Nov 85

UK
EUG

EDITORIAL

It must be the worst job in the world, being the Editor of a Newsletter, or whatever, for all the mistakes are always the Editor's responsibility. However, in the case of this month's Newsletter anyway, "THE BUCK STOPS HERE!!!" and I am happy (or is it hysterical?) to welcome you to the First Issue of the UK Einstein User Group Newsletter.

First of all, thanks to everyone who has responded to the letter that was produced. We know that there are some who are a bit wary about parting with their 6:00p, but we hope that the outlay will be justified.

Secondly, it must be stressed that any comments, views, ideas etc:, written in this Newsletter are the concepts of those members of the Group who have submitted articles, and are not connected with TATUNG (UK).

There have been several articles submitted for this month's Newsletter and we hope that they will prove to be of interest to you. As you will see, they cover all ranges, from an article on 'HUSTLER' by Matthew Bradbury, aged 18, to an 'AUTOEX.COM' program, written by Keith Stokes, aged a little older . This is the vein that we hope to follow in subsequent Newsletters. Some of you will have used computers before but for many of you this may be your first experience. We hope that those of you who know something about computing, will contribute to this Newsletter, by sending in any articles, programs or just information, so that it can be shared with other EINSTEIN users.   We also hope that any one who has a problem will write to our Problem Page, as someone out there has probably already solved it for you.

If you do send anything to us, we would appreciate it on a disk, if possible. Please include return postage as this will make life a little easier for us at this end, and will speed the return of your disc. Include on the disk a File with your Name, Address and Tel: No:, plus your submission. In the case of programs, please try to ensure that no bugs are present, and include a Document File about the program, system requirements, language etc:. For Machine Code programs, all the above apply, eg: PROG.DOC,PROG.COM,PROG.SRC + a HEX Dump so that those who do not have an Assembler can also make use of it. Enclosed with the Newsletter are a couple of flimsys which have been sent down by various Distributors, which may be of interest.

By the time you receive this, you should all have received your 'Christmas Card' from TATUNG (UK), with details of their offers for Christmas. If you haven't received it yet, details of the offers to Einstein owners can be obtained from the Secretary of the UK Group.

SCREENS have kindly agreed to give the UK Group discount, at varying percentages, on some of their Software/Hardware, as has Dr MIKE BAYLISS. You should all have the addresses of the above, but, if you've mislaid them, then you will find them on the back page.

Finally, before we close, or run out of paper, DAVID MARTIN, of Scarborough, runs an EINSTEIN USER DATABASE, totally free of charge, and has a number of Names and Addresses on it. If you would like details of the Database, Dave's address is on the back page.

Robby Burns
The Editor

MORTGAGES   J.F.RAPER

Before calculators, mortgage calculations had to be done from voluminous tables. Even after calculators became more readily available, the calculations could only be done on the specialised scientific ones and then with some difficulty. Now we have computers,. the mysteries of your mortgage are at your fingertips.

Whether it is a mortgage you are contemplating or a mortgage already in existence, the calculations are the same - but remember that whereas banks calculate interest on a daily basis, building societies usually calculate interest on the balance as at the previous 1st January or the amount of the loan if it is the first year.

There are just four variables
1. Principal - the amount you want to borrow or now owe
2. Interest Rate - the rate of interest you will have to pay or are paying
3. Term - Over how many years and months you wish your mortgage to be or how long you will be repaying your existing mortgage
   Repayment - the amount you will have to pay each month or wish to pay

Provide the program with just three of the variables and the fourth will be calculated. In this way you can check whether your present mortgage is on course, what the effect of an interest- rate change might be, or try various combinations and decide which particular arrangement on a new mortgage will suit you best.

As an exercise the program was written both in BBCBASIC and XBAS. The following points came to light in this way:-
(a) because XBAS can only recognise the first five characters of a variable and will crash if a reserved word is contained anywhere in the variable, it is safer to use simple letters as variables. This does not however help readability . BBCBASIC recognises all the characters in a variable and therefore full descriptive variable words can be used for greater ledgibility. Variables are entered in lower case to avoid reserved words e.g. INTEREST and INT
(b) the use of procedures in BBCBASIC make the documentation of a program pretty automatic. It can be done in XBAS with REM statements to similar effect but you have to be much more disciplined.
(c) the XBAS format statement FMT is much easier to use than the BBCBASIC @%=&02030A
(d) the error handling in BBCBASIC cannot recover from within a loop or procedure so you have to come to a controlled halt or return to the beginning. In XBAS you can make a recovery and continue if the error is not significant.

