,72)
200 X=X+3
210 CH=CH+8
220 NEXT I
230 M$="C O L O U R    M I X
 E R"
240 D=8
250 GOSUB 520
260 CALL HCHAR(9,1,32,32)
270 PRINT : : : :"      FORE
GROUND COLOURS   ": :
280 PRINT "      BACKGROUND
COLOUR"
290 FOR B=2 TO 16
300 FOR C=9 TO 16
310 CALL COLOR(C,C-8,B)
320 NEXT C
330 M$="...2..3..4..5..6..7.
.8.."
340 D=19
350 GOSUB 520
360 M$=STR$(B)&CHR$(61)
370 D=23
380 GOSUB 520
390 CALL KEY(0,K,S)
400 IF S=0 THEN 390
410 FOR C=9 TO 16
420 CALL COLOR(C,C,B)
430 NEXT C
440 M$="9..10.11.12.13.14.15
.16"
450 D=19
460 GOSUB 520
470 CALL KEY(0,K,S)
480 IF S=0 THEN 470
490 NEXT B
500 CALL HCHAR(23,8,32)
510 GOTO 290
520 FOR L=1 TO LEN(M$)
530 CALL HCHAR(D,5+L,ASC(SEG
$(M$,L,1)))
540 NEXT L
550 RETURN
```

This is a variation on a theme, this time in Extended Basic, from the almost inevitable Stephen Meadows:-

```
100 CALL CHAR(32,RPT$("A55A"
,4)):: CALL CLEAR :: FOR C=1
6 TO 2 STEP -1 :: FOR Q=2 TO
 16 :: CALL SCREEN(C):: CALL
 COLOR(1,Q,1):: DISPLAY AT(2
4,1):Q;C :: FOR W=1 TO 300 :
: NEXT W :: NEXT Q :: NEXT C
100 CALL CHAR(32,RPT$("A55A"
,4)):: CALL CLEAR :: FOR C=1
6 TO 2 STEP -1 :: FOR Q=2 TO
 16 :: CALL SCREEN(C):: CALL
 COLOR(1,Q,1):: DISPLAY AT(2
4,1):Q;C :: FOR W=1 TO 300 :
: NEXT W :: NEXT Q :: NEXT C
```

T.I.TBITS

Stephen also reminded us of a quick EB one-liner that some of you may not have seen before. (use REDO to fit it in):-

```
100 CALL SCREEN(1):: CALL SCREEN(5):: GOTO 100
```

Richard Twyning has been dabbling with EB/32k and has discovered that the error message tone can be turned off using CALL LOAD(-31806,34), and that the keyboard can be disabled with CALL LOAD(-31804,34).

Mr M.J.Lucken is a Bright Spark! He has sent a couple of offerings; there is an assembly language SORT for Minimemory users to compare speed of operation with the same type in basic, (Laughingly quicker) and a routine to compare the speed of EB multiple statement over single lines (always quicker?).

Here's the sorting routines:-

```
     AORG >7D20
DA   EQU >7118
DB   EQU >711A
FC   EQU >834A
XM   EQU >601C
NF   EQU >6044
NG   EQU >6040
ST   CLR 0
     LI 1,2
     BLWP @NF
     BLWP @XM
     DATA >1200
     MOV @FC,7
     DEC 1
     MOV 7,0
     LI 12,DA
L1   BLWP @NF
     BLWP @XM
     DATA >1200
     MOV @FC,*12+
     DEC 0
     JGT L1
     MOV 7,6
     DEC 6
L2   LI 2,DA
     LI 3,DB
     MOV 6,8
L3   C *2,*3
     JHE NX
     MOV *3,4
     MOV *2,*3
     MOV 4,*2
NX   INCT 2
     INCT 3
     DEC 8
     JNE L3
     DEC 6
     JNE L2
     MOV 7,0
     LI 12,DA
L4   MOV *12+,@FC
     BLWP @XM
     DATA >7200
     BLWP @NG
     DEC 0
     JGT L4
     B *11
     AORG >701E
     DATA >7FE0
     AORG >7FE0
     TEXT 'SORTER'
     DATA ST
     END
```

Having loaded that into Minimem, use this Basic program to invoke it:-

```
100 CALL CLEAR
110 PRINT "THIS IS A BASIC S
ORT":::::
120 N=50
130 RANDOMIZE
140 DIM A(50)
150 FOR I=1 TO N
160 A(I)=INT(RND*100)+1
170 PRINT A(I);
180 NEXT I
190 PRINT :"SORTING"::
200 LIM=49
210 SW=0
220 FOR I=1 TO LIM
230 IF A(I)<=A(I+1)THEN 290
240 AA=A(I)
250 A(I)=A(I+1)
260 A(I+1)=AA
270 SW=1
280 LIM=I
290 NEXT I
300 IF SW=1 THEN 210
310 PRINT :"FINISHED"::
320 FOR I=1 TO N
330 PRINT A(I);
340 NEXT I
350 FOR D=1 TO 1000
360 NEXT D
370 CALL CLEAR
380 PRINT "NOW THE SAME TYPE
 OF SORT   BUT IN MACHINE CO
DE":::::
390 FOR I=1 TO N
400 A(I)=INT(RND*100)+1
410 PRINT A(I);
420 NEXT I
430 PRINT :"SORTING"::
440 CALL LINK("SORTER",A(),N
)
450 PRINT "FINISHED"::
460 FOR I=1 TO N
470 PRINT A(I);
480 NEXT I
```

Here's the routine to compare EB speeds:-

```
100 RANDOMIZE
110 CALL CLEAR
120 CALL SPRITE(#1,33,2,1,1,
2,2)
130 FOR N=1 TO 100
140 CALL HCHAR(21*RND+1,31*R
ND+1,30)
150 CALL SOUND(50,RND*1000+1
10,0)
160 NEXT N
170 CALL POSITION(#1,X,Y)
180 PRINT X,Y
190 CALL SPRITE(#1,33,2,1,1,
2,2)
200 FOR N=1 TO 100 :: CALL H
CHAR(21*RND+1,31*RND+1,30)::
 CALL SOUND(50,RND*1000+110,
0):: NEXT N :: CALL POSITION
(#1,X,Y):: PRINT X,Y
```

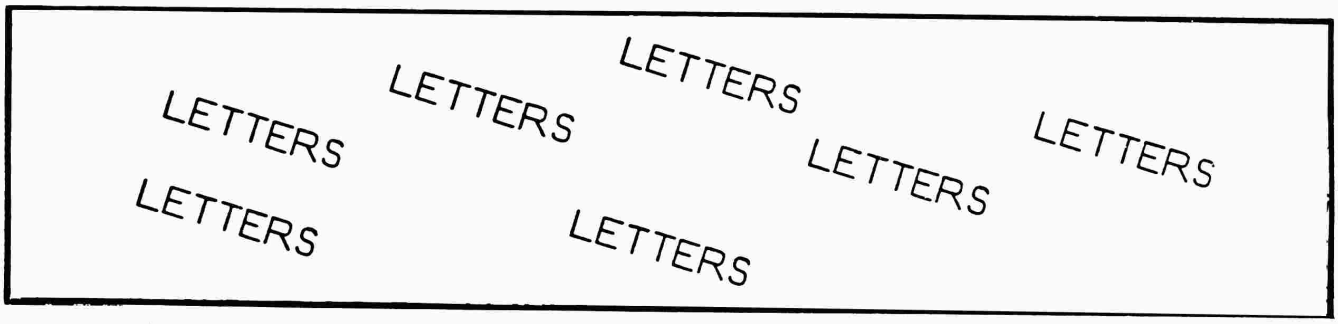
Here's a quick routine to give a professional look to your program:-

```
100 CALL CLEAR
110 CALL SCREEN(5)
120 CALL VCHAR(1,31,1,96)
130 FOR SET=1 TO 12
140 CALL COLOR(SET,7,16)
150 NEXT SET
160 PRINT "HELLO"
170 PRINT : : : : : :
180 PRINT "HOW IS THIS THEN
- NOT BAD??": : : : : : : :
: : : : : : : : : : : : : :
: : : : : : : :
190 PRINT "VERY PROFESSIONAL
!"
200 GOTO 200
```

Lets finish here with a couple of quick TItbits to confuse your friends. I won't tell you what they do, find out for yourself! The first is in Basic, and the second in TI Basic:-

