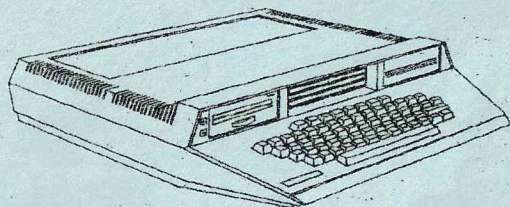
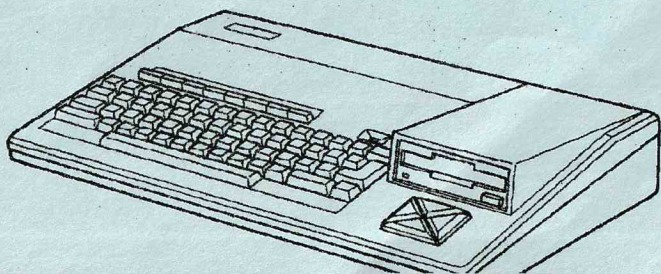


## TATUNG **Einstein**

TC-01 AND TC-01A  
COLOUR MICRO COMPUTER



## TATUNG **Einstein** **256**





## EVENTS IN 1988

23rd July 1988	Summer Show at Bull Green	2.00 pm
17th September 1988	Autumn Show at Village Hall Entrance 10p; Children 5p	2.00 pm
14th October 1988	Annual General Meeting at Village Hall	7.30 pm

One copy of this magazine is mailed FREE OF CHARGE to each paid-up EINSTEIN USER GROUP member.

\*\* subscriptions & enquiries to Ivy Cottage,  
Church Road, New Romney, Kent. TN28 8TY  
(Phone or personal enquiries cannot be dealt with)

\*\*\* Send 2 stamps for Membership Information Pack  
and your copy of the current EINSTEIN MAGAZINE.

\*\*\* The magazine and user group are run in their  
spare time by unpaid enthusiasts on a VERY tight  
budget. If you require a reply PLEASE INCLUDE A  
S.A.E. -- OR WE MAY NOT BE ABLE TO AFFORD TO PAY  
THE POSTAGE BEFORE MAILING YOUR REPLY!

\*\*\*MAGAZINE BACK NUMBERS are £1 each  
discounted to £5 for 6. Price includes postage  
The following are currently available:-  
EINSTEIN MONTHLY 1/5 - 1/12, 2/1 - 2/12, 3/1 - 3/2  
ALTERNATIVE MICRO NEWS 1/1 - 1/5  
ALL MICRO NEWS 1/1 - 1/12, 2/1  
EINSTEIN MAGAZINE & AMN: 65 - 81

\*\*\* BULK-BUY BACK NUMBER OFFER TO MEMBERS \*\*\*  
Are you wise? Are you wonderful? Are you a whizz-  
kid expert on the Einstein? You will be if you  
read your way through all the user group magazine  
back numbers. Why not make a start RIGHT NOW! A  
continuous run of 50+ are still in print, and ALL  
MEMBERS can now have a full set for ONLY £20 !!!

PRICES QUOTED IN THIS MAGAZINE ARE TO MEMBERS ONLY

## EINSTEIN MAGAZINE No.82 -- CONTENTS

Spring at last..Editorial.....	2
Lincoln To Wacciland (Steve Potts).....	4
More about the 256 (John Murray).....	8
Programming the user port (Dave Salvage).....	9
FLIPOVER a game to type in (L.G.Stanley).....	14
ALBERT and the 21st. century inkjets...(Ted Cawkwell).....	19
Joystick interface (L.G.Stanley).....	23
Data File Handling in BASIC a book review (E.Cawkwell)....	25
*****	
YOUR LETTERS.....	26
*****	

c Steam Computer Society and  
original author. 1997

### UPDATE INFO ON ITEMS IN THIS ISSUE:-

- \* P.3, Editorial. YOUR letter didn't get printed this month, as you completely forgot to post it!
- \* Also, your Sales/Wants/Events (and other dated items) are very welcome, but should be sent to New Romney, not Barnstaple, or they may miss an issue.
- \* P.9, Programming The User Port. Einstein Monthly 1/8 is still available as a back number @ £1 from New Romney if you've mislaid your copy.
- \* P.10, BASIC Reference Manual is also available @ £3 from New Romney if your dog has eaten yours.
- \* P.14, FLIPOVER.XBS. Do you want us to add this to a software library disk? Write in to us about it!
- \* P.19, Ted Cawkwell's Inkjet Printer. Have you sent in your utility program ideas yet, on how to set the line lengths up for proportional printing?
- \* P.23, adapting Atari joysticks to Einey. Can't find the Greenweld catalog. Phone number anyone?
- \* P.25, DATA FILE HANDLING IN BASIC book review. Just £3 for your very own copy from New Romney.



\* EINSTEIN MAGAZINE 82/2 \*

## SPRING AT LAST ?

By John and Jenny Murray

Well, it certainly looks like spring from where we're sitting at the moment, looking out of our south facing window toward Barnstaple, about a mile away. We are lucky enough to live on a hill with a good view of the Devon countryside, which at the moment is bathed in sunshine.

Jenny is working away on the 256 at the moment and keeps looking over my way, to make sure I am including her contribution to the editorial (not yet dearest). We will soon be getting to the time when we both need the printer, and I suppose it will be whoever manages to plug in first, and I suppose as my trapped neck nerves won't let me move very quickly she'll win.

Sadly issue 81 was short on material and it was left to the Chief Ed. to quickly write another article to pad out the contents. What we would like to see is a varied content, with not more than one item in each issue from each contributor in any one magazine, but to do this we need your help.

As Tony pointed out in issue 81 we are both learning the mysterious world of editing. Our English, grammar, punctuation and spelling also need a little help, so you may well find that sumfings:, are not kwyte rite?! Please let us know if it's two? too? to bad and we'll try to sort it, but don't forget at our age ejucation and larnin comes hard.

You may or may not be wondering if the old Ford managed to pass its MOT, well it did, so we can afford to eat this month. Hang on though, Jenny says she needs shoes.

We are still hoping to have a regular section for the EINSTEIN 256 and we are looking forward to your input, be it questions, programs, moans or tips. We really do hope that we your humble editors are not the only members who use one.

\* EINSTEIN MAGAZINE 82/3 \*

We are having a little trouble at the moment. The cat has decided that our two computer desks are the ideal short cut to the window sill, and the sheet feeder on the printer is the final step up before he slips through the slats of the sunblind. The desk tidy is always the first thing to hit the floor, this is usually followed by the tray holding drawing pins, paper clips and any other small objects that take at least half an hour to pick up. Unfortunately he is well aware that we can't get through the sunblind to strangle him.