The program is not suitable for time trials so comparison was not made on this basis. In general I favour the use of BBCBASIC, but for programs utilising graphics XBAS would probably be better being the prime language of the Einstein machine.

```
10 REM BBCBASIC - MORTGAGE CALCULATION PROGRAM
20 PROC_GET_CHOICE
30 IF choice=1:PROC_PRINCIPAL
40 IF choice=2:PROC_INTEREST
50 IF choice=3:PROC_TERM
60 IF choice=4:PROC_REPAYMENT
70 GOTO20
80 :
90 DEF PROC_GET_CHOICE
100 CLS
110 PRINT "1 - PRINCIPAL"'"2 - INTEREST"'"3 - TERM"'"4 - REPAYMENT"''
120 INPUT "ENTER UNKNOWN 1 - 4 "'choice
130 ENDPROC
140 :
150 DEF PROC_PRINCIPAL
160 CLS
170 PRINT TAB(10,0) "CALCULATING PRINCIPAL"''
180 INPUT "INTEREST RATE  "interest:interest=interest/100
190 INPUT "TERM IN YEARS, MONTHS "years,months:term=years+months/12
200 INPUT "MONTHLY REPAYMENT "repayment:repayment=repayment*12
210 ON ERROR GOTO 740
220 principal=repayment/(interest+(interest/((1+interest)^term-1)))
230 @%=&02020A
240 PRINT''"PRINCIPAL AMOUNT  ";principal
250 ON ERROR OFF
260 PRINT TAB(0,20) "PRESS ANY KEY TO CONTINUE";:N=GET
270 ENDPROC
280 :
290 DEF PROC_INTEREST
300 CLS
310 PRINT TAB(8,0) "CALCULATING INTEREST RATE"''
320 INPUT "PRINCIPAL "principal
330 INPUT "TERM IN YEARS, MONTHS "years,months:term=years+months/12
340 INPUT "MONTHLY REPAYMENT "repayment:repayment=repayment*12
350 TEMP=.1
360 ON ERROR GOTO 740
370 REPEAT
380 interest=TEMP
390 TEMP=repayment/principal-(interest/((1+interest)^term-1))
400 UNTIL ABS(TEMP-interest)<.000001
410 @%=&02030A
420 PRINT'' "INTEREST RATE ";interest*100
430 ON ERROR OFF
440 PRINT TAB(0,20) "PRESS ANY KEY TO CONTINUE";:N=GET
450 ENDPROC
460 :
470 DEF PROC_TERM
480 CLS
490 PRINT TAB(12,0) "CALCULATING TERM"''
500 INPUT "PRINCIPAL "principal
510 INPUT "INTEREST RATE "interest:interest=interest/100
520 INPUT "MONTHLY REPAYMENT "repayment:repayment=repayment*12
530 ON ERROR GOTO 740
540 term=LN(principal*interest/(repayment-principal*interest)+1)
541 term=term/LN(1+interest)+1/24
550 years=INT(term):months=INT((term-INT(term))*12):@%=0
560 PRINT'' "TERM IS "years" YEARS,"months" MONTHS"
570 ON ERROR OFF
580 PRINT TAB(0,20) "PRESS ANY KEY TO CONTINUE";:N=GET
590 ENDPROC
600 :
610 DEF PROC_REPAYMENT
620 CLS
630 PRINT TAB(6,0) "CALCULATING MONTHLY REPAYMENT"''
```

```
640 INPUT "PRINCIPAL "principal
650 INPUT "INTEREST RATE "interest:interest=interest/100
660 INPUT "TERM IN YEARS,MONTHS "years,months:term=years+months/12
670 ON ERROR GOTO 740
680 repayment=principal*(interest+(interest/((1+interest)^term-1)))/12
690 @%=&02020A
700 PRINT'' "MONTHLY REPAYMENT IS "repayment
710 ON ERROR OFF
720 PRINT TAB(0,20);"PRESS ANY KEY TO CONTINUE ";:N=GET
730 ENDPROC
735 :
736 ERROR PROCEDURE
740 PRINT''' "OUT OF RANGE"
750 PRINT TAB(0,20)"PRESS ANY KEY TO CONTINUE";:N=GET
760 ON ERROR OFF
770 GOTO20
780 END


  10 REM XBAS - MORTGAGE CALCULATION PROGRAM
  20 REM ***** START MAIN PROGRAM *****
  30 GOSUB 120:REM PROCEDURE GET CHOICE
  40 IF CHOICE=1 THEN GOSUB 220:REM PROCEDURE GET PRINCIPAL
  50 IF CHOICE=2 THEN GOSUB 360:REM PROCEDURE GET INTEREST
  60 IF CHOICE=3 THEN GOSUB 540:REM PROCEDURE GET TERM
  70 IF CHOICE=4 THEN GOSUB 680:REM PROCEDURE GET REPAYMENT
  80 GOTO 30
  90 REM ***** END MAIN PROGRAM *****
 100 REM
 110 REM
 120 REM
 130 REM ** PROCEDURE GET CHOICE **
 140 CLS
 150 PRINT "1 - PRINCIPAL"
 160 PRINT "2 - INTEREST RATE"
 170 PRINT "3 - TERM"
 180 PRINT "4 - REPAYMENT"
 190 PRINT
 200 INPUT"ENTER UNKNOWN 1-4     ";CHOICE
 210 RETURN
 220 REM
 230 REM ** PROCEDURE GET PRINCIPAL **
 240 CLS
 250 PRINT TAB(10)"CALCULATING PRINCIPAL":PRINT:PRINT:PRINT
 260 INPUT"INTEREST RATE   ";I:I=I/100
 270 INPUT"TERM IN YEARS, MONTHS  ";Y,M:TERM=Y+M/12
 280 INPUT"MONTHLY REPAYMENT   ";R:R=R*12
 285 PRINT:PRINT:PRINT
 290 ON ERR GOTO 330
 300 P=R/(I+(I/((1+I)^TERM-1)))
 310 FMT 6,2
 320 PRINT"PRINCIPAL AMOUNT   ";P:GOTO 340:REM SKIP ERROR MESSAGE
 330 PRINT"OUT OF RANGE":OFF ERR
 340 PRINT @ 0,20,"PRESS ANY KEY TO CONTINUE";:A$=INCH$
 350 RETURN
 360 REM
 370 REM ** PROCEDURE GET INTEREST **
 380 CLS
 390 PRINT TAB(8)"CALCULATING INTEREST RATE":PRINT:PRINT:PRINT
 400 INPUT"PRINCIPAL   ";P
 410 INPUT"TERM IN YEARS, MONTHS  ";Y,M:TERM=Y+M/12
 420 INPUT"MONTHLY REPAYMENT   ";R:R=R*12
 430 TEMP=.1
 440 REM LOOP
```

```
450 I=TEMP
455 PRINT:PRINT:PRINT
460 ON ERR GOTO 510
470 TEMP=R/P-(I/((1+I)^TERM-1))
480 IF ABS(TEMP-I)>.000001 THEN GOTO 440
490 FMT 2,3
500 PRINT"INTEREST RATE   ";(I*100):GOTO 520:REM SKIP ERROR MESSAGE
510 PRINT"OUT OF RANGE":OFF ERR
520 PRINT @ 0,20,"PRESS ANY KEY TO CONTINUE";:A$=INCH$
530 RETURN
540 REM
550 REM ** PROCEDURE GET TERM **
560 CLS
570 PRINT TAB(12)"CALCULATING TERM":PRINT:PRINT:PRINT
580 INPUT"PRINCIPAL   ";P
590 INPUT"INTEREST RATE   ";I:I=I/100
600 INPUT"MONTHLY REPAYMENT   ";R:R=R*12
605 PRINT:PRINT:PRINT
610 ON ERR GOTO 650
620 TERM=LN(P*I/(R-P*I)+1)/LN(1+I)+1/24
630 Y=INT(TERM):M=INT((TERM-INT(TERM))*12):FMT 2,0
640 PRINT"TERM IS   "Y" YEARS, "M" MONTHS":GOTO 660:REM SKIP ERROR MESSAGE
650 PRINT"OUT OF RANGE":OFF ERR
660 PRINT @ 0,20,"PRESS ANY KEY TO CONTINUE";:A$=INCH$
670 RETURN
680 REM
690 REM ** PROCEDURE GET REPAYMENT **
700 CLS
710 PRINT TAB(6)"CALCULATING MONTHLY REPAYMENT":PRINT:PRINT:PRINT
720 INPUT"PRINCIPAL   ";P
730 INPUT"INTEREST RATE   ";I:I=I/100
740 INPUT"TERM IN YEARS,MONTHS   ";Y,M:TERM=Y+M/12
745 PRINT:PRINT:PRINT
750 ON ERR GOTO 790
760 R=P*(I+(I/((1+I)^TERM-1)))/12
770 FMT 4,2
780 PRINT"MONTHLY REPAYMENT IS   "R:GOTO 800:REM SKIP ERROR MESSAGE
790 PRINT"OUT OF RANGE":OFF ERR
800 PRINT @ 0,20,"PRESS ANY KEY TO CONTINUE";:A$=INCH$
810 RETURN
820 END
```

PROGRAM LISTINGS

The following are two old favourites, BIORHYTHM and CALENDAR, written in Xtal BASIC

BIORHYTHM will allow you to know the best time to tell your partner about that new bit you've bought for your Einstein, and CALENDAR will make sure that you didn't buy it when the shops were closed!!