```
 CALL CLEAR
90 CALL SCREEN(8)
100 CALL CHAR(130,"007C7C7C7
C7C7C7C")
130 PRINT "TI BASIC READY"
140 PRINT
150 CALL HCHAR(24,2,62)
160 CALL KEY(0,K,S)
170 IF S<>0 THEN 290
180 CALL HCHAR(24,3,130)
190 FOR D=1 TO 75
200 NEXT D
210 CALL HCHAR(24,3,32)
220 FOR D=1 TO 75
230 NEXT D
240 GOTO 160
290 CALL CLEAR
295 CALL HCHAR(24,2,42)
296 CALL SOUND(-100,218,1)
300 PRINT " you will never p
rogram me *": :
301 FOR D=1 TO 300
302 NEXT D
303 CALL CLEAR
310 GOTO 130
```

```
1 CALL SCREEN(8):: ON BREAK
NEXT :: DISPLAY AT(22,1)ERAS
E ALL:"* READY *" :: CALL HC
HAR(24,2,62):: CALL HCHAR(24
,3,30)
2 CALL COLOR(0,1,1):: CALL W
AIT :: CALL COLOR(0,2,1):: I
=I+1 :: CALL WAIT
3 GOTO 2
10 SUB WAIT :: FOR I=1 TO 75
 :: NEXT I :: SUBEND
```



Dear Sirs,

What has happened to your magazine? I bought issue 2 (39 pages) Isue 3 (35 pages) and now issue 4 (31 pages). Will issue 5 have 27 pages? Have you written a program that says:

```
100 FOR PAGE=39 TO 3 STEP-3
110 PRINT PAGE
120 NEXT PAGE   ?????
```

I trust that you have not, and include my review of OTHELLO to fill (top up) your fine magazine. I hope you will be running your assembly language article(s) for quite some time, as I am running out of hair to pull out.

Phil Donald

Phil, you must have been THE original 'Bright Spark' I think.

The original idea for 99/4a was 32 pages (inc. cover) and so it now is. The issues you describe were 'over the top' so be grateful, you 'erbert.

Yes, we will try to include your OTHELLO review, and yes we do have a juicy looking Assembly article lined up for the next issue, o.k.????

(We love you really)

Dear Sirs,

ODE TO A TEXAS ADDICT

As I post his competition entry
I just thought I´d write to ask
Can you please pass a message
To my husband - a simple task

For each day when I get home
He´s computing- this is true
And he never seems to hear me
only his Texas in full view

He digests this book with gusto
To the wee small hours of night
I simply can´t deter him
Though shout at him I might

Please tell him that I say Hello
Are we still going steady?
The binman´s just run o´er the cat
and by the way - tea´s ready!!

Kate Gibson
Texas Widow

Gosh, Kate, I can't believe that hubby could really be like that - it's hard to conceive that there are any other ladies out there who suffer in the same way - and if there were, they probably wouldn't be itching to start up a TI Widows corner making their sob-stories addressable to:-

TI Widows
c/o Mrs Pridmore
17 Jerrard Close
Honiton
Devon
EX14 8EF

Tel. (0404) 41856

Of that I am quite sure.....

TEXAS

TEXAS - The State of the Art

Two exciting new Graphics Packages for the 99/4a reviewed, and two highly original graphics programs to type in.

G*R*A*P*H*X

Yes, this is the one you have been hearing about, and you are probably wondering whether to believe all the hype. Well, I'm glad to say that GRAPHX really has to be seen. All of a sudden you begin to realize that spending your hard-earned loot on expanding your TI was justified! Yes, it does require the Disk system + 32k, and RS232 + Epson compatible for printouts, but it certainly makes full use of them.

If you haven't already seen the page of blurb about GRAPHX elsewhere in this mag, then I suggest you read it now to get an idea of its purpose and power. Assuming that you have digested that lot, then let me home in on some specific aspects that impressed me.

Firstly, ease of use. So important especially with a sophisticated program. Most commands are entered by joystick on a series of helpful menus; other instructions accessed with one touch on 'function' keys (an overlay strip is provided). Although the term has become a cliche, if ever there was a 'user friendly' package it is this. Having seen spectacular-sounding products before, and being frustrated to find that they were only operable after sweating over a manual full of subroutines that you had to program yourself, GRAPHX is a breath of fresh air. To be honest, I realized most of its potential without even opening the handbook, such was its clarity of self explanation.

Then speed. Things happen fast with GRAPHX. Flip through menus, you won't be kept waiting. Quick response to your brush-strokes as well; in fact you can adjust the cursor speed to suit, and you will often find the need to actually slow things down!

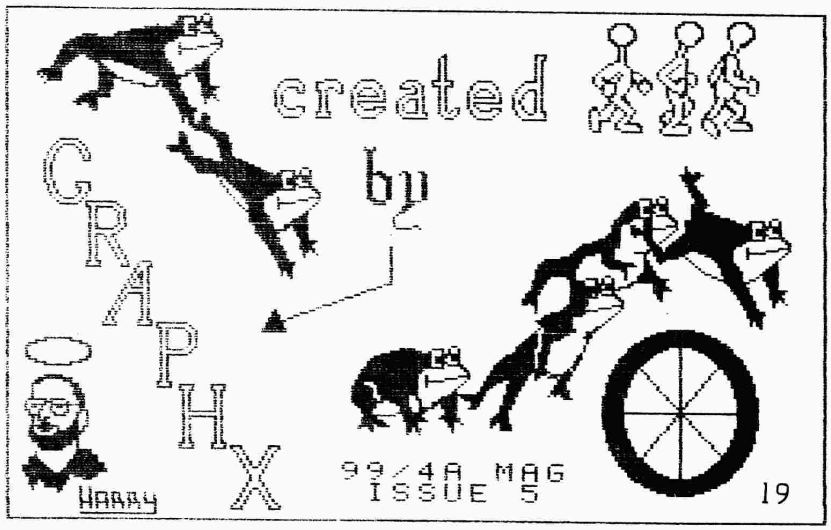
And the features? Well where to start - look at the spec and see for yourself the capabilities. I'll just higlight a few.

ZOOM - imagine selecting a portion of the screen and 'zooming in' for a close-up. That's precisely what this does, and you can then work in fine detail.

CIRCLES - what Supersketch can't do, Graphx can!

COPY - portions of a picture can be picked up and removed, or copied elsewhere on the same (or another) picture.

CLIPBOARD - this is a workspace where parts of pictures can be temporarily stored. Rather like a notebook, there are a number of 'pages' that you can flick through. Two novel uses spring from this; alphabets can be designed and used (some are provided with the package); and cartoon-type animation is possible. Very impressive too!



GRAPHX screen dump

Space and time prevent me from going into any more depth here, although one other feature deserves a mention. That is the fact that pictures saved from Graphx can be incorporated into your own assembly programs as backdrops. This appears to fulfill a need that many have expressed.

To review Graphx is to run out of superlatives, so read the spec and, if possible, get a look at it. It speaks for itself.

GRAPHX is £39.95 and is available in three versions. You MUST specify the version you require, the differences are as follows:-

Vs.	Clipboard	Loading time
Minimem	6k	1 min 3 secs
Ed/Ass	4k	1 min 5 secs
ExBas	4k	4 min 11 secs

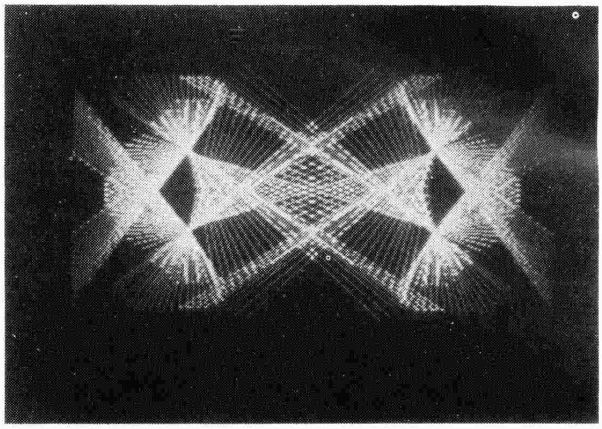
Otherwise, all three versions have the same specifications.

A-R-T-I-S-T

You won't have seen or heard of this one before as it is new and exclusive to PARCO. Written in Belgium, it will suit the Minimemory user that doesn't have Disk/32k etc etc. Actually ARTIST does have certain features that GRAPHX doesn't, even though the total package is not so comprehensive.

Perhaps you are like me. When you first used Minimem with the LINES sampler program, you just gazed boggle-eyed at the screen. Impressed yes, but wishing that you could somehow harness the drawing capabilities to make your own designs. Here is the answer. Take a look:-

- choice between thick/thin pens.
- thick/thin erasers.
- functions for drawing lines circles, boxes or rays.
- pre-definition of 2 symbols or figures on an enlarged 24x32 grid for later use on any part of the screen.
- 'spray' to fill a space, and another to clear filled spaces.
- choice from 16 colours for foreground, background and screen.
- variable cursor speed.
- HELP screen, showing options pictorially. (joystick driven)
- load/save to cassette.
- type a variety of character sets on screen, including true lower-case.
- mirror-image painting (quad).



This picture depicts two of ARTISTs capabilities: the 'ray' and 'mirror' functions. It took less than thirty seconds to develop

It seems impossible without Memory Expansion and all, but it's true. ARTIST does all of this, and very nicely. The 'mirror-image' function is amazing, especially if used in conjunction with the 'rays' option. As stated, ARTIST is less sophisticated than GRAPHX, but still a masterpiece of assembly programming in its own right. ARTIST is available on cassette, the only peripherals required being MINIMEM CASSETTE PLAYER and JOYSTICK. £19.95

Now for the two graphics programs for you to type in. The first is quite unique. You've heard of Turtle Graphics maybe? Well here's MONKEY GRAPHICS in Extended Basic!

MONKEY GRAPHICS by M.ROUT

Matthew Rout wrote this original program for an 'O' level project, and it is a program to write programs, believe it or not. Here are the instructions:-

Commands:-

NORTH(n)
This command moves the monkey up the screen by the specified amount (n). The monkey can be moved at a maximum of 24 spaces at a time.

eg 1 NORTH(12)
moves the monkey 12 spaces up the screen leaving a trail of tiles.

SOUTH(n)
This command moves the monkey down the screen leaving a trail of tiles.

WEST(n)
Moves the monkey left, leaving a trail of tiles. The monkey can be moved a maximum of 32 spaces at a time.

EAST(n)
Moves the monkey right, leaving a trail of tiles behind it.

JUMP(n)
Tells the computer to pass control to another line in the program.
eg 4 JUMP 1

FINISH
This command stops your program from runing. The monkey will stop moving and the screen can be cleared by pressing the ENTER key.

COLOUR(tile no,foreground;background)
This command decides which tile the monkey lays and its foreground and background colours. Use TI color numbers. Tile no must be from 1 to 5.

TILE(tile no,pattern)
This command defines the tiles. It is defined by using the TI's HEX code for graphics. Tile no must be from 1 to 5.

EXAMPLE:

