



Einstein Magazine

& ALL MICRO NEWS number 95

Published for users of Einstein (and other) computers
by RPM Society.

Publisher and Secretary:-

**A E Adams, Ivy Cottage, Church road, New Romney,
KENT TN28 8TY**



Great Moments in Computer History: 4
The Einstein Boffin identifies the Millennium Bug

11 ELIZABETH AVE
11, Elizabeth Avenue,
Bridgnorth,
Shropshire.
WV16 4PX.

Dear Mr. Adams,

I am wondering if you are still among the Einstein User Group, as I was a member until early in 1995 when I lost touch and did not renew my membership. I was diagnosed as suffering from Parkinsons Disease in 1992, and due to this I went through a very bad spell of ill health in 1994/5, and I just could not be bothered with many things at that time.

However, my condition is fairly stable at the moment, and having upgraded twice since 1996, I am now intending to upgrade once more to a P.C, so that I can get on the Internet.

Unfortunately, I have one problem, lack of space in my Study, which means I shall have to dispose of my Einstein. I am very reluctant to throw it on the scrap heap since it is still in perfect working order. On the computer market I realise it is worth very little, so if I could dispose of it to someone who could put it to good use they could have the whole set-up for a reasonable amount.

The set-up comprises:-

Einstein Computer with 2 Internal Disk Drives
External 3.5" Floppy Drive
80 Column Card with switched output to input of Modulator for use on TV
Handy Reset Button on Left side, wired in parallel with Reset Button on rear
Sure Shot Joystick
Epson MIX Printer with Centronics parallel interface
Ferguson TAX Colour TV "Movie Star" 12" screen
All necessary connecting cables

Einstein Computer Workshop Manual and Circuit Diagrams.
Manufacturers Notes on IC's etc.
Einstein User Mags, complete, from Issue 1 to Issue 75 - Jan/Feb 1995
Approx. 100 x 2" Disks and 20 x 3.5" Disks.
Full Progs WordStar, DataStar, ReportStar, Professional, with Manuals.

As I have said I am willing to let all this go as a complete package, if anyone will offer me a reasonable price, and buyer collects. It is still set up at present so anyone interested can see it working, but I may have to dismantle soon to reclaim some space. If you are not interested yourself, but know someone else who may be, I would appreciate your letting me know.

Looking forward to hearing from you,

Yours sincerely,



IAN GAMBLE

Ian G. Gamble

WIND AND TIDES PERMITTING,
you'll find the final section of our first "reissued on the instalment principle" user manual bound into this magazine as a centrefold insert in such a way that you can readily detach these inserts from each magazine without damaging the rest, and assemble the sections into a complete booklet yourself by whatever means you find most convenient.

PLEASE LET TONY KNOW BY RETURN OF POST
what user manuals you need reprinted next so that you can use your Einey to the full -- AND ALSO LET HIM KNOW ABOUT ANY ERROR CORRECTIONS OR ADDITIONAL INFORMATION THAT NEEDS TO BE INCLUDED IN ANY REPRINT !!!



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SHOWS, SOFTWARE LIBRARY and USEFUL BITS

**Steve Potts 85 Thorold Ave, Cranwell Village, Lincs.
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The Editor Looks Both Ways.



From the Nineties to the Noughties (as I fear they will be called), it has been a long stretch for the Einstein. Both the value of the micro and the membership of the User Group have plummeted but we do now have a good hard core of users who really appreciate the machine and are gleefully collecting free, or nearly free, Einstein bits and pieces.

I realise that the last year, in particular, has been one of rather boring technical stuff concerning 3.5" drives but I felt that time was running short for those wishing to continue Einsteining, due to the lack of 3" disks and drives and the quite sudden obsolescence of the 720k PC drive. The 1.44M drive is now on its way out, there are PCs on the market without any fitted, the CDROM having taken over. I am now confident that no owner will have to dump his micro just because the drive has given up the ghost, but as time goes on it will be more difficult to find even 3.5" replacements.

Of course, he might be tempted to go over to the PC, as many onetime members have, but I think it was significant that so many wrote of their sadness at the change. I, like many others, have retained the Einstein and added a PC, so getting the best of both worlds, but I often reflect that whilst the PC gets more out-of-date by the hour, dependable old Albert just soldiers on.

Looking back at the magazine, gaming has severely suffered and totally new software (i.e. Basic programming) too, mainly for lack of input. If I haven't got it I can't include it! The Postbag has dropped to almost nothing, and most of those "Dear John" letters, but I am heartened by the support I have had from the above-mentioned 'hard core'. I do not find many people who ENJOY using their PCs and MACs in the way that we enjoy the Einstein, they are too busy trying to find out how/whether the latest expensive software does what the makers claim. No nipping into MOS for a little tweak for them! If they could, I expect the consequences would be awesome.

Looking forward, it strikes me that we are in a good position to add a new monitor in the next few years. All those TVs going out of service as digital comes in! If you have never hooked a modern 30" set to Albert's TV socket you could be in for a surprise. Position the set a few feet away for the best effect. We have a few things in the pipeline; Bob Deeley is doing an index to bring us up to date, Steve is setting up the promotion of his new Software Library Service and Clem Cole is still working on the Library as well, getting everything classified. Stan Gibbs is keeping a fatherly eye on printer matters and still writing the odd Basic program and I hear that John Marriott now has an up-and-running TC01, so we may well be hearing from that source.

I am preparing an article on the Silicon Disk kindly donated by Dick Keynes and may have a breakthrough in drive selection purely through the keyboard. Steve has apparently got a version that retains its data after switch-off which makes it a small hard disk in practice. I intend to dissect the

PC mouse (Ughh!) to see if we can use it and there is yet more to come on printers and the use of colour. Tony has mentioned the forthcoming 'Working with Basic' articles and we hope that Members will be sending input for this.

I think we are the only 8 bit single micro group still in business going into the 21st. Century and the Einstein is so reliable that our only concern needs to be the ROM chip which is now well beyond its consume-by date (it was intended to last 10 years) but even there we have Stuart Marshall on hand to blow a replacement for us. I have replaced the ROM in both my machines recently, so they should be good for another 10+ years.

The provision of a hard disk is still a project under consideration, but I make no promises about it. I am still hoping that Steve, Chris Coxall, Stan or one of our other car boot delvers will come up with one of the original HDs that were sold for the machine. We could learn a lot from that, and there are plenty of IDE drives going very cheap at present which could be pressed into service.

I have been rereading an article from the Express dated 12 July 1999. Entitled "We are all being slowly sucked into a computer hell" by Robert Matthews who points to the Passport Office, Wessex RHS, MoD, Stock Exchange and London Ambulance Service computers which have cost the country millions of pounds in recent months. He also quotes research showing that the worst performing companies in the world are those which are highly computerised. He concludes that computers are only **really** good at things like writing letters and sorting payrolls. His final para reads "We should ignore the salesman's siren call of the latest and fastest and put our trust in boring, old, clapped-out computers ... some other mug has happily used for years."

Never 'boring', but I think we may be in there somewhere! Perhaps we do have a future.