Unfortunately, the listing for BIORHYTHM is not quite right, Line 230 should read as follows :-

```
230 TLIN$="0---+----1----+----2----+----3-"
```

```
10 REM THIS PROGRAM PLOTS BIORYTHMS
20 REM FROM DATA ENTERED
100 RST:DIMMN$(12),DOW$(7),DPM(12)
110 SHAPE150,"68 8C 68 28 C4 00 00 00 04 84 EC B4 AC 00 00 00 04 84 CC 94 8C
00 00 00 90 E0 98 94 54 00 00 00"
120 FOR LOOP=1TO12:READMN$(LOOP),DPM(LOOP):NEXT:FORLOOP=0TO6:READDOW$(LOOP):N
EXT
130 CLS32
140 INPUT"ENTER NAME ";NAME$
150 SEP(47):INPUT"ENTER BIRTHDATE (D/M/Y) ";D,M,Y:SEP(44)
160 GOSUB650:IFDATEFLAG=1THEN150
170 BDATE$=SHDAT$:BDN=NOD
180 SEP(47):INPUT"ENTER DATE FOR ANALYSIS TO BEGIN";D,M,Y:SEP(44)
190 GOSUB650:IFDATEFLAG=1THEN180
200 ADATE$=SHDAT$:ADN=NOD
210 NODA=ADN-BDN
220 IFNODA<0THENPRINT"I cannot produce an analysis before you were born":GOTO
140
230 TLIN$="0▲▲▲/▲▲▲▲1▲▲▲▲/▲▲▲▲2▲▲▲▲/▲▲▲▲3▲"
240 TLIN$=TLIN$+TLIN$
250 TLIN$=MID$(TLIN$,D,30)
260 BLIN$="123456789012345678901234567801"
270 BLIN$=BLIN$+BLIN$
280 BLIN$=MID$(BLIN$,D,30)
290 PHYS=(NODAMOD23)*2*PI/23
300 SENS=(NODAMOD28)*2*PI/28
310 IGNT=(NODAMOD33)*2*PI/33
320 CLS32
330 PRINT"Analysis for ";NAME$
340 PRINT"Birthdate "BDATE$
350 PRINT"Starting "ADATE$
360 PRINT"Physical";TAB(16,45)
370 PRINT:PRINT"Intellectual";TAB(16)
380 PRINT:PRINT"Sensual";TAB(16)
```

```
390 GCOL1,4
400 DRAW120,163TO200,163,2
410 GCOL13,4
420 DRAW120,155TO200,155,2
430 GCOL15,4
440 DRAW120,147TO200,147,2
450 PRINT@0,15,TLIN$
460 PRINT@0,16,BLIN$
470 DRAW0,64TO244,64,0
480 FORX=0TO244
490 Y1=.8*X/23
500 Y2=.8*X/28
510 Y3=.8*X/33
520 GCOL1,4
530 PLOTX,(SIN(Y1+PHYS)+1)*64
540 GCOL15,4
550 PLOTX,(SIN(Y2+SENS)+1)*64
560 GCOL13,4
570 PLOTX,(SIN(Y3+IQNT)+1)*64
580 NEXT
590 PRINT@0,6,"Press 'C' to continue";
600 A$=INCH$:IFA$="C"ORA$="c"THEN610:ELSE600
610 FORLOOP=0TO6:PRINT@0,LOOP,SPC(40);:NEXT
620 PRINT@0,0,"OPTIONS:-"
630 PRINT"   <N>ew person                    <C>ontinue same person"
640 A$=INCH$:IFA$="N"ORA$="n"THEN130:ELSEIFA$="C"ORA$="c"THEN180:ELSE640
650 IFY<100THENY=Y+1900
660 IFYMOD400=0THENLP=1:GOTO670:ELSEIFYMOD100=0THENLP=0:GOTO670:ELSEIFYMOD4=0
THENLP=1:ELSELP=0
670 IFLP=1ANDM=2THENLPP=1:ELSELPP=0
680 IFD<10RM<10RY<18000RM>120RY>4999THENDATEFLAG=1:RETURN
690 IFD>(DPM(M)+LPP)THENDATEFLAG=1:RETURN
700 Y1=Y-1800:LP1=INT(Y1/4):LP2=INT(Y100):LP3=INT((Y1+200)/400):NOD=365*Y1+LP
-LP2+LP3
710 FORLOOP=1TOM:NOD=NOD+DPM(LOOP):NEXT:NOD=NOD+D-1:IFM>2THENNOD=NOD+LP
720 DOW=NODMOD7:IOM5,0:Y$=STR$(Y):M$=STR$(M):IFLEN(M$)<2THENM$="0"+M$
730 D$=STR$(D):IFLEN(D$)<2THEND$="0"+D$
740 IOM5,1
750 IFD=10RD=210RD=31THEND2$=D$+CHR$(150):GOTO790
760 IFD=20RD=22THEND2$=D$+CHR$(151):GOTO790
770 IFD=30RD=23THEND2$=D$+CHR$(152):GOTO790
780 D2$=D$+CHR$(153)
790 IFD<10THEND2$=RIGHT$(D2$,2)
800 SHDAT$=D2$+" "+MN$(M)+" "+Y$:REM 25TH JUNE 1984
810 RETURN
820 DATAJANUARY,31,FEBRUARY,28,MARCH,31,APRIL,30,MAY,31,JUNE,30,JULY,31
830 DATAAUGUST,31,SEPTEMBER,30,OCTOBER,31,NOVEMBER,30,DECEMBER,31
840 DATATUESDAY,WEDNESDAY,THURSDAY,FRIDAY,SATURDAY,SUNDAY,MONDAY
Ready
```

```
100 CLS40:PRINT" ENTER YEAR TO BE PRINTED":INPUTY
105 PRINT"TO OUTPUT TO PRINTER PRESS 'P'":INPUTP$
110 D=Y-1900:YY=Y/100:L=INT(D/4):S=D+L:IFDMOD4=0THENS=S-1
115 FORZ=1TO30:IFS>=7THENS=S-7:IFS<7THEN130
120 NEXTZ
130 FORX=1TO12:READM$,D
140 IFYMOD4=0ANDM$="FEBRUARY"THEN D=29
150 IFYY/4-INT(YY/4)=0ANDM$="FEBRUARY"THEND=28
160 IFP$="P"ORP$="p"THENPRINT#1:ELSECLS
165 PRINTTAB(10,32);M$;TAB(22);Y
170 PRINTTAB(10);TAB(27,45):PRINT
180 PRINTTAB(3,32);"MON   TUE   WED   THU   FRI   SAT   SUN "
190 GOSUB300:C=0:IFS=0THEN210
200 FORK=1TOS:PRINT"!     ";:C=C+1:NEXTK
210 FORJ=1TOD:PRINT"!";:FMT2,0:PRINTJ;:C=C+1:IFC<>7THEN230
220 PRINT"!":GOSUB300:C=0
230 NEXTJ:FMT0,0
  0 FORK=1TO7-C:PRINT"!     ";:NEXTK:PRINT"!":GOSUB300:IFP$="P"ORP$="p"THEN250
:ELSE INPUT   "PRESS ENTER TO CONTINUE";A$
250 S=S+D-28:IFS>=7THENS=S-7
260 NEXTX
270 GOTO320
280 DATAJANUARY,31,FEBRUARY,28,MARCH,31,APRIL,30,MAY,31,JUNE,30,JULY,31,AUGUS
T,31,SEPTEMBER,30,OCTOBER,31,NOVEMBER,30
290 DATA DECEMBER,31
300 FORV=1TO36:PRINT"-";:NEXTV:PRINT"":RETURN
310 FORQQ=1TO100:NEXT
320 PRINT#0:CLS:INPUT"WOULD YOU LIKE TO SEE ANOTHER YEAR < Y/N >";A$:IFA$="Y"
THENRUN:ELSERUN
Ready
```

AUTOEX

by

KEITH STOKES

If you have seen "TIME TRAP", or other, similar programs, you may have noticed that they run automatically, (this is called 'Auto-booting'). Have you ever wondered how they do it? No, neither have I, but a friend of mine has. I, like a fool, said that I did'nt know, but that I thought it should be fairly easy. After a while, it started to bug me, so, I decided to take a serious look at the problem.

After a lot of searching, I found the information I needed, and set about testing the theory. With the MOS routines provided, it proved to be quite simple, but, if I wanted to change the program name, or do it to more than one disc, it seemed to be a bit of a chore. The only way around this was to write a program which would do it for me. The program is listed here for you to type in, and use. It is fairly well documented, and very simple to use. It asks for the information it requires, one item at a time, on the screen.

The listing includes a Hex Dump so that those of you who don't have an Assembler can enter it in, directly into memory, using MOS. To do this, type MOS <enter>, M100 <enter>, then type in the Hex Code, as listed, not forgetting the period (.) after the last byte. Return to DOS and type in 'SAVE 2 AUTO.COM' <enter>. The File should now be saved onto disc as 'AUTO.COM'. To use, just type in 'AUTO' <enter>. If you have an Assembler, then use your usual commands.