```
1 TILE(1,FFFFEEEEDDDDAAAA)
2 COLOUR(1,6;11)
3 NORTH(5)
4 WEST(5)
5 SOUTH(10)
6 EAST(10)
7 JUMP(3)
8 FINISH
```

USING MONKEY GRAPHICS

When the main program is running you will see a title screen showing the commands available to the user. Then press any key and a menu will be displayed giving 7 options. Press the key of your choice:-

1. WRITE A PROGRAM
2. EDIT A LINE
3. SAVE PROGRAM
4. LOAD PROGRAM
5. LIST PROGRAM
6. RUN PROGRAM
7. START AGAIN

OPTION 1
The screen clears and in the bottom lefthand corner is the line number. You then type in the desired command and press ENTER. The line will disappear and the next line number will be displayed. When you have finished your program typr FINISH and the menu will appear.

OPTION 2
When editing a line you will be asked which line you wish to change. When you have selected the line the screen will clear, and on the 23rd row the line will be displayed. You then retype the contents of the line, then press ENTER. If you made an error in your program, and it is running, it will go straight into the EDIT mode displaying the incorrect line.

OPTION 3
Saves your MONKEY GRAPHICS program to tape.

OPTION 4
Loads a MONKEY GRAPHICS program from tape.

OPTION 5
Lists your MONKEY GRAPHICS program. You are then asked 'L' to list again, or 'R' to return to

OPTION 6
Runs your Monkey Graphics program, making the monkey move around the screen laying tiles. If there is a continuous loop, pressing the ENTER key will bring back the menu.

OPTION 7
This returns to the title screen, and allows you to write a new MONKEY GRAPHICS program.

MONKEY GRAPHICS