This issue of the magazine has been put together with the thought that Xmas tends to be a time not only of over-eating, over-drinking and over-doing things generally, but also a time when there often seems a lot of nothing to do. Therefore you will find a good number of programs to tap in and get running (especially if you have a mouse) to fill in some of those slack periods. Good Tapping!

I would like to thank Tony and Chris for their invaluable help in keeping this magazine alive for the past year, and Chris in particular for raising the standard of illustrations way beyond my back-of-an-envelope scratchings, and all the members who have also contributed.

**A VERY HAPPY CHRISTMAS AND PRODUCTIVE
NEW YEAR TO ALL EINSTEINERS**

THE EINSTEIN MOUSE

Some experiments with the MouseArt XBAS routine.

by Ted Cawkwell

First, a few words about the rodent itself. Mine is an optical mouse of the type known as an Amiga or TCS - Einstein mouse. It is a chunky, heavy beast in blue and gray plastic, rectangular in shape with two large blue buttons.

On the base it has "NEOS model MS30". It has a 9 pin DIN plug to which is attached a short piece of ribbon cable with a connector for the User Port. There is an excellent article by Dave Arts in All Micro News No 1/12 with wiring data and a drawing program. I have not tried this (there is a LOT of machine code to type in!).

On first switching on the Einstein the Left Button must be held down to put the mouse in the correct mode.

The wiring to fit a DIN plug to the mouse and the User Port is as follows:-

DIN Plug Pin	User Port Pin
Data	1 ——— 16
Left Button	6. ——— 2
Data	2 ——— 10
+ve supply	7 ——— 15
Data	3 ——— 14
-ve supply	8 ——— 7
Data	4 ——— 12
Right Button	9 ——— 4

5 no connection.

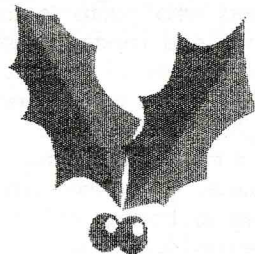
It is quite different to the PC mouse which has only four active lines for data, clock and pos/neg lines.

The MouseArt program by Mick Pugh has a Basic program called MSEDV.XBS on the disk which is intended to let users add the mouse basic system to their own programs. It is not very long:-

```

10 REM routine to drive mouse
20 A=&A000
30 CLEAR A-1
40 A=&A000:B=A
45 REM m/c for mouse response - relocatable
50 DATA CF,B5,FE,1B,3E,00,28,12,DB,32,CB,67,28,1A
60 DATA CB,6F,28,0C,FE,3F,28,EA,EE,0F,E6,0F,32,FF,00,C9,DB,32,E6,20
70 DATA 28,FA,3E,0C,18,F2,DB,32,E6,10,28,FA,3E,0B,18,E8,11
75 REM next 2 statements initialise mouse
80 OUT &33,&CF

```



```

90 OUT &33,&3F
95 REM poke in m/c
100 READ A$
110 REM PRINTA$;A;
120 IF A$="11" GOTO 170
130 POKE A,VAL("&" + A$): A=A+1
140 GOTO 100
150 REM now a routine to use the mouse
160 REM set usrlc
170 PTR 9,B
220 X=CALL(B)
240 M%=PEEK(&00FF)
250 PRINT "M% = ";M%
260 IF M% = 0 THEN 1000
270 ON M% GOSUB
330,350,365,370,390,410,425,430,450,470,4
90,510
280 REM 0,UP,DWN,LFT,LFT&UP,LFT&DWN-,
RGT,RGT&UP,RGT&DWN,LFTBUT,RGTBUT
290 IF KBD$ <> "" GOTO 220
300 END
310 PRINT "No mouse input"
320 GOTO 220
330 PRINT "Mouse up"
340 RETURN
350 PRINT "Mouse down"
360 RETURN
365 RETURN
370 PRINT "Mouse left"
380 RETURN
390 PRINT "Mouse left and up"
400 RETURN
410 PRINT "Mouse left and down"
420 RETURN
425 RETURN
430 PRINT "Mouse right"
440 RETURN
450 PRINT "Mouse right and up"
460 RETURN
470 PRINT "Mouse right and down"
480 RETURN

```

```

490 PRINT "Mouse LEFT button"
500 RETURN
510 PRINT "Mouse RIGHT button"
520 RETURN
1000 PRINT "ESC key hit. Just stop"
1010 STOP

```

It has the advantage of relocateable machine code, meaning that it may be run from any part of memory, the CALL being adjusted to suit. The code places a number in location 00FF hex (which address must not be changed) the value of which gives mouse movement or button state and requires the ESCape key to exit the routine. Whilst the m/c is running Shift/Break does not work. The method used to call the machine code is not common but is easily changed to the better known method as shown in later programs. The value of A must be declared AFTER the CLEAR command, but I admit I don't know why. (Because it is a hex number?)

My first venture to use the routine was a simple drawing program where the X and Y increments were substituted for "Print mouse up" etc. to move a sprite Arrow and the buttons were arranged to DRAW or UNDRAW as follows:

```

10 REM Simple drawing prog using the Einstein
Mouse
20 REM Ted Cawkwell Aug 1999
30 CLEAR &8000
40 A=&8000:B=A:IOM 3,0
42 REM Shape for arrow and coords. used for
Sprite
45 SHAPE140,"70C0A09000000000":X=256/
2:Y=192/2
50 DATA CF,B5,FE,1B,3E,00,28,12,DB,32,CB,67
,28,1A
60 DATA CB,6F,28,0C,FE,3F,28,EA,EE,0F,E6,0
F,32,FF,00,C9,DB,32,E6,20
70 DATA 28,FA,3E,0C,18,F2,DB,32,E6,10,28,
FA,3E,0B,18,E8,11
75 REM next 2 statements initialise mouse
80 OUT &33,&CF
90 OUT &33,&3F
95 REM poke in m/c
100 READ A$
110 REM PRINTA$;A;
120 IF A$="11" GOTO 150
130 POKE A,VAL("&" + A$): A=A+1

```

```

140 GOTO 100
150 CLS:PTR 9,B
160 GOSUB 1500:UNPLOTX,Y
220 C=CALL(B)
240 M%=PEEK(&O0FF)
250 REM:PRINT"M% = ";M%
260 IF M% = 0 THEN 1000
270      ON      M%      GOSUB
330,350,365,370,390,410,425,430,450,470
,490,510
280 GOSUB 1500
290 IF KBD$ <> "" GOTO 220
300 END
310 PRINT"No mouse input"
320 GOTO 220
330 Y=Y+1
340 RETURN
350 Y=Y-1
360 RETURN
365 RETURN
370 X=X-1
380 RETURN
390 X=X+1:Y=Y+1
400 RETURN
410 X=X-1:Y=Y-1
420 RETURN
425 RETURN
430 X=X+1
440 RETURN
450 X=X+1:Y=Y+1
460 RETURN
470 X=X+1:Y=Y-1
480 RETURN
490 DRAW TO X,Y-1
500 RETURN
510 DRAW TO X,Y-1,1
520 RETURN
1000 PRINT"ESC key hit. Just stop"
1010 STOP
1500 SPRITE0,X,Y,1,140