We are getting a little more material in for the mag. lately, although it is all coming in from a small number of members. There is a great deal from Dave Salvage who seems to have been working non-stop for our benefit. You can find one of his articles in this edition, and there is an interesting series on Machine Code Graphics to follow in future mags.

As you can see, we are all making the effort to make sure the contents of the magazine are varied and interesting, and with your input and comments we can keep this valuable user group going for a few more years to come.

There is still room for your WANTED or FOR SALE ads. You can even tell us about local events that may be of interest to other members and their families.

We are both looking forward to hearing from you all soon.

---@@@---

=====

Letters to:- John and Jenny Murray, General Editors,  
Einstein User group, 11 Beaufort Walk, Barnstaple, Devon,  
EX32 7JD or Telephone 01271-24019 (any time)

=====



FROM LINCOLN TO WACCILAND  
By Stephen Potts

To those who think, that's a strange title, let me explain that WACCI stands for "Worldwide Amstrad Computer Club". The 'I' is a legacy from when it was an incorporated company. I'm a believer in 8" bit computers, and they suit most jobs at my kind of price and power. To this end I support several clubs and M/c's mostly 3" and Z80 in construction.

I own an EINSTEIN TC01 also an Amstrad CPC 6128, CPC 6128+, and Amstrad PCW 8512, PCW 9512, and all the add-ons I can collect, the house is full.

It was my brilliant idea to show off my Einstein to others. When the WACCI convention was mentioned I thought, let's show them what was the main system ideal at the birth of the serious home computer. I chose to take my Einstein with both colour and hi-res monitors, the 80 column card, switch box and the 3" drive. All this and a load of software including magazine articles on both the m/c's. The price of the Einstein was £500 + monitor. To make full use of the trip I offered lifts to two Lincolnshire enthusiasts, these were Philip Dirichleau of Lincoln, a compiler of "Fair Comment", the readers letter page in WACCI. Nigel Calcutt a hardware man after my own heart.

Over the next two weeks arrangements were made, famous last words. In a vain attempt to finance the trip I took along five boxes of 3" discs, an Amstrad modulator and a 464+ computer, none of which I managed to sell, probably because of the overwhelming amount to see and listen to, as well as look after Albert in my corner.

Sunday the 26th of September arrived, at six the car was loaded, the 1300 Astra (never mind about the big end knocking) filled with petrol, plenty of room I thought as Nigel is only taking a briefcase! Off we go to Lincoln, still dark, car rattling well. Philip was awake, only just, or is he always like that? Off we trundle down the road and wave as we pass my house, it's getting light now.

On through Grantham to Melton Mowbray, where Philip told me to turn up the road we had just passed. On arriving at Nigel's we twisted his arm until he confessed where the tea bags were hidden.

Refreshed, cries of onward to Wacciland! This is where our intrepid team of computer clubbers came unstuck, have you ever noticed on a map that all the good roads run up and down the page ? and spiders have crawled across ? Well Philip had the map and as we got nearer, the accuracy of Philip's navigating came into question, not totally you understand.

The sign we saw for Bescot Stadium had been turned 90° to the left, let's just say we circled a few times before landing. We arrived and the car park was crowded with a Sunday market. We parked the car, setting off on foot to hunt down the hall. We threaded our way through the market, past the stalls of requisite items and half cooked burgers, jogger suits to fit aliens, and cassettes of music by people with similar names to stars.

We found a security guard, the chap pointed out to us the stairs, when asked about unloading, he pointed out on the aerial photo that the only door to unload at required an anticlockwise circle of the building. We circled and found the door locked. I parked and circled round passed the security guard, up the stairs, into a large room where I met Angie Hardwick, who was wizzing around at least four feet off the ground. Angie managed to convince someone that it was a good idea to open a door to let people in.

Have you ever thought how much security staff and alarms you need for an empty field ???

The first set of bits in the door behind the goal, sprint to the corner then along to the half way line, climb to the top of the stands, into the bar and grab a table. Second load and start to set up, Nigel is grabbed and whisked off to mend something, and Philip goes onto auto-pilot and melts into a whirl of socialising.



It's a good job I pinched the extension lead off the wife's iron, I thought, draping it over the doorway to the corner. Einstein on the table, colour monitor on top, 3" drive to the left, chair to the right with mono hi-res monitor on, plug in and away we go.

Nigel arrives like the genie of the soldering iron, and a chap from Scotland has his wish granted, (well his Amstrad working at least). Now I put out the leaflets and answer a few questions about the Einstein. I feel hot and sticky, this isn't as simple as I thought, whilst having coffee.

Time to look around the small room (bar). From the door we have my corner running, next we have a 6128 running a advertisement for the suitcase full of software on display. The corner has a table of various odds, including monitors and software. On a long table several monitors and circuits, also bound editions of magazines of the time, specific to the Amstrad 6128 that came from Portsmouth. Diagonally across we find a large selection of software laid out along the bar seating by some friendly people whose name escapes me. The rest of the room is taken by bar and coffee facilities. !

The main room was the Directors Lounge, with acknowledged experts such as Richard Fairhurst and Peter Cambell showing the latest software from their respective companies, Robot and Compursoft. The Cook family were represented as individuals and as Radical Software.

The largest setout was Trading Post, they had rows of brand new hardware and software. Some of this I believe to be re-imported from Spain, as Amstrad sold well there. The WACCI club stall was over run with sales of donated items and a large PD library, disc's and commemorative binders. The next stall I believe was a bring and buy stall, and a lady did brisk business all day without moving, as far as I saw.

Several people enquired about the origin of the Einstein, and the similarity to the Amstrad 6128 i.e. 3" drive, and CP/M 2.2, also the PD Eindisc utility in the WACCI disk 82.

I was surprised how many didn't know of the Einstein, those that did had only seen one. My intention was to bring the Einstein to the attention of like minded 8-bit computer people and raise the awareness of the club for same.

Letting people try the feel was the least successful part of my effort as few would accept the offer, but the hangman was the most popular with those who did. If the next time someone sees an Einstein, he is reminded of that chap in the corner who knew where to get software and support, I will have done my bit.

Eventually the time came to go home, we packed the car, Nigel sat with feet up and monitor on his lap. Where's Philip ??? Still socialising when there's a job to do. We set off with a bit more of Philip's navigation and several laps of large traffic islands whilst crying WHICH WAY, answer it's really here. Don't you just love surrealist navigators.

With the sun fading in the west we search in vain for the chipshop that is open on Sunday. After the various unloading I eventually made it home at ten thirty totally worn out. NOTE all three of us had flu start the following day, so this may have been starting, and together with the over exposure to computers, may explain my not getting the best from the convention.

CONCLUSION putting on a display is harder than you may think so try to appreciate all the work that others do to keep small clubs alive, join in where possible and think of what you can do in your own area. Socialising is the way to keep us together, or even growing, so don't be a loner, an island.