```
100 REM 'O'LEVEL COMPUTER
110 REM     PROJECT
120 REM  BY MATHEW ROUT
130 REM VARIABLES
140 DIM L$(150):: L=1 :: RO=
12 :: CO=16
150 FOR I=3 TO 8 :: CALL COL
OR(I,I,1):: NEXT I :: CALL C
OLOR(1,14,2,2,16,1)
160 CALL CHAR(43,"003C42A599
423C18"):: CALL COLOR(2,9,1)
170 CALL CLEAR :: CALL SCREE
N(2)
180 DISPLAY AT(3,5):"MONKEY
GRAPHICS" :: DISPLAY AT(5,10
):"BY" :: DISPLAY AT(7,5):"M
ATHEW ROUT"
190 DISPLAY AT(9,1):"COMMAND
S ARE:-" :: DISPLAY AT(11,1)
:"NORTH(#),SOUTH(#),WEST(#),
" :: DISPLAY AT(12,1):"EAST(
#),FINISH,JUMP,TILE(#,$)"
200 DISPLAY AT(13,1):"COLOUR
(#,#,#)"
210 DISPLAY AT(20,5):"PRESS
ANY KEY"
220 CALL KEY(0,K,S):: IF S=0
 THEN 220
230 CALL CLEAR :: CALL SCREE
N(2)
240 DISPLAY AT(2,1):"OPTIONS
:-" :: DISPLAY AT(4,1):"1.WR
ITE A PROGRAM" :: DISPLAY AT
(5,1):"2.EDIT A LINE"
250 DISPLAY AT(6,1):"3.LOAD
A PROGRAM" :: DISPLAY AT(7,1
):"4.SAVE PROGRAM"
260 DISPLAY AT(8,1):"5.LIST
PROGRAM" :: DISPLAY AT(9,1):
"6.RUN PROGRAM" :: DISPLAY A
T(10,1):"7.START A NEW PROGR
AM"
270 DISPLAY AT(15,3):"PRESS
A KEY FROM 1-7" :: R=12 :: C
=16
280 CALL KEY(0,K,S):: IF S=0
 THEN 280
290 IF K=49 THEN 370
300 IF K=50 THEN 480
310 IF K=51 THEN 670
320 IF K=52 THEN 570
330 IF K=53 THEN 410
340 IF K=54 THEN 740
350 IF K=55 THEN 100
360 GOTO 280
370 CALL CLEAR :: CALL SCREE
N(2)
380 DISPLAY AT(24,1):L :: AC
CEPT AT(24,5)SIZE(24):L$(L)
390 IF L$(L)="FINISH" THEN 2
30
400 L=L+1 :: GOTO 380
410 CALL CLEAR :: CALL SCREE
N(2)
420 FOR I=1 TO L :: PRINT I;
L$(I):: NEXT I
430 DISPLAY AT(24,1):"LIST ?
 OR RETURN "
440 CALL KEY(0,K,S):: IF S=0
 THEN 440
450 IF K=76 THEN 410
460 IF K=82 THEN 230
470 GOTO 440
480 CALL CLEAR :: CALL SCREE
N(2)
490 DISPLAY AT(5,5):"ENTER L
INE" :: ACCEPT AT(7,10):A
500 IF A>L OR A<0 THEN DISPL
AY AT(17,5):"ERROR:NO SUCH L
INE"
510 IF A<L THEN 530
520 FOR I=1 TO 200 :: NEXT I
 :: GOTO 480
530 DISPLAY AT(24,1):A :: DI
SPLAY AT(23,1):A :: DISPLAY
AT(23,5):L$(A)
540 ACCEPT AT(24,4):L$(A)
550 CALL CLEAR :: CALL SCREE
N(2):: DISPLAY AT(15,1):"DO
YOU WISH TO EDIT Y/N?"
560 ACCEPT AT(17,10):A$ :: I
F A$="Y" THEN 480 ELSE 230
570 IF L$(1)="" THEN 640
580 OPEN #1:"CS1",INTERNAL,O
UTPUT,FIXED 128
590 PRINT #1:L
600 FOR I=1 TO L
610 PRINT #1:L$(I)
620 NEXT I
630 CLOSE #1 :: GOTO 230
640 CALL CLEAR :: CALL SCREE
N(2):: DISPLAY AT(5,5):"ERRO
R:NO PROGRAM"
650 FOR I=1 TO 300 :: NEXT I
660 GOTO 230
670 OPEN #1:"CS1",INTERNAL,I
NPUT ,FIXED 128
680 INPUT #1:L
690 FOR I=1 TO L
700 INPUT #1:L$(I)
710 NEXT I
720 CLOSE #1
730 GOTO 230
740 A=1 :: CALL CLEAR :: CAL
L SCREEN(5):: CALL HCHAR(RO,
CO,43)
750 IN$=SEG$(L$(A),1,3)
760 CALL KEY(0,K,S):: IF K=1
3 THEN 230
770 IF IN$="NOR" THEN 890
780 IF IN$="SOU" THEN 970
790 IF IN$="EAS" THEN 1050
800 IF IN$="WES" THEN 1130
810 IF IN$="FIN" THEN 1210
820 IF IN$="JUM" THEN 1250
830 IF IN$="COL" THEN 1310
840 IF IN$="TIL" THEN 1470
850 CALL CLEAR :: CALL SCREE
N(2)
860 DISPLAY AT(5,5):"ERROR:U
NDEF' STATEMENT IN";A
870 FOR I=1 TO 300 :: NEXT I
880 GOTO 500
890 REM NORTH
900 ON ERROR 530
910 X=POS(L$(A),"(",1):: Z=L
EN(L$(A))-X :: Y=Z-1
920 I$=SEG$(L$(A),X+1,Y)
930 R1=VAL(I$)
940 FOR I=1 TO R1 :: CALL HC
HAR(RO,CO,TI):: RO=RO-1 :: I
F RO<1 THEN RO=24
950 CALL HCHAR(RO,CO,43):: N
EXT I
960 A=A+1 :: GOTO 750
970 REM SOUTH
980 ON ERROR 530
990 X=POS(L$(A),"(",1):: Z=L
EN(L$(A))-X :: Y=Z-1
1000 I$=SEG$(L$(A),X+1,Y)
1010 R1=VAL(I$)
1020 FOR I=1 TO R1 :: CALL H
CHAR(RO,CO,TI):: RO=RO+1 ::
IF RO>24 THEN RO=1
1030 CALL HCHAR(RO,CO,43)::
NEXT I
1040 A=A+1 :: GOTO 750
1050 REM EAST
1060 ON ERROR 530
1070 X=POS(L$(A),"(",1):: Z=
LEN(L$(A))-X :: Y=Z-1
1080 I$=SEG$(L$(A),X+1,Y)
1090 C1=VAL(I$)
1100 FOR I=1 TO C1 :: CALL H
CHAR(RO,CO,TI):: CO=CO+1 ::
IF CO>32 THEN CO=1
1110 CALL HCHAR(RO,CO,43)::
NEXT I
1120 A=A+1 :: GOTO 750
1130 REM WEST
1140 ON ERROR 530
1150 X=POS(L$(A),"(",1):: Z=
LEN(L$(A))-X :: Y=Z-1
1160 I$=SEG$(L$(A),X+1,Y)
1170 C1=VAL(I$)
1180 FOR I=1 TO C1 :: CALL H
CHAR(RO,CO,TI):: CO=CO-1 ::
IF CO<1 THEN CO=32
1190 CALL HCHAR(RO,CO,43)::
NEXT I
1200 A=A+1 :: GOTO 750
1210 REM FINISH
1220 ON ERROR 530
1230 CALL KEY(0,K,S):: IF S=
0 THEN 1230
1240 CALL CLEAR :: GOTO 230
1250 REM JUMP
1260 ON ERROR 530
1270 J=POS(L$(A)," ",1):: J$
=SEG$(L$(A),J+1,LEN(L$(A))-J
)
1280 A=VAL(J$):: IF A>L OR A
<1 THEN DISPLAY AT(5,5):"ERR
OR IN ";A
1290 IF A>L OR A<1 THEN 470
1300 GOTO 750
1310 REM COLOUR
1320 ON ERROR 530
1330 X=POS(L$(A),"(",1):: X1
=POS(L$(A),",",1):: X2=POS(L
$(A),";",1):: C=X2-X1-1
1340 T$=SEG$(L$(A),X+1,1)::
T1$=SEG$(L$(A),X1+1,C)
1350 C1=LEN(L$(A))-X2-1 :: T
2$=SEG$(L$(A),X2+1,C1)
1360 T=VAL(T$):: T1=VAL(T1$)
:: T2=VAL(T2$)
1370 IF T>5 OR T<1 THEN 480
1380 IF T1>16 OR T1<1 THEN 4
80
1390 IF T2>16 OR T2<1 THEN 4
80
1400 IF T=1 THEN COL=9
1410 IF T=2 THEN COL=10
1420 IF T=3 THEN COL=11
1430 IF T=4 THEN COL=12
1440 IF T=5 THEN COL=13
1450 CALL COLOR(COL,T1,T2)
1460 A=A+1 :: GOTO 750
1470 REM TILE
1480 ON ERROR 530
1490 X=POS(L$(A),",",1):: G$
=SEG$(L$(A),X+1,16):: T=POS(
L$(A),"(",1):: T1$=SEG$(L$(A
),T+1,1)
1500 G=VAL(T1$)
1510 IF G=1 THEN CALL CHAR(9
6,G$):: TI=96
1520 IF G=2 THEN CALL CHAR(1
04,G$):: TI=104
1530 IF G=3 THEN CALL CHAR(1
12,G$):: TI=112
1540 IF G=4 THEN CALL CHAR(1
20,G$):: TI=120
1550 IF G=5 THEN CALL CHAR(1
28,G$):: TI=128
1560 A=A+1 :: GOTO 750
```

'PAINTING' by Mrs J.M. Aminian

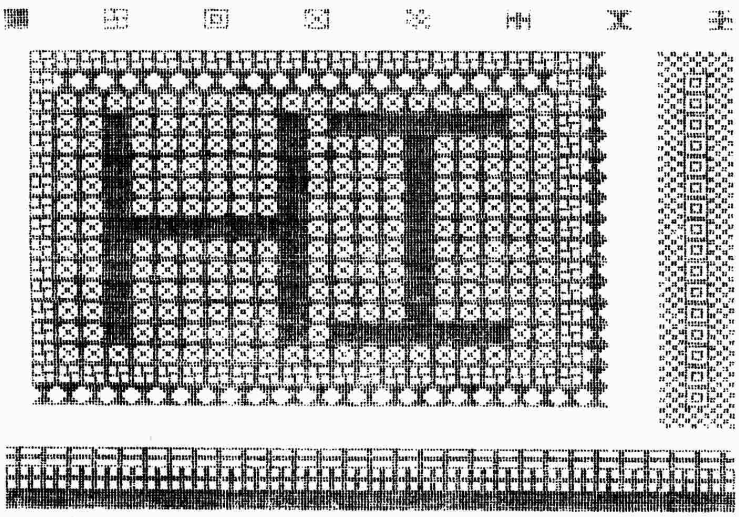
Next is a novel designing program by one of our lady readers. It runs in standard TI Basic, with joystick optional.

ABOUT THE PROGRAM

This program enables the user to paint, draw or design patterns on the screen, with the option of SAVEing it on a cassette.

As well as the normal squarehead brush, the user will be given the choice of a set of seven brushes, which can be selected from 29 predefined characters, lines 210 to 500. Those characters may be redefined by the user for his/her own purposes as well.

The brushes are displayed at the top of the screen loaded with black or white paint, depending on the user's selection of background. Other colours are displayed at the bottom of the screen as paint pots.



PAINTING screen dump

When a brush is dipped in a paint pot, it only changes colour, not shape. The brush will only flash when in use. Therefore it will not tire the eyes! If the brush is lost in the painting, pressing the space-bar will cause it to flash once.

MAIN VARIABLES

a) String: H0$-H7$ - brushheads.
b) Numeric: R,C - Brush co-ordinates.
c) Arrays: O$ and M$

SELECT YOUR SET OF BRUSHES, DIP THEM IN THE PAINTPOTS AND CREATE A MASTERPIECE! SAVE IT ON A CASSETTE IF YOU WISH.

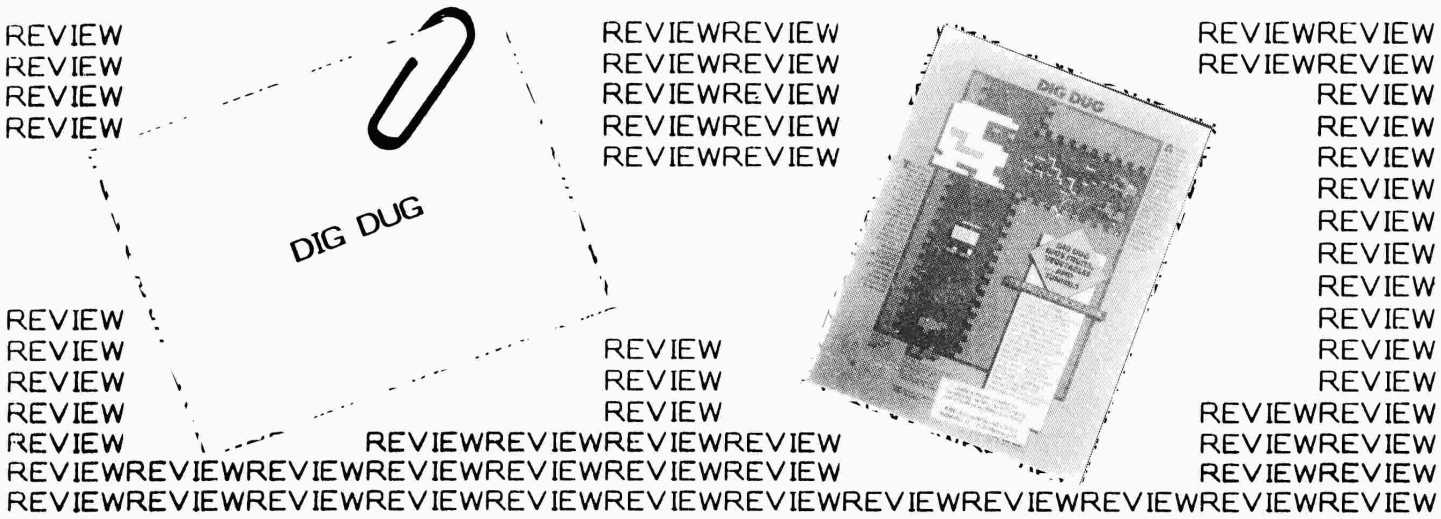
PAINTING PROGRAM