Pass 1 errors: 00

```
000D                1 CR        EQU     0DH
000A                2 LF        EQU     0AH
FB30                3 REST      EQU     0FB30H
0100 3E00           4 START     LD      A,0             ;DRIVE NUMBER
0102 210080         5           LD      HL,8000H        ;LOAD FROM HERE
0105 111285         6           LD      DE,8512H        ;TO HERE
0108 010000         7           LD      BC,0            ;TRACK & SECTOR 0
010B CF             8           RST     08H             ;GO AND GET IT
010C A4             9           DEFB    0A4H
010D 0E00          10           LD      C,0             ;NOW REMOVE
010F 210382        11           LD      HL,8208H        ;ANY PREVIOUS
0112 112782        12           LD      DE,8227H        ;AUTO COMMAND
0115 CF            13           RST     8
0116 85            14           DEFB    85H
0117 3E0C          15           LD      A,0CH           ;CLEAR SCREEN
0119 CF            16           RST     8
011A 9E            17           DEFB    9EH
011B 21C503        18           LD      HL,M2           ;DATA FOR PROMPT
011E 01F019        19           LD      BC,19F0H        ;VIDEO RAM FOR
0121 1608          20           LD      D,8             ;PROMPT
0123 7E            21 MUSH      LD      A,(HL)          ;PUT IT
0124 CF            22           RST     8
0125 C3            23           DEFB    0C3H
0126 23            24           INC     HL
0127 03            25           INC     BC
0128 15            26           DEC     D
0129 7A            27           LD      A,D
012A FE00          28           CP      0
012C 20F5          29           JR      NZ,MUSH         ;NOW ITS THERE
012E 210001        30           LD      HL,100H         ;START POINT
0131 2230FB        31           LD      (REST),HL       ;LOAD VECTORS
0134 2232FB        32           LD      (REST+2),HL     ;SO PROG CAN
0137 2234FB        33           LD      (REST+4),HL     ;NOT EXIT
013A CF            34           RST     08H             ;SIGN ON AND PRINT
013B CF            35           DEFB    0CFH            ;INSTRUCTIONS
013C 0D0A          36           DEFB    CR,LF
013E 20204175      37           DEFM    '  Au'
0142 744F4578      38           DEFM    'toEx'
0146 286329        39           DEFM    '(c)'
0149 20436F70      40           DEFM    ' Cop'
014D 79726967      41           DEFM    'yrig'
0151 6874204B      42           DEFM    'ht K'
0155 65697468      43           DEFM    'eith'
0159 2053746F      44           DEFM    ' Sto
015D 6B657320      45           DEFM    'kes '
0161 31393835      46           DEFM    '1985'
0165 80            47           DEFB    80H
0166 CF            48           RST     8
0167 A6            49           DEFB    0A6H
0168 CF            50           RST     8
0169 CF            51           DEFB    0CFH
016A 54686973      52           DEFM    'This
016E 2070726F      53           DEFM    ' pro'
0172 6772616D      54           DEFM    'gram'
0176 2077696C      55           DEFM    ' will '
```

```
017C  656E6162    56       DEFM   'enab'
0180  6C652079    57       DEFM   'le y'
0184  6F752074    58       DEFM   'ou t'
0188  6F206D61    59       DEFM   'o ma'
018C  6B6520      60       DEFM   'ke '
018F  616E79      61       DEFM   'any'
0192  20646973    62       DEFM   ' dis'
0196  6B206175    63       DEFM   'k au'
019A  746F626F    64       DEFM   'tobo'
019E  6F742061    65       DEFM   'ot a'
01A2  6E79        66       DEFM   'ny'
01A4  2070726F    67       DEFM   ' pro'
01A8  6772616D    68       DEFM   'gram'
01AC  20796F75    69       DEFM   ' you'
01B0  20776973    70       DEFM   ' wish.'
01B6  80          71       DEFB   80H
01B7  CF          72       RST    8
01B8  A6          73       DEFB   0A6H
01B9  CF          74       RST    8
01BA  CF          75       DEFB   0CFH
01BB  20202020    76       DEFM   '     '
01C0  4A757374    77       DEFM   'Just'
01C4  20656E74    78       DEFM   ' ent'
01C8  65722074    79       DEFM   'er t'
01CC  68652070    80       DEFM   'he p'
01D0  726F6772    81       DEFM   'rogr'
01D4  616D20      82       DEFM   'am '
01D7  6E616D65    83       DEFM   'name'
01DB  206174      84       DEFM   ' at'
01DF  20746865    85       DEFM   ' the'
01E2  2070726F    86       DEFM   ' pro'
01E6  6D70742E    87       DEFM   'mpt.'
01EA  0D0A        88       DEFB   CR,LF
01EC  4E4F        89       DEFM   'NO'
01EE  20657874    90       DEFM   ' ext'
01F2  20697320    91       DEFM   ' is '
01F6  72657175    92       DEFM   'requ'
01FA  69726564    93       DEFM   'ired'
01FE  20492E45    94       DEFM   ' I.E'
0202  2E20747970  95       DEFM   '. type '
0209  4241434B    96       DEFM   'BACK'
020D  555020      97       DEFM   'UP '
0210  6E6F7420    98       DEFM   'not '
0214  4241434B    99       DEFM   'BACK'
0218  55502E      100      DEFM   'UP.'
021B  434F4D      101      DEFM   'COM'
021E  0D0A        102      DEFB   CR,LF
0220  20202020    103      DEFM   '     '
0224  54686520    104      DEFM   'The '
022A  66696C65    105      DEFM   'file'
022F  4D555354    106      DEFM   'MUST'
0233  20626520    107      DEFM   ' be '
0237  6F6E2074    108      DEFM   'on th'
023C  65206469    109      DEFM   'e di'
0240  736B206F    110      DEFM   'sk o'
0244  72206120    111      DEFM   'r a '
0248  4E4F2046    112      DEFM   'NO F'
024C  494C4520    113      DEFM   'ILE '
0250  4552524F    114      DEFM   'ERRO'
```

```
0254  52207769      115           DEFM    'R wi'
0258  6C6C206F      116           DEFM    'll o'
025C  63637572      117           DEFM    'ccur'
0260  20776865      118           DEFM    ' when'
0265  20626F6F      119           DEFM    ' boo'
0269  74696E67      120           DEFM    'ting.'
026E  0D0A0A        121           DEFB    CR,LF,LF
0271  546F2045      122           DEFM    'To E'
0275  52415345      123           DEFM    'RASE'
0279  20746865      124           DEFM    ' the'
027D  20415554      125           DEFM    ' AUTO'
0282  424F4F54      126           DEFM    'BOOT '
0287  66726F6D      127           DEFM    'from'
028B  20612064      128           DEFM    ' a d'
028F  69736B20      129           DEFM    'isk '
0293  70726573      130           DEFM    'pres'
0297  7320656E      131           DEFM    's en'
029B  74657220      132           DEFM    'ter '
029F  617420        133           DEFM    'at '
02A2  74686520      134           DEFM    'the '
02A6  70726F6D      135           DEFM    'prom'
02AA  70742E        136           DEFM    'pt.'
02AD  0A0D0A        137           DEFB    LF,CR,LF
02B0  50757420      138           DEFM    'Put '
02B4  64657374      139           DEFM    'dest'
02B8  696E6174      140           DEFM    'inat'
02BC  696F6E20      141           DEFM    'ion '
02C0  6469736B      142           DEFM    'disk '
02C5  696E746F      143           DEFM    'into'
02C9  20616E79      144           DEFM    ' any'
02CD  20647269      145           DEFM    ' drive'
02D3  0A0D0A        146           DEFB    LF,CR,LF
02D6  46494C45      147           DEFM    'FILE '
02DB  4E414D45      148           DEFM    'NAME '
02E0  80            149           DEFB    80H
02E1  11CD03        150           LD      DE,BUFFER    ;STORE AREA
02E4  3E3E          151           LD      A,3EH        ;PROMPT
02E6  CF            152           RST     8            ;PRINT IT
02E7  9E            153           DEFB    9EH
02E8  CF            154           RST     8
02E9  9D            155           DEFB    9DH          ;GET INPUT
02EA  0E00          156           LD      C,0
02EC  11D703        157           LD      DE,BUFFER+10
02EF  13            158           INC     DE
02F0  1A            159  COUNT    LD      A,(DE)       ;GET LENGTH
02F1  0C            160           INC     C            ;OF INPUT
02F2  FE20          161           CP      20H
02F4  2806          162           JR      Z,MOVE
02F6  E65F          163           AND     5FH          ;UPPERCASE ONLY
02F8  12            164           LD      (DE),A       ;PUT IT BACK
02F9  13            165           INC     DE
02FA  18F4          166           JR      COUNT
02FC  11D803        167  MOVE     LD      DE,BUFFER+11
02FF  210882        168           LD      HL,8208H
0302  0D            169           DEC     C            ;PUT INTO BUFFER
0303  79            170           LD      A,C
0304  FE00          171           CP      0
0306  2807          172           JR      Z,WRITE
0308  71            173           LD      (HL),C
```

```
0309 23           174              INC   HL
030A EB           175              EX    DE,HL
030B 0600         176              LD    B,0
030D EDB0         177              LDIR
030F CF           178 WRITE        RST   8            ;WRITE SETUP
0310 CF           179              DEFB  0CFH
0311 0D0A         180              DEFB  CR,LF
0313 44524956     181              DEFM  'DRIV'
0317 45204E4F     182              DEFM  'E NO'
031B 2028302D     183              DEFM  ' (0-3)'
0321 80           184              DEFB  80H
0322 3E3E         185              LD    A,3EH
0324 CF           186              RST   8
0325 9E           187              DEFB  9EH
0326 CF           188              RST   8
0327 9C           189              DEFB  9CH
0328 CF           190              RST   8
0329 9E           191              DEFB  9EH
032A D630         192              SUB   30H          ;CHECK IF VALID
032C FE04         193              CP    4            ;DRIVE NO
032E 3019         194              JR    NC,ERR       ;NOT VALID
0330 210080       195              LD    HL,8000H     ;VALID
0333 111285       196              LD    DE,8512H
0336 010000       197              LD    BC,0
0339 CF           198              RST   8
033A A5           199              DEFB  0A5H         ;WRITE TO DISK
033B FE04         200              CP    4
033D 3022         201              JR    NC,ERR2      ;MORE ERRORS
033F 2820         202              JR    Z,ERR2
0341 FE02         203              CP    2
0343 2833         204              JR    Z,WPROT
0345 1850         205              JR    AGAIN        ;OK
0347 CF           206              RST   8
0348 CF           207              DEFB  0CFH
0349 CF           208 ERR          RST   8
034A CF           209              DEFB  0CFH
034B 0A0D0A       210              DEFB  LF,CR,LF
034E 494E5641     211              DEFM  'INVA'
0352 4C494420     212              DEFM  'LID '
0356 44524956     213              DEFM  'DRIV'
035A 45204E4F     214              DEFM  'E NO'
035E 80           215              DEFB  80H
035F 18AE         216              JR    WRITE
0361 CF           217 ERR2         RST   8
0362 CF           218              DEFB  0CFH
0363 0A0D0A       219              DEFB  LF,CR,LF
0366 4524956      220              DEFM  'DRIV'
036A 45204E4F     221              DEFM  'E NO'
036E 54205245     222              DEFM  'T RE'
0372 414459       223              DEFM  'ADY'
0375 80           224              DEFB  80H
0376 1897         225              JR    WRITE
0378 CF           226 WPROT        RST   8
0379 CF           227              DEFB  0CFH
037A 0D0A0A       228              DEFB  CR,LF,LF
037D 4449534B     229              DEFM  'DISK'
0381 20495320     230              DEFM  ' IS '
0385 57524954     231              DEFM  'WRIT'
0389 45205052     232              DEFM  'E PR'
```

```
038D  4F544543   233              DEFM   'OTEC'
0391  544514     234              DEFM   'TED'
0394  80         235              DEFB   80H
0395  18DF       236              JR     $-31
0397  CF         237 AGAIN        RST    8
0398  CF         238              DEFB   0CFH
0399  0D0A0A     239              DEFB   CR,LF,LF
039C  444F       240              DEFM   'DO'
039E  20495420   241              DEFM   ' IT '
03A2  41474149   242              DEFM   'AGAI'
03A6  4E202859   243              DEFM   'N (Y'
03AA  6F724E29   244              DEFM   'orN)'
03AE  80         245              DEFB   80H
03AF  3E3E       246              LD     A,3EH
03B1  CF         247              RST    8
03B2  9E         248              DEFB   9EH
03B3  CF         249              RST    8
03B4  9C         250              DEFB   9CH
03B5  CF         251              RST    8
03B6  9E         252              DEFB   9EH
03B7  F65F       253              AND    5FH
03B9  FE59       254              CP     59H
03BB  CA0001     255              JP     Z,START
03BE  3E0C       256              LD     A,0CH
03C0  CF         257              RST    8
03C1  9E        ·258              DEFB   9EH
03C2  C30000     259 EXIT         JP     0H            ; JUMP TO DOS
03C5  0078FC30   260 M2           DEFB   0,78H,0FCH,30H
03C9  30303000   261              DEFB   30H,30H,30H,0
```