```



1510 RETURN

This works OK showing that the principle is sound so I progressed to using the arrow to select a file and RUN or LOAD it. Rather more complicated!

```

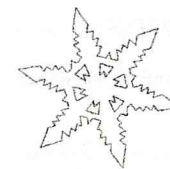
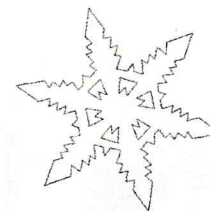
10 REM RUN/LOAD routine using Einsten Mouse
on Directory Listing
20 REM Ted Cawkwell Aug 1999
30 CLEAR &8000
40 A=&8000
45  SHAPE140,"FOCOA09000000000":X=19
:Y=186
50 DATA CF,B5,FE,1B,3E,00,28,12,DB,32,CB,67,
28,1A
60 DATA CB,6F,28,0C,FE,3F,28,EA,EE,0F,E6,0
F,32,FF,00,C9,DB,32,E6,20
70 DATA 28,FA,3E,0C,18,F2,DB,32,E6,10,28,
FA,3E,0B,18,E8,11
80 OUT &33,&CF
90 OUT &33,&3F
100 READ A$
120 IF A$="11" GOTO 150
130 POKE A,VAL("&"+A$): A=A+1
140 GOTO 100
150 KEY7,"RST:BCOL4:RUN"+CHR$(
&22)+"RATDIR":PRINTCHR$(20):CLS:DIR"*XB-
S":C=3:R=1
160 PRINT@C,R;F$=MID$(SCRN$(POS(2)),C+1,
12):PRINT@C,R;F$;
165 GOSUB 240
180 IFC<18THENC=3:ELSEIFC>18THENC=18:EL-
SEIFR<1THENR=1:ELSEIF MID$(SCRN$(R),C+1,1
2)=" " THENR=R-1
190 F$="":GOTO 160
200 PRINT @ C,R;CHR$(23);R$;CHR$(23)
205 FORA=1TO8:T$=MID$(F$,A,1):IFT$=" " TH
EN210:ELSE R$=R$+T$:NEXTA
210 IF M%=12 THEN LOAD R$:ELSE CHAIN R$
240 CALL &8000
250 M%=PEEK(&O0FF)
260 IF M% = 0 THEN 1000
270 ONM%GOSUB330,350,365,370,390,410,
425,430,450,470,490,510
280 R=23-INT(Y/8):C=INT(X/6)
290 SPRITE0,X,Y,11,140
300 RETURN

```

```

330 Y=Y+2
340 RETURN
350 Y=Y-2
360 RETURN
365 RETURN
370 X=X-8
380 RETURN
390 X=X-8:
Y=Y+2
400 RETURN
410 X=X-8:Y=Y-2
420 RETURN
425 RETURN
430 X=X+8
440 RETURN
450 X=X+8:Y=Y+2
460 RETURN
470 X=X+8:Y=Y-2
480 RETURN
490 GOTO 200
500 RETURN
510 GOTO 200
520 RETURN
1000 PRINT"ESC key hit. Just stop"
1010 STOP

```



Most of the changes are between lines 150 and 210 and are similar to the routine used in QR2.XBS for selecting files with a highlighted cursor. In this case, the arrow selects the file which is highlighted when one of the buttons is pressed. The left button RUNs the file and the right button LOADs it. The memory location for the machine code is changed to &8000 just to show that it works, and the mouse movement on the X axis was increased to 8 but only doubled to 2 on the Y axis.

My next experiment was to use the mouse to select and "depress" buttons on the screen in the familiar PC way:-

```

10 SHAPE140,"FC848484848484FC"
12  SHAPE141,"0078484848487800":
SHAPE142,"00FOCOA0900000000"
30 CLEAR &A000

```

```

40 A=&A000
45 REM m/c for mouse response - relocatable
50 DATA CF,B5,FE,1B,3E,00,28,12,DB,32,CB,67
,28,1A
60 DATA CB,6F,28,0C,FE,3F,28,EA,EE,0F,E6,0
F,32,FF,00,C9,DB,32,E6,20
70 DATA 28,FA,3E,0C,18,F2,DB,32,E6,10,28,
FA,3E,0B,18,E8,11
75 REM next 2 statements initialise mouse
80 OUT &33,&CF
90 OUT &33,&3F
95 REM poke in m/c
100 READ A$
120 IF A$="11" GOTO 150
130 POKE A,VAL("&"+A$): A=A+1
140 GOTO 100
150 REM MAIN ROUTINE
160 X=120:Y=150
170 CLS:PRINT@20,6;"A";@24,6;"B"
180 PRINT@5,7;"CHOOSE A OR
B";@20,7;CHR$(140);@24,7;CHR$(140)
190 SPRITE0,X,Y,11,142
290 CALL &A000
300 M%=PEEK(&O0FF)
310 IF M% = 0 THEN 1000
320 ON M% GOSUB330,350,365,370,390,4
10,425,430,450,470,490,510
323 C=INT(X/6):R=23-INT(Y/8)
325 GOTO 190
330 Y=Y+2
340 RETURN
350 Y=Y-2
360 RETURN
365 RETURN
370 X=X-2
380 RETURN
390 X=X-2:Y=Y+2
400 RETURN
410 X=X-2:Y=Y-2
420 RETURN
425 RETURN

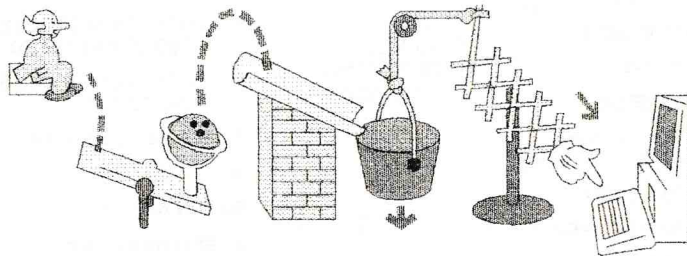
```



```

430 X=X+2
440 RETURN
450 X=X+2:Y=Y+2
460 RETURN
470 X=X+2:Y=Y-2
480 RETURN
490 GOSUB 1200
500 RETURN
510 PRINT "Mouse RIGHT button"

```



```

520 RETURN
1000 PRINT "ESC key hit. Just stop"
1010 STOP

```

The Editor's XMAS PRESENT to ALL MEMBERS

A DIY non-electronic Keyboard Operator!

```

1100 PRINT @C,R;CHR$(141);
1110 FOR J=1 TO 20:NEXT
1120 PRINT @C,R;CHR$(140);
1130 RETURN
1200 IF R=7 AND C=20 THEN GOSUB 1100:PRINT@10,15;"YOU CHOSE A"
1210 IF R=7 AND C=24 THEN GOSUB 1100:PRINT@10,15;"YOU CHOSE B"
1220 RETURN

```

For this program it is necessary to convert the mouse position in pixels to row and column (R and C) for the text and this is done in line 323. The subroutines at 1100 and 1200 do the rest of the work, the first printing a smaller square followed by the original one. There is a delay to avoid fooling the eye with the speed of the change. This gives the depressed button effect, and then line 1200 sorts out which button was selected. The program does not do anything else, it is just for demonstration. Exit using ESCape.