---@@@---

(Many thanks Stephen, I'm very sorry it has taken so long to get this article into print. I'm afraid it was lost for some time in the system between editors. I do feel however that it is still valuable. It shows just how much effort is put in on behalf of the group, also the value of spreading the word according to Albert. \* Jenny Murray, Ed.)

\*\*\*\*\*



\* EINSTEIN MAGAZINE 82/8 \*

MORE ABOUT THE 256

By John Murray

I am having great fun at the moment, I have managed to get WP80 to work on the 256. It was not very difficult, but just a matter of trial and error.

My first task was to make sure that SYSTEM 5 would load, and was usable on the 256. This was o.k. so I was able to format a 3" disk to DOS 2.05 using the 256.

Next I had to use the TC 01 to copy WP80 onto the formatted disk, simply because my WP80 was on a 3.5" disk and the Einey is the only one with that drive added.

My next job after that was to check that all the WP80 functions and commands worked when loaded on to the 256 and not just give me garbled text.

The first question WP80 asks is, "Do you want inverted borders Y or N". I typed in Y as I usually do when working on the Einey, after which I gave the file it's name and pressed ENTER. Oh dear! what a mess, I was looking at a screen that looked like a Picasso. My next thought was, Oh well it was worth a try, and I was ready to give it the elbow.

I decided to start again, this time I answered "NO" to the inverted borders and Hey-presto, a good readable screen, 80 col. and what's more, glorious colour. Everything seems to work just as well, except for HELP2 which requires a second drive, which is not fitted to the 256.

As I am now able to use the WP80 without the help commands, not having two drives is no great hardship and to prove it all works as it should, this article was typed up on the 256 using WP80.

This is probably all very easy to you veteran users, but to a novice like me it's quite an achievement.

---@@@---

\* EINSTEIN MAGAZINE 82/9 \*

PROGRAMMING THE USER PORT

By Dave Salvage

This article is written in response to Les Foskett's enquiry in Magazine No.78 for information on programming the user port. It is based on Dave Arts' article in Einstein Monthly 1/8

What is the User Port?

It is the 16-pin connector at the back of Albert between the printer connector and the "Pipe". It allows a byte (8 bits) of data to be output to or read from an external device, usually via an interface.

Looking into the connector, the pins are numbered as indicated, and the function of each pin is listed.

	Pin No	Signal
15 13 11 9 7 5 3 1	1	5V
	2	D0
0 0 0 0 0 0 0 0	3	0V
	4	D1
0 0 0 0 0 0 0 0	5	RDY (ready)
	6	D2
16 14 12 10 8 6 4 2	7	0V
	8	D3
	9	0V
	0	D4
D0, D1 ... D7 are the data bits	11	STB (strobe)
	12	D5
	13	0V
	14	D6
	15	5V
	16	D7



How do I get the User Port to work?

Before data can be output from or read into the User Port, it needs to be configured, which also "activates" it. This is what the BASIC Reference Manual forgets to mention!

What does configure mean?

Configuring the User Port simply means setting up which of the data lines are going to be used as inputs and which as outputs.

There are four modes available for the Programmable Input/Output device (PIO) which controls the User Port and the Printer Port.

Mode 0 - output; all eight data bits are output

Mode 1 - input; all eight data bits are input

Mode 2 - bi-directional; uses both User Port and Printer port to create eight bit input and output

Mode 3 - control; each bit set as input or output

To set the desired mode, a byte of data is sent to the control register of the PIO. For the User Port, this is port address 33 Hex = 51 Decimal. It does not matter whether Hex or Decimal notation is used for port addresses or data bytes sent to them.

The mode is set by the highest two bits of the byte, ie D6 and D7 (the lowest being D0). To tell the PIO control register that we wish set the mode, bits D0, D1, D2 and D3 are set to 1. Bits D4 and D5 are not used and are best set to 0.

For each mode, this byte is therefore:

	D7	D6	D5	D4	D3	D2	D1	D0	
Mode 0:	0	0	0	0	1	1	1	1	= 0F Hex = 31 Decimal
Mode 1:	0	1	0	0	1	1	1	1	= 4F Hex = 79 Decimal
Mode 2:	1	0	0	0	1	1	1	1	= 8F Hex = 143 Decimal
Mode 3:	1	1	0	0	1	1	1	1	= CF Hex = 207 Decimal

For Modes 0 and 1, no further bytes of data need to be sent to the control register of the User Port.

Bytes of data are then sent to or read from the data register of the User Port depending on the mode selected. The port address for the User Port data register is 32 Hex = 50 Decimal.

For example, to output the decimal value 36 to the User Port, the BASIC instructions would be

```
OUT &33,&0F: REM appropriate byte sent to User Port control
              register to configure as output only
              REM this command only needs to be used once in
              a program if the User Port is only being
              used for output
OUT &32,36: REM value 36 sent to User Port data register
```

For example, to assign the value input from the User Port to variable I% (necessarily an integer value), the BASIC instructions would be

```
OUT &33,79: REM appropriate byte sent to User Port control
              register to configure as input only
              REM as for mode 0, this command only needs to be
              used once in a program, unless the
              configuration of the User Port needs to be
              changed during the course of the program
I%=INP(&32): REM the value at the User Port when this
              command is used will be assigned to variable I%
```

I shall bypass mode 2 since I have not tried using it. It allows the input and output of bytes of data (eight bits at a time), and uses both the User Port and Printer Port to achieve this. This mode seems very complex, but the information required is available in past issues of User Group publications. If anyone wants to use this mode, I will happily pass on the information.

Now to Les' requirements for input and output of data (but not eight bits of each). Although, I myself have not used mode 3 either, the following should work. Let me know if it doesn't!



As already described, the User Port needs to be configured to mode 3 (control) by sending a data byte of value CF Hex = 207 Decimal to the control register. This is done by BASIC instruction

```
OUT &33,207
```

In this mode, this byte of data needs to be followed by a second byte telling the User Port which of the data lines are to be used for input and which for output. Input lines are set to 1 and output lines are set to 0. For example, to set lines D5, D6 and D7 as inputs and D0, D1, D2, D3 and D4 as outputs, the byte would be as follows:

```
D7 D6 D5 D4 D3 D2 D1 D0
1 1 1 0 0 0 0 0 = E0 Hex = 224 Decimal
```

and the second byte of data would be sent to the User Port control register as follows in BASIC:

```
OUT &33,224
```

Data can then be output from the User Port by sending it to the User Port data register (OUT &32,data), or input as variable = INP(&32). To avoid potential problems, it might be worth "masking" the data lines not appropriate to whichever function the User Port is carrying out. What do I mean?