GAME REVIEW
by
MATTHEW BRADBURY   AGE:- 10 YEARS

GAME:- HUSTLER
SUPPLIER:- BUBBLEBUS SOFTWARE
COST:- 12.95

Hustler is probably one of the finest Pool simulations out on the Einstein, for the younger generation.

The game set up is a good chunky graphic Pool table, six balls, (3 Red and 3 Yellow) and a White cue ball.

You have six levels of play.

The First Level is called "Any ball, any pocket", where all you have to do is pot all the balls into the pockets in the least amount of shots you can. My record is 5.

The Second Level is called "Balls in order". All the 6 balls have numbers on them, ranging from 1 - 6. The object of the game is to pot the ball with Number 1 on first, then the ball with Number 2 on second, and so on. Again, you have to do it in the least amount of shots you can, and my record on this level is 11.

The Third Level is called "Balls in their pockets". This is probably the hardest level of the lot! All the balls again have numbers on them from 1 - 6, but so do the pockets as well!! The object of this level is to pot the ball with Number 1 on it into the pocket with Number 1 on it. Then pot the ball with 2 on it in to the pocket with 2 on it and so on . My lowest score on this level, with the help of a couple of flukes, is 11 shots.

The games I have just talked about can all be played by one person, but the three games left which I am going to talk about can only be played by two people.

The first of them is called "Highest Lowest. I have not played this game many times but I think you have to do something like this. The first person breaks off, then the next person tries to pot a ball. (the balls have numbers on them again). If he pots the ball Number 3, or any other ball with a number lower than 3 on it, that person has to pot the balls 1,2 and 3 to win the game. If that person pots a ball with 4 on it after the break he must pot the balls 4,5 and 6 to win the game.

The next game is a pure ordinary game of Pool where you take it in turns to pot all your colour balls, ie: at the beginning, if a person pots a yellow ball then they must pot all the yellow balls to win.

The last game is called "Score the Pockets". It is similar to the 2nd game which I talked to you about, called "Balls in their pockets", except this time, if you pot ball 5 into the pocket with 5 on it , you will get 5 points. My record on this game is 19 points!