It is now time to convert an existing Einstein program, and this is where I am up the proverbial gumtree as there are not any suitable programs. In fact, I have only managed to convert my SKETCH drawing and colour printing program so far. It was a pig to program but once working I feel that the drawing procedure is smoother than it was with the joystick although the cursor movement is slower. To move from one side of the screen to the other needs a mouse mat about 2 feet across! It is possible to increase the speed but if you make it say 8

pixels then this is as near as you can get to a given point, i.e. the slightest twitch of the mouse is a whole character width. I have therefore put in a Speed change to 1 which can be selected at any time. I find this better than the rather jerky joystick control where one can push the stick UP and have zero reaction sometimes.

If any reader can suggest a Basic program that would benefit from mouse control I will be very happy to take a look at it. The one obvious candidate, file handling, has already been done by Roy Prime in his TUBES program.

Failing this I am hoping to develop some sort of program with mouse control in the near future. I do not necessarily wish to stick to the PC method but it would certainly help if we could program pull-down menus. It is done in POPUP and GRAFDRAW and possibly others; does anyone know the trick?



EXAMPLE (Contd):

KEY 5,"B=58:PRINT CHR\$(B) c/r" - this programs function key 5 to set variable B to 58 and then print it.

To display the contents of the function keys use the KEY LIST command.

KEY LIST - this will display the contents of all the function keys, on the screen, as shown in the example display given below.

```

F0: LIST c/r
F1: PRINT CHR$(A) c/r
F2:
F3: BCOL5:TCOL15 c/r
F4:
F5: B = 58:PRINT CHR$(B) c/r
F6:
F7:

```

Shifted functions are shown in listings as follows:

```

sF0:
sF1:
sF2:
sF3:
sF4:
sF5:
sF6:
sF7:

```

Notes on use:

Each time a programmed function key is used, the BASIC statement stored in the string expression is displayed on the screen. In order to execute the statement, press ENTER in the usual way.

Should you wish to execute the function key immediately when the key is pressed, the ENTER command must be embedded within the print statement.

This is done by simultaneously pressing the GRAPH and ENTER keys. The command is shown in the listing as c/r (carriage return).

In a similar way the GRAPH key can be used to embed control codes within function keys.

Related Keywords:

POLY (Polygon)

Syntax: POLY N,x,y,R,T,z,a,b

Purpose: This graphics command will draw a polygon according to the values given in the parameters.

N is the number of sides of the polygon. x,y are the co-ordinates of the centre of the polygon and can have values in the range -32768 to +32767. R is the distance from point (x,y) to the vertices of the polygon i.e. R is the horizontal radius of an ellipse which would contain the polygon and T is the ellipse qualifier given by the following:-

T = $\frac{\text{VERTICAL AXIS (of ellipse)}}{\text{HORIZONTAL AXIS (of ellipse)}}$

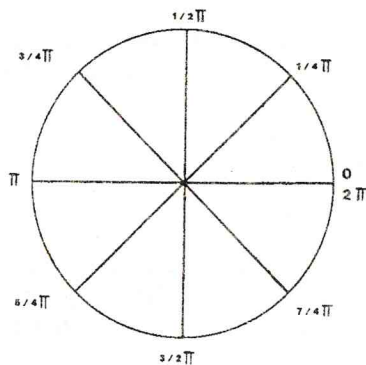
If T is omitted it will default to 4/3 thereby having the same effect as in the ELLIPSE command, resulting in a REGULAR POLYGON (owing to the aspect ratio of the screen being 4:3).

POLY N,x,y,R

z is a number in the range 0 to 5 indicating the type of line to be drawn (if omitted z will default to 0).

- 0 - Continuous Line
- 1 - Continuous Unplot
- 2 - Dotted line 2 dots on, 2 dot off.
- 3 - Dashed line 4 dots on, 2 dots off.
- 4 - Dotted-Dashed line 10 dots on, 2 dots off, 2 dots on, 2 dots off.
- 5 - Dashed-dotted line 10 dots off, 2 dots on, 2 dots off, 2 dots on, 10 dots off.

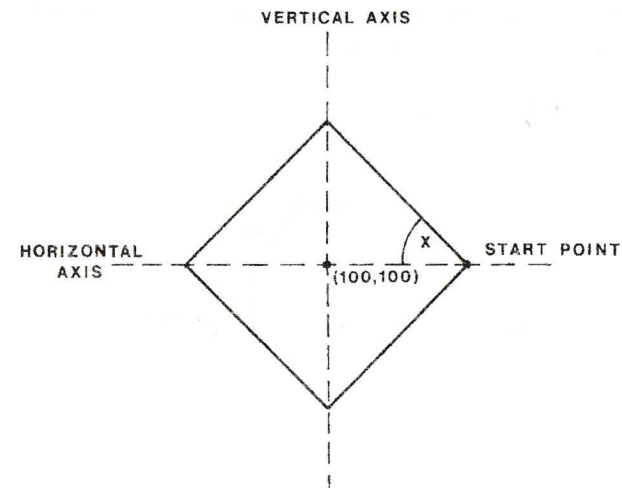
'a' and 'b' are start and end angles which indicate where the drawing of the polygon should begin and end. These are optional. The start and end angles are specified in radians and are numbered in an anticlockwise direction from 0 at the right hand horizontal axis up to 2π radians for one complete revolution. The values may be specified as numbers or an expression in terms of π .



The orientation of polygons on the screen is determined by the internal angle between the horizontal axis and the first side of the polygon drawn from the start point. Look at the following example:-

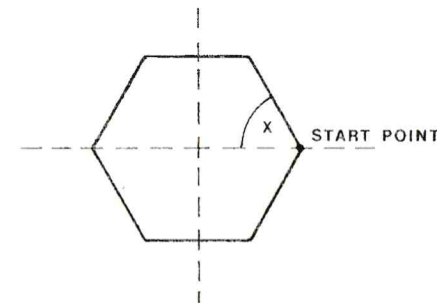
POLY 4,100,100,50, ,0

The 'T' parameter and start and end angles ('a' and 'b') are omitted thus producing a square on the screen as shown below (solid outline only). Notice the orientation which depends on the angle at x.



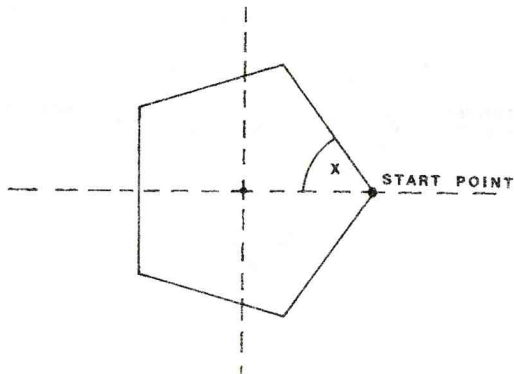
The first side of the polygon commences from the start point on the horizontal and is drawn at the angle given by 'x'. This angle varies according to individual polygons and is equal to half the interior angle at that point. In the case of a square 'x' is 45° , for a regular hexagon 'x' will be 60° giving the orientation shown below.