```
100 REM  PAINTING K/J
110 H0$="FFFFFFFFFFFFFFFF"
120 CALL CHAR(33,"0000001818
")
130 PSB$="PRESS SPACE BAR TO
 CONTINUE"
140 DEF TN=5+(3*X+Y)/4
150 OPTION BASE 1
160 DIM O$(29),M$(22,7)
170 CALL CLEAR
180 PRINT TAB(11);"PAINTING"
::TAB(14);"by"::TAB(10);"JO
AMINIAN"::::::::
190 GOSUB 2120
200 GOTO 510
210 O$(1)="3CFEFFFFFFFF7E3C"
220 O$(2)="7CFFDBFFFFDB663C"
230 O$(3)="181818FFFF181818"
240 O$(4)="02F4F8FCFCFC78"
250 O$(5)="3C7EC3C3C3C37E3C"
260 O$(6)="FF9999FFE7FFFFE3"
270 O$(7)="8142241818244281"
280 O$(8)="FFC3A59999A5C3FF"
290 O$(9)="FF1818FFFF1818FF"
300 O$(10)="999999FFFF999999
"
310 O$(11)="FFFFC3C3C3C3FFFF
"
320 O$(12)="FF81BDA5A5BD81FF
"
330 O$(13)="01030?0F1F3F7FFF
"
340 O$(14)="80C0E0F0F8FCFEFF
"
350 O$(15)="FF7F3F1F0F070301
"
360 O$(16)="FFFEFCF8F0E0C08"
370 O$(17)="81C3E7FFFFE7C381
"
380 O$(18)="FF7E3C18183C7EFF
"
390 O$(19)="FF91919FF98989FF
"
400 O$(20)="CCCC3333CCCC3333
"
410 O$(21)="181824666666FFFF
"
420 O$(22)="FFFF666666241818
"
430 O$(23)="031F3FC3C33F1F03
"
440 O$(24)="C0F8FCC3C3FCF8C"
450 O$(25)="1818181899999FFF
F"
460 O$(26)="FF9999FF999999FF
"
470 O$(27)="FFFF181818181818
"
480 O$(28)="187E5A181818FFFF
"
490 O$(29)="036343FFFF436303
"
500 RETURN
510 PRINT "NEW/CALL BACK? N/
C "
520 GOSUB 2290
530 IF K=78 THEN 550
540 IF K=67 THEN 660 ELSE 52
0
550 GOSUB 2170
560 GOSUB 4530
570 GOSUB 2290
580 IF K=78 THEN 610
590 IF K<>89 THEN 570
600 GOSUB 2470
610 GOSUB 1190
620 GOSUB 210
630 GOSUB 3490
640 GOSUB 4350
650 GOTO 1330
660 OPEN #1:"CS1",SEQUENTIAL
,INTERNAL,INPUT ,FIXED 64
670 FOR R=1 TO 22
680 INPUT #1:M$(R,1),M$(R,2)
,M$(R,3),M$(R,4),M$(R,5),M$(
R,6),M$(R,7)
690 NEXT R
700 INPUT #1:H1$,H2$,H3$,O$(
1)
710 INPUT #1:H4$,H5$,H6$,O$(
2)
720 INPUT #1:H7$,FB,O$(3),O$
(4),O$(5),O$(6)
730 CLOSE #1
740 F=INT(FB/10000)
750 B=INT(FB/100)-F*100
760 S3=FB-B*100-F*10000
770 GOSUB 2170
780 GOSUB 4530
790 GOSUB 2290
800 IF K=78 THEN 830
810 IF K<>89 THEN 790
820 GOSUB 2470
830 GOSUB 1300
840 GOSUB 3900
850 GOSUB 4350
860 FOR R=1 TO 22
870 FOR C=1 TO 7
880 W=VAL(M$(R,C))
890 GOSUB 910
900 GOTO 1040
910 W1=INT(W/1000000)
920 W2=INT(W/10000)-W1*100
930 W3=INT(W/100)-W1*10000-W
2*100
940 W4=W-W1*1000000-W2*10000
-W3*100
950 IF W1>1 THEN 970
960 W1=-4
970 IF W2>1 THEN 990
980 W2=-4
```