Using the above mode 3 setup, for output, we are not interested in bits D5, D6 and D7. In order to make them irrelevant to the output data, they should be forced to 0. This can be done by checking the binary equivalent of the value being sent to the User Port, but a better way is to use the AND instruction.

AND combines two bytes of data to produce a third which results from only those bits of the data bytes both set to 1. For example,

```
D7 D6 D5 D4 D3 D2 D1 D0
1 0 1 1 1 0 0 1 = B9 Hex = 185 Decimal
AND 0 0 0 1 1 1 1 1 = 1F Hex = 31 Decimal
gives 0 0 0 1 1 0 0 1 = 19 Hex = 25 Decimal
```

The second byte of data is the "mask" and I hope you will have spotted that it is the appropriate mask for the mode 3 set up in our earlier example. Note that it leaves the values in the output data lines D0, D1, D2, D3 and D4 unchanged while removing any extra data on the input data lines. So, for an output mask, input lines should be set to 0 and output lines to 1. The variable or value to be output should be ANDed with the mask before being sent to the User Port data register.

For input, the received data byte, stored in variable I% in our example, should have a mask applied as soon as it is input to prevent interference from data on the output lines. In our mode 3 set up, the "mask" byte would be 1 1 1 0 0 0 0 0 = E0 Hex = 224 Decimal. In other words, for an input mask, the input lines should be set to 1 and the output lines to 0, and the mask ANDed with the input data byte.

So to finish with, the input and output bits of Les' program should look something like:

User Port set up

```
OUT &33,&CF
OUT &33,&E0
```

```
Input
I% = INP(&32)
I% = I% AND &E0
```

```
Output
J%=J% AND &1F
OUT &32,J%
```

Good luck, Les, and all Einstein users. Let's know how you get on.....Dave Salvage.



# FLIPOVER By L.G.Stanley

A couple of weeks ago I was watching a logic puzzle game being played on a Pentium computer. I thought, I bet I could put that game on the EINSTEIN.

Here's what I came up with - 'FLIPOVER'

After loading XBAS, type RUN"FLIPOVER" then follow the on screen instructions.

```
10 REM Adapted from a PC
20 REM program by M MURREY.
30 REM
40 REM Les Stanley 406
50 REM July 1996
60 REM
70 REM "FLIP IT OVER"
80 REM
100 BS="      ":TCOL2,1:BCOL4:CLS32:REM INTRO SCREEN
110 FORX=1TO15:Y=3:PRINT@X,Y;"K":NEXT:X=15:FORY=4TO18:PRINT@
X,Y;"K":NEXT
120 FORX=15TO1STEP-1:Y=19:PRINT@X,Y;"K":NEXT:X=1:FORY=18TO4S
TEP-1:PRINT@X,Y;"K":NEXT
130 X=2:FORY=3TO11STEP8:TCOL,Y+5:FORA=1TO7:PRINT@X,Y+A;BS:
NEXT:NEXT
140 X=9:FORY=11TO3STEP-8:TCOL,Y-3:FORA=1TO7:PRINT@X,Y+A;BS:
NEXT:NEXT
150 TCOL1,15:PRINT@5,5;"WELCOME";@8,6;"T";@8,7;"O":TCOL15,1:
PRINT@7,11;"I";@9,11;"T"
160 TCOL15,13:PRINT@3,8;"w";@3,9;"qLIP":TCOL12,15:PRINT@9,14
;"bn";@9,15;"BWER"
170 TCOL1,2:PRINT@17,8;"I=Instructions";@17,14;"P=Play
game":TCOL2,1:PRINT@18,11;"?"
180 PRINT@18,11;:Z=INCH:IFZ=73ORZ=105THEN200
190 IFZ=80ORZ=112THEN290ELSE180
200 REM INSTRUCTIONS
210 CLS:PRINT;"YOU START WITH A GRID OF NINE   PALE BLUE
SQUARE TILES.":PRINT
220 PRINT"AFTER YOU SELECT A SKILL LEVEL, THE BLUE TILES
ARE MIXED WITH TILES OF A DIFFERENT COLOUR.":PRINT
```

```
230 PRINT"THE OBJECT OF GAME IS TO REVERSEPROCESS AND MAKE
THEM ALL PALE BLUE AGAIN.":PRINT:PRINT:PRINT:PRINT
240 PRINT"CLICK IN CORNER: FOUR TILES IN CORNER ARE
FLIPPED":PRINT
250 PRINT"CLICK IN MIDDLE OF SIDE: HOLE IN SIDE IS
FLIPPED":PRINT
260 PRINT"CLICK IN CENTRE AND CENTRE CROSS IS FLIPPED"
270 TCOL15,4:PRINT@2,22;"PRESS SPACE BAR TO CONTINUE"
280 Z$=KBD$:IFZ$=" "THEN290:ELSE280
290 TCOL2,1:BCOL1:CLS:A$="      ":RESTORE300:REM SETUP GRID
300 READA1,A2,B1,B2,C1,C2,D1,D2,E1,E2,F1,F2,G1,G2,H1,H2,I1,I
2:DATA7,10,7,10,7,10,7,10,7,10,7,10,7,10,7,10,7,10,7,10
310 DATA4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4
320 DATA6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6
330 S$=" OVER #":T$="# FLIP "
340 N=0:FORY=1TO13STEP6:FORX=12TO24STEP6:FORA=0TO4:TCOL0,7:P
RINT@X,Y+A;A$:NEXT:N=N+1:PRINT@X+1,Y+2;N:NEXT:NEXT
350 TCOL2,1:PRINT@0,22;"SKILL LEVEL -
":TCOL1,10:PRINT;"1":TCOL1,4:PRINT@20,22;"2":TCOL1,6:PRINT
@24,22;"3":PRINT@27,22;"?"
360 TCOL2,1:PRINT@27,22;:T2=7:Z=INCH:IFZ=49THENSK=3:T1=10
370 IFZ=50THENSK=5:T1=4:RESTORE310:READA2,B2,C2,D2,E2,F2,G2,
H2,I2
380 IFZ=51THENSK=7:T1=6:RESTORE320:READA2,B2,C2,D2,E2,F2,G2,
H2,I2
390 IFZ<49ORZ>51THEN360:ELSEPRINT@0,22;"
400 REM SKILL LEVEL
410 DIMM(SK):GOES=0:D=1
420 FORB=DTOSK:M=RND(9)+49:M(B)=M-48:IFM(B)=M(B-1)THEND=B:GO
TO420
430 REM INPUT/OUTPUT
440 IFM=49THENGOSUB780
450 IFM=51THENGOSUB840
460 IFM=55THENGOSUB900
470 IFM=57THENGOSUB960
480 IFM=50THENGOSUB1020
490 IFM=56THENGOSUB1070
500 IFM=52THENGOSUB1120
510 IFM=54THENGOSUB1170
520 IFM=53THENGOSUB1220
530 IFM=53THENGOSUB1220
540 NEXT:TCOL2,1
550 FORY=1TO16:X=0:PRINT@X,Y;"
NEXT:REM MENU
```



```

580 SWAPT1,T2:TCOL1,T1:PRINT@12,19;A$:TCOL1,T2:PRINT@17,19;
T$:TCOL1,T1:PRINT@24,19;A$:TCOL2,1
590 PRINT@1,8;"N=NEW";@8,9;"GAME";@1,11;"OR";@1,14;"X=EXIT":
TCOL15,6:PRINT@1,4;"NUMBER";@8,4;"?":TCOL2,1
600 PRINT@4,23;"Your best + GOES=";GOES:@7,21;"Target :
GOES=";SK;"or less";@8,4;
602 IFA1+B1+C1+D1+E1+F1+G1+H1+I1=63THENTCOL1,RND(SK):PRINT@
11,19;" YOU'VE CRACKED IT ";GOTO604:ELSE610
604 TCOL1,15:Z$=KBD$:IFGOES<SKORGOES=SKTHENBCOLRND(SK*2-3):
BEEP1:ELSEBCOLRND(SK*2-3)
605 PRINT@8,8;"
";@8,14;"["IFZ$="N"ORZ$="n"THENTCOL2,1:RUN290:ELSE606
606 IFZ$="X"ORZ$="x"THENTCOL2,1:CLS:STOP:ELSEPRINT@8,8;"[";@
8,14;" ":PRINT@1,4;"LETTER":GOTO602
610 Z=INCH
620 SWAPSS$,T$
630 GOES=GOES+1
640 IFZ=49THENGOSUB780
650 IFZ=51THENGOSUB840
660 IFZ=55THENGOSUB900
670 IFZ=57THENGOSUB960
680 IFZ=50THENGOSUB1020
690 IFZ=56THENGOSUB1070
700 IFZ=52THENGOSUB1120
710 IFZ=54THENGOSUB1170
720 IFZ=53THENGOSUB1220
730 IFZ=78THENRUN290
740 IFZ=88ORZ=120THENCLS:STOP
760 TCOL2,1:GOTO580
770 REM CHANGE COLOUR
780 REM T/L CORNER(1,2,4&5)
790 SWAPA1,A2:X=12:Y=1:FORA=0TO4:TCOL1,A1:PRINT@X,Y+A;A$:NEX
T:PRINT@14,3;"1"
800 SWAPD1,D2:X=12:Y=7:FORA=0TO4:TCOL1,D1:PRINT@X,Y+A;A$:NEX
T:PRINT@14,9;"4"
810 SWAPB1,B2:X=18:Y=1:FORA=0TO4:TCOL1,B1:PRINT@X,Y+A;A$:NEX
T:PRINT@20,3;"2"
820 SWAPE1,E2:X=18:Y=7:FORA=0TO4:TCOL1,E1:PRINT@X,Y+A;A$:NEX
T:PRINT@20,9;"5"
830 RETURN
840 REM T/R CORNER(2,3,5&6)
850 SWAPB1,B2:X=18:Y=13:FORA=0TO4:TCOL1,B1:PRINT@X,Y+A;A$:NEX
T:PRINT@20,3;"2"