POLY 6,100,100,50, ,0



In the case of a regular Pentagon x will be 54° giving the orientation shown below

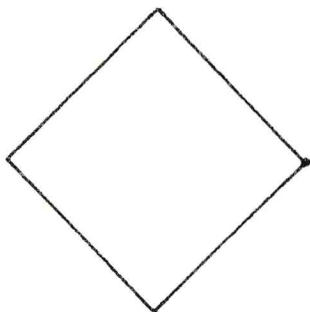
POLY 5,100,100,50, ,0



Specifying start and end angles will affect the axes of a polygon and give a different orientation on the screen. This is best illustrated by the following examples using a square.

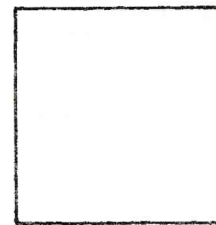
POLY 4,100,100,50, ,0

The 't' parameter and start and end angles are omitted thus producing a square with the orientation as shown below.



POLY 4,100,100,50, ,0,PI÷4,PI÷4

Here the 'T' parameter is omitted but the start and end angles are specified as both being $\text{PI} \div 4$ (i.e. $\frac{\pi}{4}$). This now produces a complete square with the orientation as shown below.



The start and end angles caused the whole square (polygon) to be turned through 45° ($\frac{\pi}{4}$).

If 'a' and 'b' are specified as different values then an incomplete square (polygon) would be drawn (as for an ellipse). The orientation will be affected just as before. Look at the following example.

POLY 4,100,100,50, ,0,PI÷4,7*PI÷4

This will produce the following result on the screen.



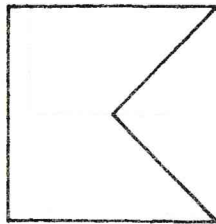
SKETCH AUTOMATIC

by D BARRADINE

If 'a' and 'b' are given as negative values the start and end points will be joined to the 'x,y' point (centre of the axes) with lines as illustrated in the following example.

POLY 4,100,100,50, ,0,-PI÷4,7*PI÷4

This gives the following result:



The principles described above apply to all polygons.

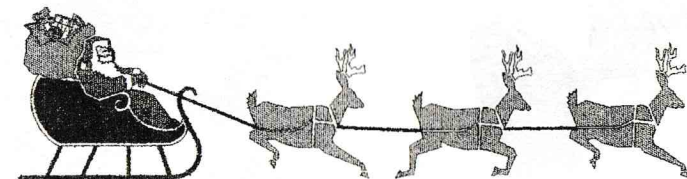
Related Keywords: DRAW ELLIPSE ORIGIN PLOT UNPLOT

Nothing to do with my own SKETCH so please read on! When you have tapped it in and RUN it you will see the reason for the title. It is a little miracle of XBAS for my money, but you do need XBAS 5.0 to run it as it uses REPEATUNTIL. I have only made minor changes for better running and to make the text seasonal. Converting from Einstein text to PC text has caused a couple of strange effects: in line 65 the text is actually Graph/Shift x then a hyphen and GraphShift z, in line 75 the first character in quotes is Graph = followed by Graph 5.

```

10 CLS:MAG1:SPRITEOFF:GOSUB225
15 DRAW100,30TO100,100
20 DRAW100,100TO90,90:DRAW90,90TO100,50
25 DRAW100,100TO110,90:DRAW110,90TO100,50
30 DRAW100,100TO110,100:DRAW100,100TO90,100
35 DRAW90,100TO64,117:DRAW110,100TO128,136
40 T1=0:T2=360:W=23:CX=65:CY=140:A=24:B=13:GOSUB125
45 DRAW62,170TO65,181:DRAW64,170TO70,182:DRAW84,170TO87,185:DRAW86,
170TO90,182
50 T1=30:T2=140:R=16:CX=82:CY=90
55 DRAW93,170TO124,170:T1=80:T2=90:W=20:CX=124:CY=41:A=10:B=7
60 GOSUB125T1=30:T2=240:R=16:CX=182:CY=0
65 PRINT@11,2;"++"
70 T1=10:T2=128:W=100:A=59:B=29:CX=80:CY=80:GOSUB125:T1=15:T2=190:W=
90:A=59:B=29:CX=120:CY=78:GOSUB125
75 PRINT@20,13;"!";@16,18;"o";@16,20;"o"
80 T1=0:T2=360:W=0:CX=63:CY=167:A=7:B=4:GOSUB125:T1=0:T2=360:W=0: CX=
87:CY=167:A=7:B=4:GOSUB125
85 T1=45:T2=10:W=5:CX=72:CY=68:A=90:B=90:GOSUB125
90 SHAPE130,"8884848458782000"
95 PRINT@25,16;CHR$(130)

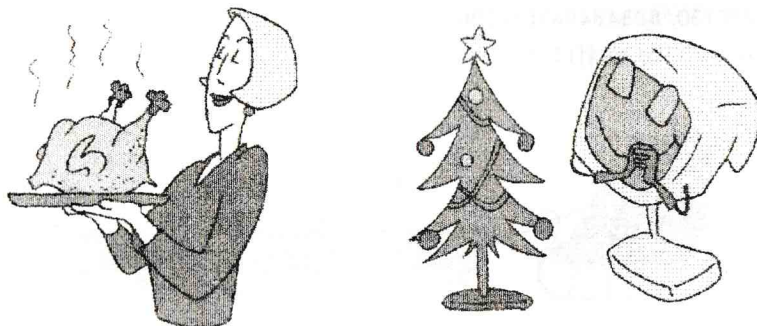
```




```

100 PRINT@25,15;"___"
105 T1=165:T2=155:CX=95:CY=153:A=46:B=35:W=20:GOSUB125
110 SHAPE130,"708808080810A0C0"
115 SPRITE0,110,171,15,130
120 PRINT@0,20:GOTO140
125 W=W*PI/180:X=COS(W):Y=SIN(W):T1=T1*PI/180:T2=T2*PI/180:FORT=T1TOT2 STEP1.1/A
130 PLOT CX+A*COS(T)*X-B*SIN(T)*Y,CY-(B*SIN(T)*X+A*COS(T)*Y):NEXT:RETURN
135 STOP
140 DRAW85,165TO87,165TO87,167TO85,167TO85,165
145 DRAW60,165TO62,165TO62,167TO60,167TO60,165
150 POLY12,140,175,1:GOSUB220
155 POLY16,150,179,3:GOSUB220
160 POLY18,165,183,5:GOSUB220
165 POLY18,184,185,7:GOSUB220
170 ELLIPSE185,145,45,.4
175 K=0:REPEAT :K=K+1
180 F=RND(6):PRINT@24,5
185 PRINT@24,5
190 IFF=0THENPRINT;"MERRY XMAS "
195 IFF=1THENPRINT;"HAVE A BEER "
200 IFF=2THENPRINT;"CHEERS "
205 IFF=3THENPRINT;"HICI "
210 IFF=4THENPRINT;"HAPPYNEWYEAR"
215 GOSUB220:PRINT@35,5;SPC(12):UNTIL K=10:PRINT@0,20:END
220 FORP=1TO2400:NEXT:RETURN
225 PRINT" Taken from the S.U.N magazine by a Mr Burnbaum (I think thats his name) and adapted to
run on ";
230 PRINT" the EINSTEIN by D.G.Barradine No3053"
235 PRINT"PRESS ANY KEY":H=INCH:CLS:RETURN