```
990 IF W3>1 THEN 1010
1000 W3=-4
1010 IF W4>1 THEN 1030
1020 W4=-4
1030 RETURN
1040 CALL VCHAR(R+1,C*4-1,W1
+36)
1050 CALL VCHAR(R+1,C*4,W2+3
6)
1060 CALL VCHAR(R+1,C*4+1,W3
+36)
1070 CALL VCHAR(R+1,C*4+2,W4
+36)
1080 NEXT C
1090 NEXT R
1100 FOR R=1 TO 6
1110 W=VAL(O$(R))
1120 GOSUB 910
1130 CALL VCHAR(R*4-3,31,W1+
36)
1140 CALL VCHAR(R*4-2,31,W2+
36)
1150 CALL VCHAR(R*4-1,31,W3+
36)
1160 CALL VCHAR(R*4,31,W4+36
)
1170 NEXT R
1180 GOTO 1330
1190 CALL CLEAR
1200 INPUT "BLACK OR WHITE S
CREEN? B/W ":Z$
1210 IF (Z$="B")+(Z$="b")THE
N 1230
1220 IF (Z$="W")+(Z$="w")THE
N 1270 ELSE 1190
1230 F=16
1240 B=2
1250 S3=8
1260 GOTO 1300
1270 F=2
1280 B=16
1290 S3=4
1300 CALL SCREEN(S3)
1310 RETURN
1320 GOSUB 3490
1330 R=1
1340 C=3
1350 CALL SOUND(-20,-5,2)
1360 CH=40
1370 ON JK GOTO 1380,4570
1380 GOSUB 3100
1390 IF (S=0)+(K<>88)THEN 13
80
1400 R=R+1
1410 GOTO 1430
1420 GOSUB 2250
1430 GOSUB 2100
1440 CALL VCHAR(R,C,CH)
1450 GOSUB 2290
1460 IF S=0 THEN 1450
1470 CALL VCHAR(R,C,W)
1480 IF K=70 THEN 1830
1490 IF K=81 THEN 4980
1500 IF K=68 THEN 1550
1510 IF K=83 THEN 1580
1520 IF K=69 THEN 1610
1530 IF K=88 THEN 1640
1540 IF K<>32 THEN 1440 ELSE
 1420
1550 IF C>30 THEN 1440
1560 C=C+1
1570 GOTO 1700
1580 IF C<4 THEN 1440
1590 C=C-1
1600 GOTO 1700
1610 R=R-1
1620 IF R=1 THEN 1670
1630 GOTO 1700
1640 R=R+1
1650 IF R=24 THEN 1770
1660 GOTO 1700
1670 IF INT((C+1)/4)=(C+1)/4
 THEN 1720
1680 R=R+1
1690 GOTO 1440
1700 GOSUB 2100
1710 GOTO 1440
1720 GOSUB 3150
1730 GOSUB 3100
1740 IF (S=0)+(K<>88)THEN 17
30
1750 R=R+1
1760 GOTO 1700
1770 GOSUB 2960
1780 GOSUB 2290
1790 GOSUB 2310
1800 IF (S=0)+(K<>69)THEN 17
80
1810 R=R-1
1820 GOTO 1700
1830 GOSUB 3130
1840 GOSUB 3100
1850 IF S=0 THEN 1840
1860 IF K=67 THEN 2070
1870 IF K=81 THEN 4990
1880 IF K=68 THEN 1920
1890 IF K=83 THEN 1950
1900 IF K=69 THEN 1980
1910 IF K=88 THEN 2010 ELSE
1840
1920 IF C>30 THEN 1840
1930 C=C+1
1940 GOTO 1840
1950 IF C<4 THEN 1840
1960 C=C-1
1970 GOTO 1840
1980 R=R-1
1990 IF R=1 THEN 2040
2000 GOTO 1840
2010 R=R+1
2020 IF R=24 THEN 1770
2030 GOTO 1840
2040 IF INT((C+1)/4)=(C+1)/4
 THEN 1720
2050 R=R+1
2060 GOTO 1840
2070 GOSUB 3080
2080 GOSUB 2100
2090 GOTO 1440
2100 CALL GCHAR(R,C,W)
2110 RETURN
2120 PRINT PSB$
2130 CALL KEY(0,K,S)
2140 IF (S=0)+(K<>32)THEN 21
30
2150 CALL CLEAR
2160 RETURN
2170 CALL CLEAR
2180 INPUT "KEYBOARD/JOYSTIC
K? 1 OR 2 ":JK
2190 IF (JK<1)+(JK>2)THEN 21
70
2200 CALL CLEAR
2210 RETURN
2220 CALL VCHAR(R,C,33)
2230 CALL VCHAR(R,C,CH)
2240 RETURN
2250 CALL SOUND(100,220,2)
2260 CALL VCHAR(R,C,CH)
2270 CALL VCHAR(R,C,32)
2280 RETURN
2290 CALL KEY(3,K,S)
2300 RETURN
2310 CALL VCHAR(R,C,CH)
2320 CALL VCHAR(R,C,33)
2330 CALL VCHAR(R,C,CH1)
2340 RETURN
2350 CALL KEY(1,K1,S)
2360 CALL KEY(2,K,S)
2370 CALL JOYST(2,X,Y)
2380 RETURN
2390 H1$=O$(1)
2400 H2$=O$(2)
2410 H3$=O$(3)
2420 H4$=O$(4)
2430 H5$=O$(5)
2440 H6$=O$(6)
2450 H7$=O$(7)
2460 RETURN
2470 CALL CLEAR
2480 PRINT "MOVE YOUR BRUSH:
-"::
2490 ON JK GOTO 2500,2530
2500 PRINT "BY PRESSING E FO
R UP,"::"X FOR DOWN, D FOR R
IGHT,"::"S FOR LEFT."::"PRES
S F TO PUT YOUR BRUSH ON"::
2510 PRINT "THE PAPER, C TO
TAKE IT OFF."::
2520 GOTO 2550
2530 PRINT "WITH JOYSTICK NO
.2. THE FIRE"::"BUTTON IS FO
R PUTTING THE"::"BRUSH ON AN
D TAKING IT OFF"::
2540 PRINT "THE PAPER."::
2550 PRINT "TO RUB A BLOCK O
F PAINT,TAKE"::"THE BRUSH OV
ER IT AND PRESS"::
2560 ON JK GOTO 2570,2590
2570 PRINT "THE SPACE BAR.":
:::
2580 GOTO 2600
2590 PRINT "THE FIRE BUTTON
OF JOYSTICK"::"NO. 1.":::::
2600 GOSUB 2120
2610 PRINT "WHEN YOU HAVE CO
MPLETED YOUR"::"MASTERPIECE,
 PRESS Q THEN"::"YOU CAN SAV
E YOUR PAINTING.":::::
2620 GOSUB 2120
2630 RETURN
2640 FOR I=40 TO 128 STEP 8
2650 CALL CHAR(I,H0$)
2660 CALL CHAR(I+1,H1$)
2670 CALL CHAR(I+2,H2$)
2680 CALL CHAR(I+3,H3$)
2690 CALL CHAR(I+4,H4$)
2700 CALL CHAR(I+5,H5$)
2710 CALL CHAR(I+6,H6$)
2720 CALL CHAR(I+7,H7$)
2730 NEXT I
2740 RETURN
2750 CALL CHAR(144,H0$)
2760 CALL CHAR(145,H1$)
2770 CALL CHAR(146,H2$)
2780 CALL CHAR(147,H3$)
2790 CALL CHAR(148,H4$)
2800 CALL CHAR(149,H5$)
2810 CALL CHAR(150,H6$)
2820 CALL CHAR(151,H7$)
2830 N=10
2840 FOR DPY=144 TO 151
2850 CALL VCHAR(10,N,DPY)
2860 CALL VCHAR(10,N+1,152)
2870 N=N+2
2880 NEXT DPY
2890 RETURN
2900 FOR PR=1 TO LEN(PAT$)
2910 CALL VCHAR(R5,C5+PR-1,A
SC(SEG$(PAT$,PR,1)))
2920 NEXT PR
2930 RETURN
2940 CH=CH-8
2950 GOTO 3050
2960 IF C>8 THEN 2990
2970 C1=7
2980 GOTO 3030
2990 IF C<27 THEN 3020
3000 C1=27
3010 GOTO 3030
3020 C1=C
3030 GP=INT((C1-1)/2)
3040 CH1=GP*8+24
3050 IF CH>47 THEN 2940
3060 CH=(GP-2)*8+CH
3070 RETURN
3080 CALL SOUND(40,-1,2)
3090 RETURN
3100 GOSUB 2290
3110 GOSUB 2220
3120 RETURN
3130 CALL SOUND(50,392,3)
3140 RETURN
3150 CH=(C+1)/4+39
3160 RETURN
3170 GOSUB 2370
3180 GOSUB 2220
```