```

```

860 SWAPE1,E2:X=18:Y=7:FORA=0TO4:TCOL1,E1:PRINT@X,Y+A;A$:NEX
T:PRINT@20,9;"5"
870 SWAPC1,C2:X=24:Y=1:FORA=0TO4:TCOL1,C1:PRINT@X,Y+A;A$:NEX
T:PRINT@26,3;"3"
880 SWAPP1,F2:X=24:Y=7:FORA=0TO4:TCOL1,F1:PRINT@X,Y+A;A$:NEX
T:PRINT@26,9;"6"
890 RETURN
900 REM B/L CORNER(4,5,7&8)
910 SWAPD1,D2:X=12:Y=7:FORA=0TO4:TCOL1,D1:PRINT@X,Y+A;A$:NEX
T:PRINT@14,9;"4"
920 SWAPG1,G2:X=12:Y=13:FORA=0TO4:TCOL1,G1:PRINT@X,Y+A;A$:
NEXT:PRINT@14,15;"7"
930 SWAPE1,E2:X=18:Y=7:FORA=0TO4:TCOL1,E1:PRINT@X,Y+A;A$:NEX
T:PRINT@20,9;"5"
940 SWAPH1,H2:X=18:Y=13:FORA=0TO4:TCOL1,H1:PRINT@X,Y+A;A$:
NEXT:PRINT@20,15;"8"
950 RETURN
960 REM B/R CORNER(5,6,8&9)
970 SWAPE1,E2:X=18:Y=7:FORA=0TO4:TCOL1,E1:PRINT@X,Y+A;A$:NEX
T:PRINT@20,9;"5"
980 SWAPH1,H2:X=18:Y=13:FORA=0TO4:TCOL1,H1:PRINT@X,Y+A;A$:NE
XT:PRINT@20,15;"8"
990 SWAPP1,F2:X=24:Y=7:FORA=0TO4:TCOL1,F1:PRINT@X,Y+A;A$:NEX
T:PRINT@26,9;"6"
1000 SWAPI1,I2:X=24:Y=13:FORA=0TO4:TCOL1,I1:PRINT@X,Y+A;A$:
NEXT:PRINT@26,15;"9"
1010 RETURN
1020 REM TOP LINE(1,2&3)
1030 SWAPA1,A2:X=12:Y=1:FORA=0TO4:TCOL1,A1:PRINT@X,Y+A;A$:
NEXT:PRINT@14,3;"1"
1040 SWAPB1,B2:X=18:Y=1:FORA=0TO4:TCOL1,B1:PRINT@X,Y+A;A$:NE
XT:PRINT@20,3;"2"
1050 SWAPC1,C2:X=24:Y=1:FORA=0TO4:TCOL1,C1:PRINT@X,Y+A;A$:NE
XT:PRINT@26,3;"3"
1060 RETURN
1070 REM BOTTOM LINE(7,8&9)
1080 SWAPG1,G2:X=12:Y=13:FORA=0TO4:TCOL1,G1:PRINT@X,Y+A;A$:
NEXT:PRINT@14,15;"7"
1090 SWAPH1,H2:X=18:Y=13:FORA=0TO4:TCOL1,H1:PRINT@X,Y+A;A$:
NEXT:PRINT@20,15;"8"
1100 SWAPI1,I2:X=24:Y=13:FORA=0TO4:TCOL1,I1:PRINT@X,Y+A;A$:
NEXT:PRINT@26,15;"9"
1110 RETURN
1120 REM L[ LINE(1,4&7)