So, all together, I think you can see that HUSTLER is a very good game, and, I think, well worth the money. My only dislikes about HUSTLER is that you only have a cross to line up your cue-ball with to pot the balls. The problem is that you don't know which point of the cross the cue-ball is going to hit. It would have probably have better to have had a circle around the cross.

<u>GAME REVIEW</u>
by
GRAHAM OLD   AGE:- 11 YEARS

GAME:- TIME TRAP
SUPPLIER:- EINSOFT
COST:- 12.95

        When we first got our Eintein Computer, my Dad kept
going on about a game called 'TIME TRAP', (you know what big kids
Dads are) and so we finally got it.   Me and my 2 brothers were
amazed, the sound was great, (if you don't want it, just press
ENTER) and the graphics are just as good as any Computer or
Arcade Game, if not better.   The helicopters, animals, rockets,
airplanes, monsters and space shuttles are really good.
        The idea of the game is to collect as many crystals as
you can, dodge the missiles etc: and jump over the dreaded
Skulls.   We have had 'TIME TRAP' since June and it has been on
nearly every day.
        My highest score is 67 crystals, is there anyone out
there who can beat that?

FLIGHT PATH 737

The following is an extract from the write-up, by ANIROG, on their program "FLIGHT PATH 737":-

The program, Flight Path 737, is an airliner simulation program which accurately emulates the characteristics of a large passenger plane.

A musical introduction invites you to select a level, from 'First Solo' to 'Test Pilot' (with a total of six levels). Next, you are presented with a pilot's briefing, describing take-off, flying and landing conditions. These get stricter as levels proceed.

Pressing 'Space Bar to fly' reveals a pilot's eye view of cockpit instrumentation and aprn area. All of the controls respond accurately, as the emphasis is on true simulation, so instat action, in some cases, has deliberately disallowed acceleration.

When taking off, flying or landing, it is best not to look at the scenery until you are quite proficient on the level you are attempting, as you need to keep an eye on height, speed, fuel, heading, etc:.

The higher levels can be infuriating, especially when an unexpected fire occurs, during landing for instance.

The graphics are not meant to be 'State of the Art', as the emphasis is on simulation. Playability, addictiveness and accuracy are the main points.

One last point ....READ THE INSTRUCTIONS !!!!!

Has anyone got a copy of Flight Path 737? If so, please send in a Write-up of what your impressions of it are, since ANIROG would like to find out 'End-User' re-actions to their program, and so would we.

By the way, 'JUMP-JET', by the same Software House, will soon be available.

WORD SEARCH
ON
THE 7 DWARFS

by
MATTHEW BRADBURY
aged 10

```
LUFHSABHASDGYTOCGJLHUGFKY
AYGJLJDAFGKKGJOLJHFLHLJCZ
RIDPPTPPJFOGODOMJFGOYRUOE
GDKEJGLPHWLELRJHLJKKLGJFE
GHGREEAYTFLLGURYYRTYRUUPN
GHUTORDOHHYRIHGTRKHHJHLJS
GLFHRYGFHJFUIRKIODNFJYKTU
HSJRLGJYJKYUTYOTPOKFGUHKJ
NFIDHOGRUMPGJIFHYPJFGTJYR
JGFYKYRTYKRJHIJJYEDSHWRWY
JGHYFTPUYUEFYTYUIYYEYITUO
HBFJYOIUMRUYKRTUIOKJFGJYK
SAUKLGUPROLKTHOUOUROOIHRU
NGHKJFYGHJHJHGHJHIHJKOKHL
```

Snow White has lost the Seven Dwarfs in the Forest of Letters.

Can you help her to find them?

The names of the Dwarfs are hidden in the above Forest of Letters. They can be lying vertical, horizontal, diagonal, spelt backwards or forwards.

P.S. If you have any games that we can print in our Newsletter, we would be pleased to hear from you.

BEST OF LUCK

WITHOUT ANY DOUBT WHATSOEVER, SOCIETY AS WE KNOW IT TODAY COULD HARDLY FUNCTION WITHOUT THE USE OF COMPUTERS.

THESE ELECTRONIC SUPERBRAINS, CAPABLE OF DOING MILLIONS OF CALCULATIONS EVERY SECOND, DO HOWEVER, HAVE ONE VERY LARGE DRAWBACK - THEY ARE NOT (AT PRESENT) ABLE TO UNDERSTAND, OR INFER, THE MEANING OF A SENTENCE THAT IS NOT GRAMMATICALLY CORRECT, OR THAT MIGHT HAVE A DOUBLE MEANING.

SOME OF THE COMMONEST PROBLEMS THAT OCCUR ARE THE MIXING UP OF Ø (ZERO) AND O (OH), AND THE NUMBER 1 WITH EITHER I (EYE) OR A SMALL 'L'. TAKE, FOR EXAMPLE, THE SENTENCE 'I WENT TO THE THEATRE' - THE COMPUTER, NOT HAVING ANY IMAGINATION, MIGHT WELL TAKE THIS AS MEANING 'ONE WENT TO THE THEATRE', - AND CONCLUDE THAT YOU WERE A MEMBER OF THE ROYAL FAMILY.

MY IDEA TO RESOLVE THIS PROBLEM IS QUITE SIMPLE - JUST SUBSTITUTE THE LETTER 'I' WITH ANOTHER CHARACTER THAT APPEARS ON A COMPUTER KEYBOARD, BUT IS NOT IN COMMON USE, PERHAPS THE '#' SYMBOL. TH#S, OF COURSE, ST#LL LEAVES THE PROBLEM OF THE 'O', BUT PERHAPS WE COULD AGA#N SUBST#TUTE TH#S LETTER W#TH A SYMBOL - PERHAPS THE '%'.

HAV#NG D%NE THAT, Y%U C%ULD THEN USE THE NUMBER '1' AS A SH#RT WAY %F WR#T#NG THE W%RD '%NE', AND THE SAME W#TH '2'.

AM QU#TE SURE THAT 1 W%ULD S%%N GET USED 2 WR#T#NG #N TH#S FASH#%N, AND 1 C%ULD QU#CKLY #NTR%DUCE %THER CHANGES - PERHAPS US#NG THE '*' SYMB%L F%R THE LETTER 'L' #N W%RDS *#KE 'PARA*E**' AND T% HE*P EVEN M%RE, USE THE '>' SYMB%* 2 REPRESENT A C%MB#NAT#%N %F *ETTERS, SUCH AS 'TH' #N W%RDS *#KE '>#S'.

#N N% T#ME AT A** WE W%U*D BE #N A P%S#T#%N WHERE WE C%U*D WR#TE >#NGS >AT >E C%MPUTER W%U*D HAVE N% D#FF#CU*TY #N READ#NG AND *#FE W#** BE A G%%D DEA* S#MP*ER!!!

HINTS and TIPS

Here is a tip from David West for those of you with 80 Columns, but who do not have an 80 Col BASIC, or prefer to use Xtal BASIC.

First load Xtal BASIC, then type MOS <enter>. In MOS press CTRL P, type Y <enter>, and you are back in BASIC with an 80 Column Screen. Everything seems to work except Screen editing. To edit a line, use the Line Edit Mode or you will be back in 40 Columns.

Now, a tip for " Shoot em up" BASIC Games players. The keyboard response is normally quite slow. To speed it up DOKE Location FB42H with &0101. To reverse this effect DOKE FB42H with &10A0. This will make the response very fast, try experimenting with different values.