```
3190 RETURN
3200 ON TN GOTO 3210,3250,32
80,3320,3340,3350,3380,3420,
3450
3210 IF (R>22)+(C<4)THEN 324
0
3220 R=R+1
3230 C=C-1
3240 RETURN
3250 IF C<4 THEN 3270
3260 C=C-1
3270 RETURN
3280 IF (R<3)+(C<4)THEN 3310
3290 R=R-1
3300 C=C-1
3310 RETURN
3320 IF R>23 THEN 32767
3330 R=R+1
3340 RETURN
3350 IF R<2 THEN 3370
3360 R=R-1
3370 RETURN
3380 IF (R>22)+(C>30)THEN 34
10
3390 R=R+1
3400 C=C+1
3410 RETURN
3420 IF C>30 THEN 3440
3430 C=C+1
3440 RETURN
3450 IF (R<3)+(C>30)THEN 348
0
3460 R=R-1
3470 C=C+1
3480 RETURN
3490 CALL CLEAR
3500 CALL COLOR(15,F,B)
3510 CALL COLOR(16,F,B)
3520 CALL CHAR(152,"0")
3530 PAT$="SELECT YOUR SET O
F BRUSHES:-"
3540 R5=1
3550 C5=3
3560 GOSUB 2900
3570 CALL HCHAR(9,9,152,17)
3580 CALL HCHAR(11,9,152,17)
3590 CALL VCHAR(10,9,152)
3600 N1=7
3610 N2=7
3620 N3=7
3630 N4=7
3640 N5=7
3650 N6=7
3660 N7=7
3670 FOR I=12 TO 24 STEP 2
3680 CALL VCHAR(7,I,I/2+43)
3690 NEXT I
3700 GOSUB 2390
3710 GOSUB 2750
3720 PAT$="IF YOU WISH TO CH
ANGE A BRUSH"
3730 R5=18
3740 C5=3
3750 GOSUB 2900
3760 PAT$="PRESS THAT NUMBER
."
3770 R5=20
3780 GOSUB 2900
3790 PAT$="OTHERWISE PRESS G
."
3800 R5=22
3810 GOSUB 2900
3820 GOSUB 2290
3830 IF S=0 THEN 3820
3840 IF K=71 THEN 3900
3850 IF (K<49)+(K>55)THEN 38
20
3860 K3=K-48
3870 ON K3 GOSUB 3930,3990,4
050,4110,4170,4230,4290
3880 CALL VCHAR(10,10+2*K3,1
44+K3)
3890 GOTO 3820
3900 CALL CLEAR
3910 GOSUB 2640
3920 RETURN
3930 IF N1<29 THEN 3950
3940 N1=0
3950 N1=N1+1
3960 H1$=D$(N1)
3970 CALL CHAR(145,H1$)
3980 RETURN
3990 IF N2<29 THEN 4010
4000 N2=0
4010 N2=N2+1
4020 H2$=D$(N2)
4030 CALL CHAR(146,H2$)
4040 RETURN
4050 IF N3<29 THEN 4070
4060 N3=0
4070 N3=N3+1
4080 H3$=D$(N3)
4090 CALL CHAR(147,H3$)
4100 RETURN
4110 IF N4<29 THEN 4130
4120 N4=0
4130 N4=N4+1
4140 H4$=D$(N4)
4150 CALL CHAR(148,H4$)
4160 RETURN
4170 IF N5<29 THEN 4190
4180 N5=0
4190 N5=N5+1
4200 H5$=D$(N5)
4210 CALL CHAR(149,H5$)
4220 RETURN
4230 IF N6<29 THEN 4250
4240 N6=0
4250 N6=N6+1
4260 H6$=D$(N6)
4270 CALL CHAR(150,H6$)
4280 RETURN
4290 IF N7<29 THEN 4310
4300 N7=0
4310 N7=N7+1
4320 H7$=D$(N7)
4330 CALL CHAR(151,H7$)
4340 RETURN
4350 CALL COLOR(1,F,B)
4360 CALL COLOR(2,F,B)
4370 FOR I=4 TO 14
4380 CALL COLOR(I-1,I,B)
4390 NEXT I
4400 CALL HCHAR(24,3,48,6)
4410 FOR I=9 TO 25 STEP 2
4420 CALL HCHAR(24,I,4*I+20,
2)
4430 NEXT I
4440 CALL HCHAR(24,27,128,5)
4450 FOR I=1 TO 8
4460 CALL VCHAR(1,4*I-1,I+39
)
4470 NEXT I
4480 RETURN
4490 FOR I=1 TO 29
4500 D$(I)=""
4510 NEXT I
4520 RETURN
4530 PRINT "INSTRUCTIONS? Y/
N"
4540 RETURN
4550 GOSUB 2250
4560 GOTO 4610
4570 GOSUB 3170
4580 IF (X=0)*(Y=-4)THEN 459
0 ELSE 4570
4590 R=R+1
4600 GOSUB 3080
4610 GOSUB 2100
4620 CALL VCHAR(R,C,CH)
4630 GOSUB 2350
4640 IF K=18 THEN 4870
4650 IF K1=18 THEN 4550
4660 GOSUB 2290
4670 IF K=81 THEN 4980
4680 IF (X=0)*(Y=0)THEN 4630
4690 CALL VCHAR(R,C,W)
4700 GOSUB 3200
4710 IF R=24 THEN 4810
4720 IF R<>1 THEN 4610
4730 IF INT((C+1)/4)=(C+1)/4
 THEN 4760
4740 R=R+1
4750 GOTO 4620
4760 GOSUB 3150
4770 GOSUB 3170
4780 IF (X=0)*(Y=-4)THEN 479
0 ELSE 4770
4790 R=R+1
4800 GOTO 4610
4810 GOSUB 2960
4820 GOSUB 2370
4830 GOSUB 2310
4840 IF (X=0)*(Y=4)THEN 4850
 ELSE 4820
4850 R=R-1
4860 GOTO 4610
4870 GOSUB 3130
4880 GOSUB 3100
4890 IF K=81 THEN 4990
4900 GOSUB 2360
4910 GOSUB 3200
4920 IF K=18 THEN 4600
4930 IF R=24 THEN 4810
4940 IF R=1 THEN 4950 ELSE 4
880
4950 IF INT((C+1)/4)=(C+1)/4
 THEN 4810
4960 R=R+1
4970 GOTO 4880
4980 GOSUB 2260
4990 CALL HCHAR(1,9,32,11)
5000 CALL CHAR(144,"3C202018
08047C")
5010 CALL CHAR(145,"18182424
7E4242")
5020 CALL CHAR(146,"42424242
42281")
5030 CALL CHAR(147,"3E20203C
20203E")
5040 CALL CHAR(148,"1F110101
070404")
5050 CALL CHAR(149,"0")
5060 CALL CHAR(150,"42422418
181818")
5070 CALL CHAR(151,"00020408
10204")
5080 CALL CHAR(152,"61514949
494A4C")
5090 FOR I=11 TO 19
5100 CALL VCHAR(1,I,I+133)
5110 NEXT I
5120 GOSUB 2290
5130 IF S=0 THEN 5120
5140 IF K=89 THEN 5190
5150 IF K<>78 THEN 5120
5160 CALL HCHAR(1,1,32,736)
5170 GOSUB 4450
5180 GOTO 1330
5190 FOR I=144 TO 152
5200 CALL CHAR(I,"")
5210 NEXT I
5220 GOSUB 4490
5230 FOR R=1 TO 22
5240 FOR C=1 TO 7
5250 CALL GCHAR(R+1,C*4-1,W1
)
5260 CALL GCHAR(R+1,C*4,W2)
5270 CALL GCHAR(R+1,C*4+1,W3
)
5280 CALL GCHAR(R+1,C*4+2,W4
)
5290 GOSUB 5570
5300 M$(R,C)=STR$(W)
5310 NEXT C
5320 NEXT R
5330 FB=F*10000+B*100+S3
5340 FOR R=1 TO 6
5350 CALL GCHAR(R*4-3,31,W1)
5360 CALL GCHAR(R*4-2,31,W2)
5370 CALL GCHAR(R*4-1,31,W3)
5380 CALL GCHAR(R*4,31,W4)
5390 GOSUB 5570
5400 D$(R)=STR$(W)
5410 NEXT R
5420 CALL CLEAR
5430 PRINT "TYPE ""CON"" AND
 PRESS ENTER"
5440 BREAK
5450 CALL CLEAR
5460 OPEN #1:"CS1",SEQUENTIA
```