```



```

1130 SWAPA1,A2:X=12:Y=1:FORA=0TO4:TCOL1,A1:PRINT@X,Y+A;A$:NE
XT:PRINT@14,3;"1"
1140 SWAPD1,D2:X=12:Y=7:FORA=0TO4:TCOL1,D1:PRINT@X,Y+A;A$:NE
XT:PRINT@14,9;"4"
1150 SWAPG1,G2:X=12:Y=13:FORA=0TO4:TCOL1,G1:PRINT@X,Y+A;A$:N
EXT:PRINT@14,15;"7"
1160 RETURN
1170 REM RJ LINE(3,6&9)
1180 SWAPC1,C2:X=24:Y=1:FORA=0TO4:TCOL1,C1:PRINT@X,Y+A;A$:NE
XT:PRINT@26,3;"3"
1190 SWAPF1,F2:X=24:Y=7:FORA=0TO4:TCOL1,F1:PRINT@X,Y+A;A$
:NEXT:PRINT@26,9;"6" 1200
SWAPI1,I2:X=24:Y=13:FORA=0TO4:TCOL1,I1:PRINT@X,Y+A;A$:
NEXT:PRINT@26,15;"9" 1210 RETURN 1220 REM CROSS(2,4,5,6&8)
1230 SWAPB1,B2:X=18:Y=1:FORA=0TO4:TCOL1,B1:PRINT@X,Y+A;A$:NE
XT:PRINT@20,3;"2" 1240
SWAPD1,D2:X=12:Y=7:FORA=0TO4:TCOL1,D1:PRINT@X,Y+A;A$:NE
XT:PRINT@14,9;"4" 1250
SWAPE1,E2:X=18:Y=7:FORA=0TO4:TCOL1,E1:PRINT@X,Y+A;A$:NE
XT:PRINT@20,9;"5" 1260
SWAPF1,F2:X=24:Y=7:FORA=0TO4:TCOL1,F1:PRINT@X,Y+A;A$:NE
XT:PRINT@26,9;"6" 1270
SWAPH1,H2:X=18:Y=13:FORA=0TO4:TCOL1,H1:PRINT@X,Y+A;A$:
NEXT:PRINT@20,15;"8" 1280 RETURN

```

Note: Lines 110,120,160. Italic characters are graphics obtained by GRAPH+letter or GRAPH/SHIFT+letter. Lines 605,606 ] & [ are right and left arrow keys. Tech Ed.

(\* Jenny and I had great fun with this one, and think you will find it well worth the tedious job of typing it up. There is also another version which is FLIPOVER with a cheat option. We will try to fit this one in at a later date..ED.)

---@@@---

General Editors:- Jenny and John Murray, 11 Beaufort Walk, Barnstaple, North Devon, EX32 7JD. (tel.01271-24019)

Chief Editor/Printer/Publisher, Membership/Distribution, general correspondence/enquiries, non-Einey matters:- Tony Adams, Ivy Cottage, 1 Church Rd, New Romney, Kent.TN28 8TY

## ALBERT AND 21st CENTURY INKJETS

Ted Cawkwell

As some of you have read in these pages, or found by bitter experience, modern printers are not designed with any thought for Jurassic micros such as our favourite, the Einstein. Printer drivers are provided for the PC and Mac and you might obtain one for the Amiga by begging like a good dog.

My first inkjet was the Canon BJC210 and although called a Colour printer it would not produce any colour but black from the Einstein. After failing to get Canon to reveal the Escape codes (or whatever - for SOME sort of code had to be sent to the printer!) I claimed that their merchandise did not perform as advertised and what were they going to do about it? After several attempts to instruct me on the use of the 'supplied printer driver' (for PC or Mac!) they finally got the message and offered me a BJC4100 in place of the 210, claiming that this would do what I required.

Fair enough, it does and I am very pleased with it. However, setting it up for a particular purpose is a long winded job, sometimes involving listening for very low level BLEEPs whilst holding down the ON button. Cleaning the print head, checking the nozzles, changing the ink cartridge and obtaining various test prints, all come under this heading. Setting the printer for UK characters has to be done each time you use the printer. If you have a PC these things can be done and UK characters can be permanently set from the keyboard.

At this point, Stan Gibbs comes into the story. He has purchased a BJC4100 after hearing my good reports, but he has not got a PC. He has been pressuring Canon to provide him with the necessary data or a driver program and has not been pleased to be treated like some one who does not NEED TO KNOW, and, by inference, one without the knowhow to do it himself. One little gem of information meted out to him was that 'a German student writes our printer drivers'!



About this time it occurred to me that putting the printer into Hexadecimal Mode (more b....y BLEEPs!) and then using the PC driver to output the various commands should give a printout of those commands. It did, and strange looking commands they are. I sent a copy to Stan for his opinion.

Stan sent his PC driver disk and manual to his friend Maurice Hawes in Dorset, who used the hex technique to print more command codes, and his comment was that perhaps Canon were right that it was too complicated for the average user.

Not to be outdone, Stan laboriously converted the code for 'Power Off' into a string in XBAS and sent it to his 4100 with a PRINT#1 command. The printer duly switched Off!

In the meantime, I took the easier (for me) route and did the same thing with machine code and found that I could do all the housekeeping jobs mentioned above, except set the UK characters. This meant that I could write a Printer Driver for the Einstein and I have done just that. It is in XBAS with the hard work done by machine code. I included in each .OBJ file a quick check that a viable printer was on line, so that there are no hangups.

From what I remember of the BJC210 the program may well work with that too and possibly with other Canon bubblejets. I have pestered my local Dixons for a look at as many manuals as possible before coming to this conclusion.

Thinking on, it may well be possible for owners of Epson, HP and other inkjets which exclude the Einstein from their scope, to do the same.

You need a PC obviously, and a printer that will accept Hexadecimal input directly. There may be a way to do this hidden in the manual, if not, your old DMP almost certainly will. It is usually just a matter of switching on whilst holding down a certain switch combination. Hex Dump Mode on the Tatung TP100 is by holding down the LF and FF keys and switching on. This gives a straight hex readout. The BJC4100 also gives the ASCII equivalents alongside as in a MOS tabulation on the Einstein. This is handy, as will become clear.

It may even be possible to do without the printer altogether, I seem to recall that output may be sent to a FILE instead of printer in some DOS versions. If I had thought of that before I might have saved a lot of time entering code into MOS!

Having obtained your blocks of machine code and identified what they do it is just a matter of making .OBJ files for each command and an Xbas program to bring everything together.

As an example, the code for Europe LQ mode is:-

```
1B 5B 4B 02 00 00 1F 42 4A 4C 53 54 41 52 54 0A 40 49 6E 69
                                B J L S T A R T LF @ I n i
74 69 61 6C 69 7A 65 3D 54 61 62 6C 65 33 0A 42 4A 4C 45 4E
t i a l i s e = T a b l e 3 LF B J L E N
44 0A
D LF
```

The characters below the code bytes are the ASCII translations.