```



A COUPLE OF QUICK ONES TO TYPE IN

BY David Williams

The authors name is all the guarantee you need for the excellence of these two.

```

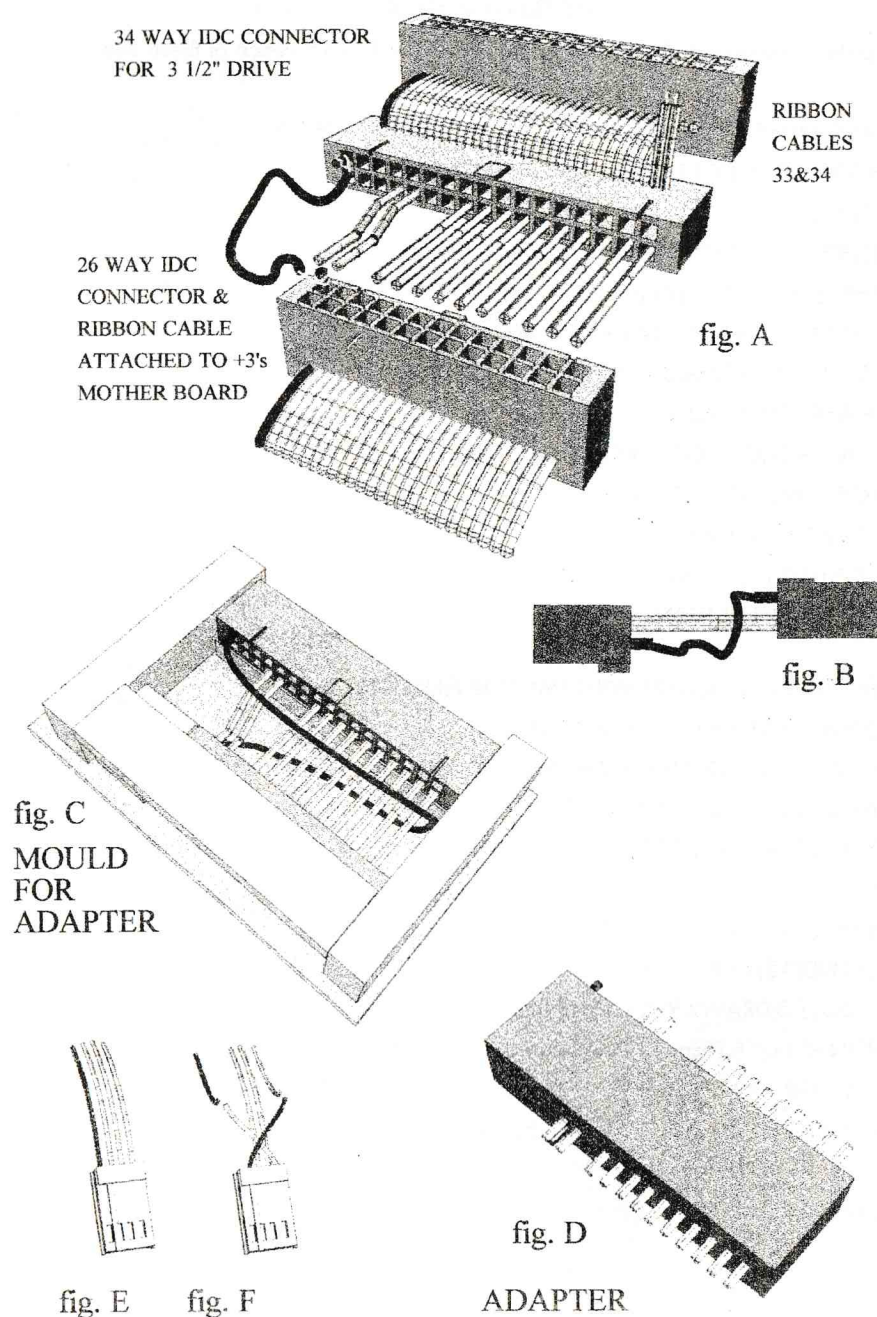
5 REM SHADES BY DAVID WILLIAMS FOR EINSTEIN SEPT'95
10 BCOL0:RST:GCOL14,0:PRINT@18,0;"SHADES"
20 FOR A=0 TO 696 STEP 12
30 ELLIPSE125,96+8*SIN(RAD(A)),4+A/6,0.5
40 B=B+1:IF B=19 THEN B=0:GOSUB 100
50 NEXT:GOSUB130:FOR A=1 TO 20:GOSUB 90:NEXT
60 PRINT@14,23;"AGAIN (Y/N):";A=INCH AND 223
70 IF A=89 THEN RUN
80 IF A=78 THEN BCOL4:RST:END:ELSE 60
90 FOR C=90 TO 0 STEP-4:GOTO110
100 FOR C=0 TO 90
110 SPRITE0,123,192-C,15,111:NEXT
120 SPRITE OFF:RETURN

```

```

5 REM STRING by DAVID WILLIAMS FOR EINSTEIN - Sept'95
10 BCOL14:RST:A=0.05:B=2.6:TCOL1,0
20 FOR C=1 TO 32 STEP A:D=C-A:E=2*D
30 X=125-60*COS(E)*SIN(B*D)
40 X1=125-60*COS(2*C)*SIN(B*C)
50 Y=96-80*SIN(E)
60 Y1=96-80*SIN(2*C)
70 Z=RND(15)+1:IF Z=14 THEN 70
80 GCOLZ,0:DRAWX,Y TO X1,Y1:NEXT
90 PRINT@4,0;"A Happy New Year from all at HQ."
100 PRINT@15,23;"Again Y/N:";
110 A=INCH AND 223:IF A=89 THEN RUN
120 IFA=78 THEN BCOL4:RST:END
130 BEEP:GOTO100

```


AN ADAPTER FOR A SPECTRUM +3 DRIVE *By Chris Coxall*AN ADAPTER FOR A SPECTRUM +3 DRIVE *By Chris Coxall*

The illustration fig. A opposite page shows how headless dress makers pins and a wire connection for ground 0 volts can join a 34 way IDC plug to the 26 IDC attached to the Spectrum+3, originally intended for it's internal 3" *Amstrad manufactured* drive. When fitted together as shown by the end elevation fig. B it will allow a 3 1/2" drive which can be set to drive select 0 or A to be used as a boot drive on the Spectrum+3. For 3 1/2" drives without drive select jumpers and set to drive select 1 or B twisting ribbon cable lines 10, 11 & 12 (ref. EM No. 88/11) will set it to 0 or A. The fitting shown will format a single side of a 3 1/2" disc using +3 dos. The second side can be +3 dos formatted using a Potts side select switch (ref. EM 80/7).

The cut wires 33 & 34 on the ribbon cable need to be connected together to let the Spectrum's floppy disc controller know a drive is present and ready. Using a switch for the connection is desirable. Unlike 5 1/4" & 3" drives which automatically use line 33 & 34 to indicate the presence of a disc to the controller, the artificially induced connection for a 3 1/2" drive also indicates to the floppy disc controller that a disc is present in the drive even if there is not. Some software, i.e. CP/M utilities, requires discs to be removed from drives before it will continue. Using a switch to break or make the connection will overcome the problem.