```
L,INTERNAL,OUTPUT,FIXED 64
5470 FOR R=1 TO 22
5480 PRINT #1:M$(R,1),M$(R,2
),M$(R,3),M$(R,4),M$(R,5),M$
(R,6),M$(R,7)
5490 NEXT R
5500 PRINT #1:H1$,H2$,H3$,D$
(1)
5510 PRINT #1:H4$,H5$,H6$,D$
(2)
5520 PRINT #1:H7$,FB,D$(3),D
$(4),D$(5),D$(6)
5530 CLOSE #1
5540 CALL CLEAR
5550 GOSUB 2640
5560 GOTO 640
5570 IF W1>32 THEN 5590
5580 W1=37
5590 W1=W1-36
5600 IF W2>32 THEN 5620
5610 W2=37
5620 W2=W2-36
5630 IF W3>32 THEN 5650
5640 W3=37
5650 W3=W3-36
5660 IF W4>32 THEN 5680
5670 W4=37
5680 W4=W4-36
5690 W=W1*1000000+W2*10000+W
3*100+W4
5700 RETURN
```



DIG DUG - Module review

Atarisoft for the TI usually means good graphics and sound, and this is no exception. Funny, this is the opposite of Congo Bongo in that early levels are so simple as to make you wonder if the game is for children. That theory bites the dust just as convincingly as DIG DUG does as he burrows his way around the screen. The further you go on (and you CAN select difficulty levels at the start) the tougher it gets.

The object of the exercise is to burrow underground, and to kill off the beasties that lurk in their tunnels. Of course they also pursue you as soon as they get opportunity, and 'Fygars' are particularly nasty as they breathe fire, whereas the 'Pookas' don't. There are two ways of polishing off the little fellows. You can blow them up, which requires three 'pumps' of the joystick whereupon they inflate and explode, or with a little skill you can earn more points by causing rocks to drop on them.

So all's going well, 'til suddenly the rules appear to have been broken! While you are confined to burrowing in straight lines, those crafty Pookas and Fygars have turned into ghosties that don't understand that you can't go through walls, and here they come in bee-lines toward you diagonally and all! The only way you can kill them now is rock-dropping, otherwise run for your life until they are transformed back again. Phew!

Once you have mastered the basic elements of DIG DUG, there are still new targets, as extra points are gained through collecting the fruit and vegetables that appear momentarily after two rock falls.

At £15 DIG DUG is good value.

(JOYSTICK REQUIRED)

CONGO BONGO

DATA WIPERS

CONGO BONGO - Module review

"You are a hunter on a jungle safari. Reach the mischievious Congo Bongo by escaping wild monkeys, skull -crushing coconuts, and poisonous snakes. Ominous jungle drums warn you of the dangers that lie ahead - but it's too late to turn back!"

Safari - so good! Would you know what I meant if I said that this game is infuriating? Although there are only two screens; one being a mountain climb, and the other a river crossing; both involve such precision of control that you only tend to get a little further each time. Consequently a return to square one is repeatedly necessary. All very well if you have a lot of time on your hands. This reviewer did not, and to be honest I nearly gave up without completing level one! Glad to say I suddenly cracked it and got onto level two. Even then I saw no monkeys or snakes, so I guess there's plenty more challenges awaiting anyone who does have the time to spend.

3D-style graphics are first rate, and the overall structure of the game is a cross between Kong and Frogger. I wish I had more time to get into it in more depth - the fact that I haven't at least confirms that this is no 'one day wonder'.

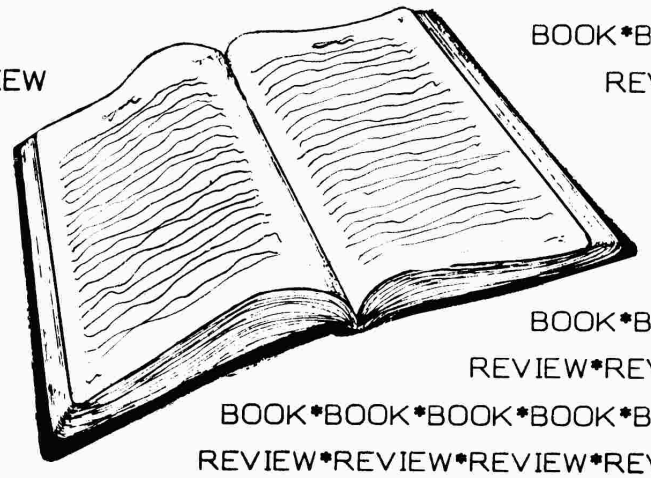
£19.95 - available now.

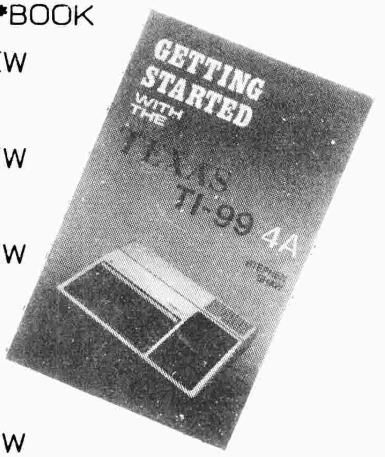
PS. great jungle sounds!

DATA WIPERS - product review

Do you ever get fed up with scribbling over disk labels, or peeling them off when they've been scribbled on too many times already? Now why didn't YOU invent DATA WIPERS then? We've seen the 'write on/wipe off' boards on kitchen walls etc, well here is the same principle applied to disk and cassette labels. Either type are available, but the idea is the same. The labels themselves have a sort of laminated finish, and the pen is a non-permanent fibre-tip. Consequently it writes clearly on the label, but can be erased quickly and simply with a damp cloth.

I like the principle, I like the look of them, and I shall use them. Where 'workdisks' are concerned, or cassettes that are repeatedly used, DATA WIPERS are perfect. The only reservation in my mind is the fact that the ink can be rubbed off with a dry finger if mauled. Assuming that disks are handled with appropriate care, then this can probably be discounted. I shall give them the benefit of the doubt until such time that I can no longer read the labels and have to use Disk Manager to tell me which disk is which!





GETTING STARTED by S.Shaw

a book review

There are two reasons for recommending this book to a beginner. One is that it sheds light on many of the knotty areas where the User Guide is less than clear, and the other is that many topics are included that the User Guide doesn't even cover.

The first three chapters deal with setting up, and with an introduction to TI Basic. There are clear descriptions of common commands, with plenty of examples.

The next two chapters cover topics that everyone wants to know more about, but finds little help - cassette handling and file processing. If you have a particular interest in this subject, then the book is worth getting for this alone. Not that this or any other subject is exhaustively covered, but the User Guide is so confusing and sketchy that the clarity here is bound to help.

Next, an interesting chapter called 'Advanced Programming'. Assembly Language is touched on, but the Author is sensitive to the fact that the majority do not have the necessary resources for this to be relevant, so returns to Basic. Useful tips and routines are included, e.g. sorting and data compression.

Extended Basic warrants a chapter to itself, with an overview of the 'plus factors' of the module over console Basic.

The last two chapters deal with various software and hardware descriptions. The author's penchant for detail and interest is highlighted by the inclusion of such goodies as the extra BASIC commands available with PRK and Statistics modules.

Stephen is a stickler for getting facts right, and is always seeking to uncover new info about the TI. This is rflected all through the book, which is written in a clear and easy style.

£5.95 and well worth it.

"LITTLE BITS"

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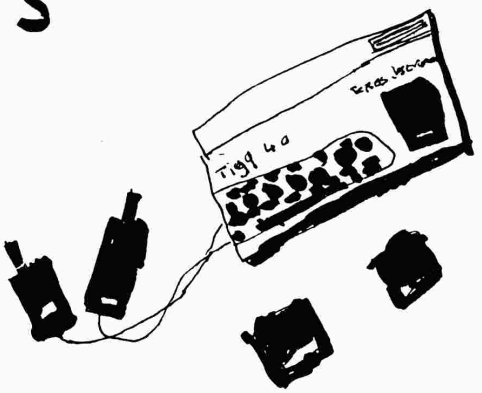

what I think about Addition and Subtraction 1
its nice its great fun theres 4 different games its for 8 year olds and under its interesting its got coulerful [redacted] Pitcers if you get answers write it does coulerful stars its goes comly if you go wrong it takes the number that you type in not all the time it talks its hard sometimes its easy some times there stars with faces on and stars with coulers on the 8th one its very very hard its got Sums on its better than number magic and early reading and early learning fun and alicater mix its got animals on its a computer program its pretty fun you dont always get them write, I wrote about Addition and Subtraction 1 because it was good and the first time I played it it was fun if you get them all write a screen shows up saying well done and a rabbit or a hair turns up or even flowers I chose this program as my Best one [redacted] at the [redacted] moment because its exiting and its very good they have put alot of work in to such a good program I also chose that program Because [redacted] one of my freinds brothers has got it

P.S. Please write a letter

GRAPHX

ANNOUNCING GRAPHX

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A JOYSTICK.

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*** ***
*** STOP PRESS ***
*** ***

See also in this issue...

`artist´

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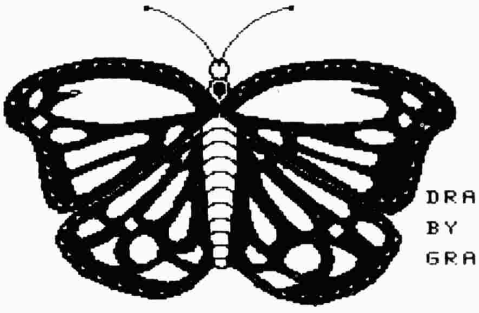

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