If you have a Serial Printer, and are disappointed with certain programs which will not print, because they use the Printer Port and not the Serial Port, try this tip. Boot the disk as usual. From DOS type MOS <enter>, MFA3D <enter>, A0. <enter> (THE FULL STOP IS IMPORTANT, DO NOT FORGET IT), Y <enter>. You are now back in DOS and can load and run your program.

RHUBARB PATCH

Rumour has it that a certain Software company, which, to everyones' delight, will remain nameless, believes that the Einstein Software market is on the decline. In their case, this is probably true, due to the poor quality software that they keep producing.

One of the other factors is the high cost of the media in the first place. Any program that you buy is going to cost about 5:00p for the disk alone, before you start paying for the author's hard work. Also it would seem that most Software houses are not taking the Einstein seriously, which is a shame when, apparently 90% of of Einsteins purchased have been done so, for mainly business use. (CHUCKY EGG is particuarly good to pass the timewhile we wait).

Talking of cheap software, how would you like a genuine, registered copy of WORDSTAR for only '40.00 + VAT. There is just one catch, first you must rip it off, and then, if you inform MICROPRO they will only charge you the above sum and forgive you. Somehow this does not sound kosher but for anybody who is feeling guilt-ridden, this is your chance to become respectable again.

SERIAL TRANSFER OF PROGRAMMES

NEWBRAIN TO EINSTEIN

My problem was simple; I had a lot of business software for
a 32K NewBrain and didn't relish the prospect of typing it all in
again on the Einstein! Both machines have two-way serial ports
configured to RS232C so I assumed that transfer of programmes
from one to another should be possible. I was only interested in
the NewBrain to Einstein direction. Unfortunately, my NewBrain
did not have CP/M so I couldn't use the famous PIP.

After much study of the two manuals on the subject of the
serial ports, neither of them much help incidentally, I
eventually got them wired up. (As an aside, it also involved
trying to get the Einstein to drive a serial printer via the
RS232C port. It worked, but printed each character twice,
lliikkee tthhiiss! Anyone got an explanation?) The connections
were :-

NewBrain (as transmitter)		Einstein
RXD	to	TXD
CTS	to	RTS
TXD	to	RXD
RTS (aka DTR)	to	CTS
Earth	to	Earth

Then next thing was to check the configurations of the two
ports, such things as data and stop bits, parity checks and so
on. After much study of pages 18-21 of the Einstein DOS/MOS
manual, and of the NewBrain Software Technical Manual, plus a
data sheet on the D8521AC USART, I discovered that they were
configured in the same way on Power Up! Even the Baud rates were
the same. More of this later.

I wrote a small programme for the NewBrain to test the
system, connected the NewBrain Comms Port (device 9) to the
Einstein, using a home-made lead, and set the Einstein up, ready
to receive. For that, I loaded the COPY.COM utility from the
Xtal Basic disc; waited for the * to be displayed, and then typed
:-

SRL:TO Ø:TESTFILE.BAS <E>

I pressed the two ENTER keys at the same time, the disc
light went on and absolutely nothing appeared on the screen. It
should have displayed something, that's what the <E> is for, ECHO
to screen. I checked the disc; it only had the file header on
it. I then remembered something I had read about the slow screen
handling, at 9600 Baud it would need to be fast. I assumd that
it wasn't fast enough to handle 9600 Baud, so I set about slowing
the Baud rate down. Eventually things started to work at 300
Baud (B3 in MOS, incidentally) but another problem appeared. All
the transmitted programme was displayed on one line, in fact, it
overwrote itself.

Back to the NewBrain Manuals. Clearly the NewBrain was not issuing a Line Feed after every Carriage Return. After more study, I discovered that the NewBrain Comms Port was designed to issue only a CR; something to do with efficient transmission of ASCII files. However, the Printer Port (device 8) did issue a LF after a CR and it was a simple matter of plugging the lead into the Printer Port. Grundy had, thoughtfully, given them the same connections. I tried sending the programme again and it worked! I also speeded the Baud rate back up to 9600 and deleted the echo to the screen; that worked too. I set it back to 300 with echo because of the novelty of watching the programme writing itself to the screen.

I could now get programmes from the NewBrain to the Einstein and on to the disc as ASCII files (the :TO 0: above copies to disc). I started to transfer some of my business programmes, one of them 24K long, to the Einstein and ran up against another snag: the disc file was closing itself without an apparent EOF marker (character 26) being sent from the Newbrain. Eventually I tracked it down to programme lines which contained the sequence ?"" which were closing the files. I solved that one by transferring the programme in blocks between the ?"" sequences.

Once the Newbrain programmes were on disc as ASCII files, I then had the task of converting them to Basic source files, in other words, programmes which would run under Basic on the Einstein. I wanted the programmes to run in 80 column, so the Xtal Basic was no good. My machine came with a BBC Basic disc which worked in 80 column so that was a start (I had resisted using BBC Basic because of it's awful Line Editor; I was used to the wonderful screen editor on the NewBrain, complete with it's reverse screen scroll and windows). Lurking on the disc was a poorly documented utility called CONVERT.COM which looked as though it might do the conversion from ASCII to BCC Basic. It did, but not without more problems.

The CONVERT.COM utility converts <filename>.BAS to <filename>.BBC and vice-versa, hence the reason for giving the transferred ASCII files the suffix .BAS. I loaded CONVERT.COM in DOS and typed CONVERT <filename>.BAS. The utility stepped its way through the ASCII file, numbering each line and displaying the fact that it had done so. It also told me that some lines had been numbered out of sequence. The converted ASCII file was then, automatically, saved to disc as <filename>.BBC. I loaded BBCBASIC + <filename>.BBC and listed the programme. It was a bit of a mess! The utility had numbered every line, literally. Some of the original lines of the NewBrain programme were over 256 characters long, but the utility had split them into 80 character lines and numbered them. It had also left odd bits of lines which were, for some reason, impossible to re-combine into the original long programme lines and were difficult to EDIT out. The only solution was to RENUMBER a block of lines, DELETE the original block and RENUMBER again. Definitely a bit of a pain.

Having got the programme into a recognisable shape, it only remained to change the programme from NewBrain dialect into BBC Basic dialect. The main changes were to screen handling eg: PUT22,x,y to P.TAB(x,y) and ? to P etc:. Sending controls to the printer is a more tedious business in BBCBASIC than on the

Newbrain, involving *OPT2, VDU and*OPTØ rather that PUT'8, the
latter a formal but elegant system which will be sorely missed.
After all the tyding up, the converted programmes worked fine,
with the added bonus that they ran about 3 times as fast in
BBCBASIC on the Einstein. Oddy, te code was much more compact on
the Einstein than on the NewBrain; the 24K programme on the
NewBrain occupied only 13K on the Einstein.

Some day I would like to do file transfer the other way; to
be able to use the NewBrain with the Einstein discs as a
dedicated Word Processor. The NewBrain screen editor makes it so
easy. Anybody out there got any ideas?

Bob Towers 11/10/85

-o-O-o-

DUMPING SCREEN GRAPHICS FROM BASIC

I typed in the Screen Dump programme listed in the User
Magazine and was impressed with the results, but decided that it
would be even more useful to be able to use it from Basic, so
this is what I've done :-
(If I waffle on a bit about the technicalities, skip it and
simply follow the installation instructions)
DOS occupies memory from E3ØØ to FAFF, but actually loads in
from E1ØØ to FAFF.
DOS 1.11 does not use the locations from E1Ø7 to E2FF, DOS
1.21 does not use the locations from E181 to E2FF and DOS 1.31
does not use the locations from E163 to E2FF. So, there is space
to insert User routines into these locations. The routine, as
printed, takes up 78H bytes, and DOS 1.21, which leaves least
space, has more room available than this. The idea is to insert
the routine onto the disc so that it is always resident in memory
whenever required. Provided the location is known, then it can
be accessed with a simple command from either XBAS or BBBASIC,
ie: 'CALL & (location of routine)'. You must be sure to reserve
this area of memory from within Basic (HIMEM=&E26F or CLEAR
&E26F) or the programme variables will overwrite the machine
code. In MOS the System tracks were read into memory at Location
&8ØØØ to &99FF. Then the routine was re-assembled at Location
&E27Ø, but loaded into memory at Location &817Ø. The System
tracks were then written back to the disc, again in MOS. On
booting the disc and executing the Command CALL &E27Ø, Hey
Presto! the screen gets dumped to the printer and control is
returned to Basic, either XBAS or BBCBASIC, whichever is in use.