The drive power lead for the original 3" drive must not be used for a 3 1/2" drive without alteration. The 12 & 5 volt leads on Amstrad made drives are wired in reverse to the norm. Cutting the two outside leads and joining the left (red on my Spectrum) to the right (orange) and then the right to the left will create a cross over for the correct power levels. (figs. E&F)

USING AN AMSTRAD 3" DRIVE FROM A SPECTRUM+3 ON THE EINSTEIN

Provided with a 26 way ribbon cable with an IDC plug at each end there should be no reason why the fitting should not work in reverse so a 26 pin 3" drive from a +3 can be used as drive 0 or A on the Einstein. The Einstein's floppy disc controller uses a different system for drive ready and dose not use lines 33 & 34. Therefore these cables on the 34 wire cable or the 25 & 26 lines on the 26 way ribbon cable need not be altered. The standard power supply Y adapter for a 3 1/2" should not be used for the 3" *Amstrad manufactured* drive without alteration. Again the 12 & 5 volt supply is the reverse for Amstrad 3" drives. Cut the two outside wires then join the left (red wire) to the right (yellow wire) and then the right to left.

CREATING A PORTABLE ADAPTER

Preferably use old IDC plugs without ribbon cable attached to put together the fitting as above. To make a mould (fig C), on a base board use balsa wood strips or Plasticine to hold the fitting level and to create a box with the front faces of the IDC plugs. The internal sides of the box need to be heavily smeared with vaseline. Only the connecting pins and ground wire should be inside the box. Fill the box with plastic padding (available from auto part stores). When dry the box can be dismantled and the adapter freed.

Notes: 1. I have used the adapter successfully for a 3 1/2" drive on the Spectrum+3.
2. Spectrum+3 and Amstrad CPC 6128 3" Drives are interchangeable so the adapter should work for a CPC 6128. 3. Using a the adapter for a 3" drive from a Spectrum+3 on an Einstein has not been tested.

PARVO IN MULTUM by Stan Gibbs

Stan has converted the three lines of Screenmaker to this 60 line epic in the interests of clarity and layout. His original thought was to call the program "TONY" in honour of one who can always use 20 words when one will do. I suggest the above but you call it what you like. Happy Tapping!

```

10 TCOL15:BCOL4:RST:CLR:CLS
20 PRINT@10,2,"EINSTEIN SCREEN-
MAKER"
30 PRINT@10,3,"-----"
40 PRINT
50 PRINT"THIS PROGRAM PRINTS THREE
WORDS ON THE SCREEN IN AN ARC
ONE ABOVE THE OTHER"
60 PRINT
70 PRINT"THE TOP WORD CAN HAVE A
MAXIMUM OF 12 LETTERS THE SECOND
WORD 8 LETTERS AND THE BOTTOM
WORD 6 LETTERS."
80 PRINT"THE BOTTOM WORD DOES
LOOK BETTER IF YOU ONLY HAVE FIVE
LETTERS."
90 PRINT
100 PRINT"YOU CAN SELECT THE BACK-
GROUND AND TEXT COLOURS AND THE
NUMBERS CHOSEN ARE SHOWN AT THE
TOP OF THE SCREEN."
110 PRINT
120 PRINT"BE CAREFUL WITH YOUR
CHOICE OF COLOURS IF YOU USE A
WORD HAVING THE SAME COLOURS
THE BACKGROUND IT WILL NOT
SHOW."
130 PRINT@9,22,"ANY KEY FOR NEXT
PAGE":PRINTSPC(18):BEEP
140 KB$=INCH$:IF KB$="" THEN 140
150 CLS:PRINT@10,2,"EINSTEIN SCREEN-
MAKER"
160 PRINT@10,3,"-----"
170 PRINT
180 PRINT"IN SOME CASES THE BACK-
GROUND AND TEXT ARE ALMOST THE
SAME AND IT IS DIFFICULT TO READ."
190 PRINT
200 PRINT"THE TEXT CAN ALSO BE
ALTERED BY TYPING IN AFTER THE

```

```

PROMPTS "
210 PRINT
220 PRINT"PRESSING > N < PLUS ENTER WILL
FINISH THE PROGRAM AND THE DEFAULT CO-
LOURS WILL RETURN."
230 PRINT
240 PRINT"THE PROGRAM CAN THEN BE RE-
STARTED."
250 PRINT@9,22,"ANY KEY TO RUN PROGRAM-
":PRINTSPC(18):BEEP
260 KB$=INCH$:IF KB$="" THEN 260
270 TCOL15:BCOL4:RST:CLR:CLS
280 PRINT@10,2,"EINSTEIN SCREENMAKER"
290 PRINT@10,3,"-----"
300 PRINT@15,5,"TEXT INPUT"
310 PRINT@15,6,"-----"
320 BEEP:PRINT@2,9:INPUT"TOP LINE OF TEXT
(MAX 12 CHARACTERS) ":A$(3)
330 BEEP:PRINT@2,13:INPUT"MIDDLE LINE OF TEXT
(MAX 8 CHARACTERS) ":A$(2)
340 BEEP:PRINT@2,16:INPUT"BOTTOM LINE OF
TEXT (MAX 6 CHARACTERS) ":A$(1)
350 TCOL15:BCOL4:RST:CLS
360 PRINT@10,2,"EINSTEIN SCREENMAKER"
370 PRINT@10,3,"-----"
380 PRINT@4,5,"TEXT AND BACKGROUND CO-
LOUR INPUT"
390 PRINT@4,6,"-----"
400 BEEP:PRINT@5,9:INPUT"TO CHANGE TEXT
COLOUR TYPE A NUMBER BETWEEN 1 AND 14 ":H
410 BEEP:PRINT@5,14:INPUT"TO CHANGE BACK-
GROUND COLOUR TYPE A NUMBER BETWEEN 1
AND 15 ":Z
420 CLS
430 PRINT@1,1,"BACKGROUND":Z
440 PRINT@33,1,"TEXT":H
450 D=H:BCOLZ:Y=96:FORR=3 TO 1 STEP 1:

```

**Now... not a lot of people know that
(or, a conversation overheard in Santa's
Grotto)**

"...but Santa - how do you manage to get round to all the children on Christmas Eve...", brought a sigh from Santa's lips as he smothered the thought of "not another bright..." and slowly and gently explained...

...well, you know when it's daytime on this side of the World it is night on the other? The child nodded its head in assent - and that if we pretended to cut the Earth in two across the Equator we would have a huge circle - brought more nods of assent. and in a circle there are 360 degrees (naturally this was before SI Units but after rods, poles and perches) with 60 minutes to every degree, so around the Equator we can have 21,600 midnight hours?

The young lad's pocket abacus rattled in fury as this new idea ran riot in his brain in confirmation - then of course you know it is possible to save time, for instead of walking a journey which could take an hour, if you ran you could do it in half that time, or by a swift horse half of that? The boy's questioning look showed suspicion - but Santa went on, so relatively we have saved time and with a really superfast means of transport (Rudolph made a snickering cough) we could do the same journey in say one minute, which means we now have 21,600 times 60 minutes (which have 60 seconds) plus times 60 which equals 77,760,000 midnight hours - or 3,240,000 days (8,871 years) to get round all the World's children!