Notice that the first byte is 1B, the ESCape code. There are 5 choices for mode tables so I made the above into a file BJMODE.OBJ and arranged for the selected number 1 to 5 to be poked into the M/C code (loaded at &A000) after the e in 'table' before the CALL is made, thus saving the need for 5 .OBJ files.

The above is a comparatively simple command, the one I am working on at present is for what the PC driver calls 'Advanced' features and consists of 452 bytes! Advanced features include such as High Speed or High Quality, font, Code Page and UK International Set. Also paper select and page length, among others.

BJDRIVER.XBS currently gives choices as shown on the following menus:-  
(The second menu uses 8 BJxxxxx.OBJ files which are loaded and executed by pressing the appropriate number. Clean Heads also gives a choice of 1 to 5 times.)



\* EINSTEIN MAGAZINE 82/22 \*

\*\* BJC4100 DRIVER \*\*

LQ Mode is best as it is compatible with most programs written for EPSON type DMPs.

- 1.USA LQ
- 2.USA BJ
- 3.EUROPE/ASIA LQ
- 4.EUROPE BJ
- 5.ASIA/UK BJ
- 6.QUIT

Press choice

\*\* BJC4100 UTILITIES \*\*

- 1.Power OFF
- 2.Reset printer
- 3.Eject page
- 4.Test print A
- 5.Demo print
- 6.Nozzle check
- 7.Change cartridge
- 8.Clean heads
- 9.QUIT

Press choice

Once I have wrestled the 452 bytes into submission there will be a third menu to handle those commands.

When I have got the thing sorted out I may well be tempted to send a copy to the Canon MD with the comment "How about THAT then!" And I'm not even German and it is half a century since I was a student! I reckon a 3" floppy would cause a bit of head-scratching at Canon HQ though.

The latest news is that I have mastered most of the 'advanced features' and am busy putting them into the BJDRIVER program. I can now set UK characters permanently from Einie's keyboard. Watch this space!

---@--

\* EINSTEIN MAGAZINE 82/23 \*

L.G.STANLEY  
6 Cothers Court,  
Moreton-in-Marsh,  
Glos. GL56 9EA.

INTERFACE FOR COMMODORE-ATARI TYPE JOYSTICKS

This might be of interest to an Einstein owner who has dealings with GREENWELD Electronic Components Southampton.

A couple of years back I bought a Dragon / Tandy joystick interface just out of interest from Greenweld Electronics. I believe it cost one pound, it being surplus stock.

As it turned out, the circuit of the D/A interface was almost identical to the joystick interface project submitted by Steve Cooper in UKEUG Vol 1/3.

After changing the 5pin DIN plugs to 7pin DIN plugs to fit the Einstein analogue ports, and a couple of new connections on the interface PCB, I now have a double joystick interface for Albey. (To-date I have only ever used one joystick socket, at least I have a spare).

Because no advert was again seen in the Greenweld catalogue I believed the stock to be sold out. Not so! In the latest Greenweld news letter I received this morning, the Dragon/Tandy interface is being given away free with orders. If by chance you make a order out for Greenweld and recieve your free Dragon/Tandy interface, and it just so happens you are in need of a joystick interface for your ALBERT, this is how you go about making one:-

To change 5pin to 7pin DIN.

Wire colour / pin number details:- WHITE to PIN 1

BLACK	"	"	5
ORANGE	"	"	3
BROWN	"	"	4
BLUE	"	"	2 and 6



It is possible to have a working interface by just changing the 5pin DIN to a 7pin DIN but you will find the forward and backward control positions are reversed. To overcome this little drawback or in this case drawforward, you have to re-route two copper tracks on the interface PCB. (Four copper tracks if you want a double joystick interface).

I have connected one 7pin DIN and re-wired two tracks on the free sample I received from Greenweld and I have sent it for Tony to test and keep. I hope it will be of use. I have also included Steve Cooper's joystick test program (listing printed below). I added a couple of lines to the original program to get a different screen display.

I have contacted Greenweld about buying up the interfaces they have left. I was thinking along the lines of fifty to a hundred units at a give away price, and giving them to the UKEUG for a project to any interested member. I received a free sample from Greenweld and a note informing me they have about five hundred units and are asking 50p per unit.

#### TEST BED PROGRAM

```
10 CLS:PRINT@10,1;"ANALOGUE 1 TEST BED"
20 PRINT@3,7;"ADC(0) (LEFT & RIGHT) ";@10,8;"(< 5
>250 )"
30 PRINT@3,12;"ADC(1) (UP & DOWN) ";@10,13;"(>250 <5 )
40 PRINT@3,17;"BTN(0) (FIRE BUTTON) ";@13,18;"( 0 )"
50 A=ADC(0):B=ADC(1):F=BTN(0)
60 PRINT@26,7;"A " ":PRINT@26,12;"B " ":PRINT@26,17;"F "
70 IFA<5THENPRINT@34,7;"[LEFT
":ELSEIFA>250THENPRINT@34,7;"[RIGHT]"
75 IFA<250AND A>5THENPRINT@34,7;" "
80 IFB<5THENPRINT@32,12;"BACKWARD";@35,13;" ";":ELSEIFB>250TH
ENPRINT@35,11;"^";@32,12;"FORWARD"
85 IFB>5ANDB<250THENPRINT@35,11;" ";@32,12;"
";@35,13;" "
90 IFF=0THENPRINT@34,17;"FIRE":ELSEPRINT@34,17;" "
100 GOTO50
```

Note: Lines 70,80. ],[, ^ and | are the right, left and Up arrows and unshifted 1/2 keys on the keyboard. Tech Ed.

---@@@---

## DATA FILE HANDLING IN BASIC

The book reviewed.  
Ted Cawkwell

Data File Handling in Basic by Phil Croshaw.

Which is correct, INPUT#FD\$;0,N or INPUT#FD\$,0,N or INPUT#FD\$,0;N ? As always, the comma or semi-colon position is all-important in a Basic line. The third attempt is the correct one in this case.

Phil Croshaw's book was the very first purchase I made for my Einstein and I doubt if I have ever written a basic program which contained file handling since then which did not have me reaching for the book.

As a book it is pretty slim, only 46 pages, but it is quite indispensable for all but the very simplest of file commands. The book brings together all of the necessary commands and explains their use, with examples, in a way that Chapter 14 of the Basic Reference Manual totally fails to do.

Chapter one introduces the reader to data files, type, structure and selection of the right one for your purpose.

Chapter 2 is all about sequential files, from storing to sorting data plus an example of a bubble sort. Chap.3 is the same treatment for random relative files and the next chapter sees off random indexed files, ending with an explanation of the binary chop sort.