The young boy slid from Santa's knee, deep in thought - thinking on how the fire engine's bell clanged at a higher pitch as its horses clattered and raced towards him yet fell to a lower pitch as it raced away - evidently the frequency or the sound must have been compressed, so the same must happen with light? So, if what Santa had said about a superfast vehicle, Rudolph's nose wasn't really red - just the speed he was approaching! Obviously his equation of Ee equals Em-see-squared was right...

...as the four year old Albert Einstein trotted away holding his mother's hand leaving a rather puzzled Santa feeling less smug, young Albert thought that there was little point in asking Santa for anything special seeing as how it was going to take him so long to deliver it!

John Marriott

```

ORIGIN 128,
Y:T$=A$(R):T=LEN(T
$):MAG1:C=R*30:FORK
=1 TO 500:NEXTK

```

```

460 FORN=1 TO T:B=N-
*PI/(T+1):SPRITEA,C-
*COS(B),C*SIN(B),D,AS-
C(MID$(T$,T+1-N,1)):
A=A+1:NEXTN:Y=Y/C/2:
D=D+3:NEXTR

```

```

470 TCOL15,4:
PRINT@14,22:INPUT"GO
AGAIN (Y/N) ":Q$

```

```

480 IF Q$="Y" OR
Q$="y" THEN CLR:
GOTO 270

```

```

490 IF Q$="N" OR
Q$="n" THEN TCOL15:
BCOL4:RST:CLS:GOTO
510

```

```

500 BEEP:GOTO 470

```

```

510 BEEP:PRINT@11,2,"
END OF SCREEN-
MAKER"

```

```

520 PRINT@2,6,"TAKEN
FROM EINSTEIN MAGA-
ZINE No.93/3"

```

```

530 PRINT@8,10,"
ORIGINALLY BY
H.LANGSHAW"

```

```

540 PRINT@5,14,"ADDI-
TIONS AND ALTERA-
TIONS BY S.J.GIBBS.(U-
KEUG 1158)

```

```

550 PRINT@5,19,"ADDI-
TIONS TO ALTER TEXT
INPUT BY TED CAWK-
WELL (UKEUG 984)"

```

```

560 REM EXPLANATION
OF VARIABLES

```

```

570 REM TOP LINE OF
TEXT = A$(3)

```

```

580 REM MIDDLE LINE
OF TEXT = A$(2)

```

```

590 REM BOTTOM LINE
OF TEXT = A$(1)

```

```

600 REM TEXT COLOUR
= H

```

```

610 REM BACK-
GROUND COLOUR = Z

```


LETTER PAGE

I LIKE PRINTERS (WHY DON'T THEY LIKE ME ?)

I have several printers and they all work with my Einstein and my favourite word processor TASWORD. All the printers use the same escape codes for the same jobs including the same codes for colour printing. I have an Atari computer and two programs I use quite often AWARD MAKER and CERTIFICATE MAKER. These programs were quite happy printing stuff out to a Starr LC-10 9 pin printer.

I thought I would use my Citizen 240C 24 pin printer with these programs for better quality and that's when the trouble started. The output was OK for a few lines then a line would be missed. None of the output was missing, it would just do a line feed every so often. I went into the program and found the printer driver was for an Epson FX80 which seems to suit most programs. After trying two or three other drivers I eventually found it worked with a driver for an IBM PRO PRINTER. I realise the Citizen is a 24pin but the codes are the same and why does it only work with an IBM printer driver? I know computers can cause some problems but I think printers have the edge.

SJ.GIBBS.

DRIVING A SIDEWAYS THOUGHT

The BBC 40T/SS drives with power supplies are now dirt cheap. Whilst the disks are becoming relatively scarce (DON'T touch the HD disks for 40 track useage!) they are ideal for the TC01 BOOT DRIVE use and with a SLIGHT modification to the disk case can be "flipped" like the 3" disk for "other side use". Using another disk as a template mark the "write protect" notch and clip out with a "one hole" punch. Align the template disk media to its case so that you can see the "index hole" centred clearly and use that to "mark" the clipped case BOTH sides. Taking care, slip the punch on to ONE case side, aligning punch to marked hole, punch through MAKING SURE that you have that little black punched piece - do same the opposite side, align the media to the new index holes to ensure reasonable "sighting". DON'T punch one hole through thinking it's the same - been there, done that!

Don't use the early 5.25" disks which have multiple indexing holes or those marked Single Sided - for preference use those marked Double Sided and with hub rings. As with the 3" disk, both or either sides of the disk can be write protected which is NOT the case when using DS drives and "switching" the Side Select line!

John Marriott - October 1999

John Marriott,
121, Hill Barton Road,
Exeter.
EX1 3PP

01392-46920

Dear Tony,

Don't know if there's room in the next EM for some "FOR SALE" bits and pieces, but I've the following for cash disposal...

TC01 items - 3" drives £10 ea., twin-drive ribbon cable £5. (can make up others), 80-col card/instructions £15, 10 3" disks (lucky dip/software/as-is) £5, power supply £10, keyboard (new/without PCB) £10, used/working £5. 256 one £2, 256 colour monitor £20, fair mixture of 5.25" drives and non-Einstein disks, with a couple of ex-Spectrum+3 3" drives needing belts (FREE!). At present I'm evaluating various 3.5" drives, but have loads of 720K disks at £1 for 15 (as-is) ... postage/insurance extra. 01392-469206 (7-9 pm please).

It's good to see the EM still coming - having bought up a retiring (retired?) Einer's gear (overspent, alas - my Better Half's pension increased by -1.1% - which means that she can now buy 1 litre of petrol less a week for her motorbike - just who's massaging the inflation figures?) so some of the projects I had pencilled in for Ted Cawkwell's attention have been deleted as I've scanned some of the earlier stuff...

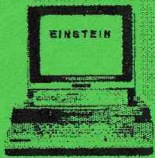
...ignorance is bliss, so they say.

Have been meeting quite a few Einers recently, but they've succumbed to the IBM fully (just can't stand its continual fan/drive drone!), but at least I've now got 3 TC01's to play with!

All the best

John M.

TONY'S TAIL-END TIDY-UP
Re John Marriott's thoughts on p.16, all my Beeb drives take their power off the Beeb itself. I simply use the Beeb as a power supply, with the drive's data cable plugged into Einey's external drive socket. I have a lot of 5.25 disks marked Single-Sided, but they are actually double-sided and format and accept data both sides without problems. Notching 5.25 disks to make floppy disks of them is a holdover from the early days of 8-inch disks. The experts say that IT IS A BAD IDEA as these disks collect abrasive dust, fag ash, etc like mad, which the inner lining of the jacket wipes off the surface and collects. If you run the disk as a floppy disk you are likely to dislodge this muck so it scours the disk surface like steel wool, with dire consequences. Much better (if you are using a double-sided drive) is to upgrade to a 2-sided DOS from Ted or Steve, or fit a Steve-type side-select switch.



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