In the course of these chapters one meets all of the obvious file commands and also INCH\$(n) and IOM 6, which, at first sight, do not appear to be file commands.

There follows a chapter dealing with data compaction, which allows more to be stored on your disk, and finally 'Advanced techniques using Random Indexed files', including a very detailed example program.



There are numerous programs in the book, varying from 3 lines of Basic to 40 lines, and many of them can be simply typed into your own listing as they stand.

To my mind, using files is the trickiest part of basic programming and there is no doubt that this book takes all of the pain, and most of the work, out of it.

The text is commendably free from errors but there are missing program lines on pages 19 and 20. INPUT#0 needs to be added to the relevant programs at line 35 and line 25 respectively.

---000---

\*\*\*\*\*

### YOUR LETTERS

JOANNE ELIZABETH HARRISON, BILLERICAY, ESSEX. 01274 337142

Dear Einstein User Group  
I have in my loft an Einstein computer, twin 3" drives and 80 col. card. Rather than throw it away I wondered if one of your members would like it FOR FREE. As long as they collect it, I'll even find all the manuals and disks (I will need a bit of notice for the search though).

\*\*\*\*\*

FRANK WADL, 66 KINDERSLEY WAY, ABBOTS LANGLEY, HERTS. WD5-0DQ. PHONE: 01923 265704.

Dear Tony

Thank you for the magazine and letter. I have sent the first adverts to PC Mart and Micro Mart this year, I will continue to do so for the time being. Would you be so kind as to put an advert in the magazine for FAX MACHINES as two of my friends now need them. Who knows there might be some redundant ones out there.

\*\*\*\*\*

**JOB VACANCIES :** UKEUG PUBLICITY OFFICER required as we've worn out the old one! Pay non-existent, but the prestige is fabulous! Immediate start! Your subs are paid while you slave away for us. Apply NOW to UKEUG HQ. (Bribes always accepted!)

\*\*\*\*\*

ALAN HARRIS, 104 INGLEDEW COURT, LEEDS LS17 8TY. TEL.2259307  
Dear Mr.Adams

After much thought I've decided to renew my subscription to the UKEUG. When I took early retirement I envisaged long, dull, empty days, and having been given an Einstein as part of a promotional giveaway I thought, here was a way to fill in time and become computer literate.

This was not to be! There are predators out there looking for people to do those voluntary unpaid jobs that seem to abound. I did get my record and tape collection onto Albert and used The Cracker for keeping track of the accounts of two small societies for which I am still Treasurer.

My son then gave me a 386 with Windows 3.1. I now have Windows 95 on a Pentium equivalent and don't have to think! But I still hanker to find out how Albert does it...maybe one day...so I'll hang on...take the money and run. This time next year, I may lose ambition and remain just a driver and not worry what's under the bonnet.....Alan Harris

\*\*\*\*\*

ROBERT STEWART, 10 HOLLINWELL RD., SUMMERSTON, GLASGOW.  
Dear Mr.Adams

Here is the EINSTEIN I promised you about a year ago! My apologies for the delay, but the machine was required for some modifications and enhancements to the older environmental controllers' programs. The production of the Z80 based unit is now finished, and the Einstein can honourably be retired. I trust you will be able to find a good home for it.

I have decided that I've had enough at 60, and I am retiring shortly. I intend to sail my small yacht in the summer, and have arranged a part time lecturing job to pass the time in the winter. So, I'll be talking about computing instead of doing it, except for producing examples and notes.

I will not require any further Einstein magazines or related material. I wish you and your friends well in your various enterprises. Thank you for your efforts over the years.

Yours sincerely, Bob Stewart

\*\*\*\*\*



\* EINSTEIN MAGAZINE 82/28 \*

STEPHEN POTTS, 85 THOROLD AVENUE, CRANWELL VILLAGE, LINCS.  
NG34 8DS Phone: 01400 261839.

Dear Tony

Just a quick line to say things are going along at a steady pace. I will be attending some shows to display the EINSTEIN, notably, the Stafford shows in April and November. Also the WACCI convention for the third year at Walsall Bescot Stadium on the 6th of July.

I have some good news, due to my association with another user group, there will be 3" drive belts on sale at the stand. Also, """"NEW FREDDY DRIVES"""" , these are self powered, ready sorted, 3.5" drives for you to plug in and play!!!

HELP LINE: My monitor is still only R & G, if anyone can help it would be appreciated.

I am looking for a large screen T.V. (projection type), as used in pubs etc. Anyone know of one going spare?

Is there an EMULATOR for a PC that you know of?

Stephen Potts

\*\*\*\*\*

NOW HERE'S A REAL BARGAIN !!

EINSTEIN TC-01 with 3" drive, TM01 colour monitor, fitted TK02-80 column card+ 40/80 switch. A pristine Einstein upgrade kit - second disk drive, still in it's original packaging.

Daisywheel( QUENDATA ) printer, 2 type faces, manual and two new ribbons.

Seven original Einstein manuals, reference card and master disk. PLUS!!! a good deal of software with manuals as supplied. PLUS!!! many Einstein magazines.

£50.00 THE LOT --- BUYER COLLECTS

CONTACT: Miss Linda M. Howard, 6 Fry Cres., Burgess Hill,  
West Sussex. RH15 8TP. Phone: 01444-247628.



# STEAM COMPUTER SOCIETY - EINSTEIN USER GROUP

\*\*\*\*\*

## OUR PUBLISHING POLICY

To quote Canadian Railroad Historical Association:  
"Knowledge has little value unless it is shared  
with others."

Einstein User Group is sponsored by Steam Computer Society, a division of the not-for-profit RPM Historical Society, whose purpose is to advance the cause of public education by promoting increased individual knowledge, awareness & skill, & by facilitating free interchange of information in printed, machine-readable and other forms.

Einstein User Group is a vehicle for the mutual support and encouragement of Einstein users by sharing information, knowledge, queries and ideas between Einstein users for the benefit of Einstein users. Your input of information, opinion, views, opinion, question and feedback is essential to the continued publication of your EINSTEIN MAGAZINE.

Written/typewritten/computer input is welcome from all who have something to share with other Einstein users, or who seek information about the Einstein. Practical projects are specially welcome.

Preferred format for your input is ASCII file on Einstein, PC, CPC or PCW disk, plus a paper copy. Sketches, diagrams and/or clear photographs to illustrate your contribution are very welcome.

All Micro News (for all non-Einstein and non-PC computers/users) and MessyDos Journal (for MsDos and equivalents users) are published on an "as and when" basis, depending on input. Your regular or occasional contribution to these is welcomed too.

Einstein Diskmag No.3 is now available free if you send a 3" disk and return postage to New Romney, or direct from the publisher, Andrew Dunipace, at Burnhouse Cottage, Lennoxton, Glasgow, G65 7NH.