INSTALLATION INSTRUCTIONS

Power up the machine with no disc in.
Put in the disc that you want the routine to reside on in
the drive.
You should still be in MOS
Type 'R 8ØØØ 99FF <enter>'
Use the Modify command to enter the data bytes (second field

of listing below) at the addresses shown (first field of listing) starting at 8170H.

When all bytes have been entered, type W 8000 99FF.

Once a disc has this routine installed on it then, if it is used as the 'Disc with the required System Tracks' when FORMATTING, the new routine will also be transferred.

HEX DUMP OF OBJECT CODE

ADDRESS	DATA
8170	DB 20 E6 1C FE 10 C0 2A
8178	9A FB E5 2A 9C FB E5 21
8180	BF 00 22 9C FB 21 00 00
8188	22 9A FB E5 DD E1 E5 FD
8190	E1 DD E5 06 08 21 E1 E2
8198	7E CF 9F 23 10 FA FD E5
810A	0E 01 C5 CF C7 C1 28 01
81A8	37 CB 11 FD 2B 30 F3 79
81B0	CF 9F FD E1 DD 23 DD E5
81B8	F1 B7 28 E2 DD E1 01 F8
81C0	FF FD 09 3E 0A CF 9F FD
81C8	E5 E1 01 BF 00 09 38 C1
81D0	3E 1B CF 9F 3E 40 CF 9F
81D8	E1 22 9C FB E1 22 9A FB
81E0	C9 0D 1B 41 08 1B 4B 00
81E8	01

The bytes from 81E1 to 81E8 are printer control codes and determine the printer actions as follows :-

a)   81E1 is a Carriage Return to set it up for printing.
b)   81E2 is the Escape code to set it up for following data.
c)   81E3 is the following data and sets the line spacing to the next byte value, which is 8.
d)   81E5 is another Escape to indicate following data.
e)   81E6 following data sets printer to single density graphics of 640 dots per line maximum.
f)   81E7 81E8 sets the printer to 255 dots per line. Other values seem to give very strange images on the screen.

These values are for the TATUNG TP100 and may need changing for other printers.

Chris Giles 30/10/85

-o-O-o-

RAMBLING

You're probably wondering why I've entitled this article Rambling, so I'll try and explain.

Have you ever met Chris Giles? He's the fellow who started the whole UK Einstein User Group off. Well, anyway, after the decision had been taken to publish a Newsletter cum magazine, the

search was on to find Suckers, oops, Sorry, Volunteers, to contribute written material to put in said Rag. Well, at the time, there stood I, dreaming about this new Printer I was just about to order (more of that later), when he turned his 'Britain needs YOU' gaze in my direction and said "What about you Richard, can we rely on something from you?". I ask you, there was 'CG', suggesting that I might be a reliable character, how could I possibly argue with someone who obviously had such an exalted opinion of me? Yes, you're right, I fell for it, and duly volunteered.

Five days later it sank in, (so did PANIC). What the @%#$ could I, a mere Wally, write about? You see, I'm not exactly an expert when it comes to Computers, or programming. After all, that's one of the reasons why I joined the Group, which incidentally, was one of my better moves. The Founder Members are some of the most friendly and helpful people you could wish to meet, and the one thing that they all have in common is an enthusiasm for the Einstein, which serves to reinforce my belief that it's one of my wiser purchases. Then it came to me. Probably the one thing I know more about than anything else is what's available, from whom and for what price, so, if my preamble hasn't put you off, here goes.

My first additinal purchase was an 80 Column Card, essential if you are going to be using serious Business Software. No choice here I'm afraid, funds were low, and Dixons' Credit Card was close to hand (again!). Dixons are fantastic for major items, I don't think their prices can be beaten, but don't go back for add-ons because they'll skin you!! Second buy was to be a Printer, and, this time, I had the upper hand (and the cash!!), so the 'phone went into overdrive. First stop was Screens Microcomputers, whose prices for software must be unbeatable, plus of course, as Members of the Group, we get additional discounts. Sadly, the printers that they had didn't really fit my bill, so I resorted to one of my favourite pastimes, searching through my Computer mags, and the name 'Hi-Voltage' of Croydon, leapt out of PERSONAL COMPUTER WORLD (the best magazine as far as I'm concerned). Their advert was full of printers, at good prices, so out came the 'phone again.

To cut a long story short, I am now the proud owner of a Centronics H80A NLQ (Near Letter Quality) printer, which prints Dot Matrix at 180 CPS and has many additional features. This printer is identical to the Canon PW1080A, whic sels fr around 350:00p, except for the cost, a mere 230:00p. It comes complete with a very comprehensive manual, full of technical detail and useful program listings.

Well, I've rambled on a bit, and, if I'm honest, I suppose all I've really said is, don't but the first 'goody' you see. It's worth looking around, making the odd 'phone call, and asking the actual manufacturer, if you can contact them. Which retailer is making a special offer on their products. After all, it's in their interests to promote their own agents, especially if they have made a bulk purchase of a particular product.

One last offering. I really believe that if we, as Einstein Users, wish to be supported by Software Houses, Hardware Manufacturers, and, to a lesser degree, Publishers, be it

Magazines or Technical Manuals, we, in turn, must support them.
Taking Magazines as an example, I'm sure we are all tired of
reading about Amstrads and Spectrums. We all know we have a far
better computer in the Einstein, yet how many articles have you
seen, written for it? There are only two magazines worth buyimg,
as far as I'm concerned, WHAT MICRO and PERSONAL COMPUTER WORLD.
There, I've had my moan, I just hope it doesn't sound self
righteous.

It's time to close now and put the budgie cover over the
Einstein for another day. Best wishes to all, for, after this
effort, I probably won't be asked to write again!! See you at
the Annual Meeting. (What Meeting?), just a thought for the
future.

                    Richard Old   25/11/85

                         -o-O-o-

SKYTRONICS LIMITED have allowed us to print the following article :-

SKYTRONICS LIMITED was formed some 12 years ago, and has operated in the electronic business equipment and micro-computer field since its inception. The Company's progress has matched the development of micro-computer technology through home computers to small,stand-alone business and to the latest network and multi-user systems.

The marketing objective of the Company is to provide complete solutions to business problems, from the initial investigations, to the installation, and subsequent support, including hardware, software, training and engineering support, etc:. To this end, all software supplies and support are provided.

Users in the local Authority field include :-

Notts CC   West Notts College
Derbyshire CC   Derby College of Further Education
Sandwel MBC   Warley College
Coventry CC   Lancaster College
National Coal Board   Burton on Trent
London New Technology   Network
British Telecom   Birmingham
Trent Polytechnic
Birmingham University
Aston University

and 10 installations in MSC Training Workshops, operating under the alias of their local Authority.

The staff of the Company number 14, and represent some 74 man-years of experience in the computer, and related, fields.

For the last two years, the major effort within the Company, has been on the provision of software, as a result of which, the Company has several software packages which are marketed internationally.

Our expertise in our accounting software has allowed us to provide Users of the Einstein with SQUIBS, a powerful, fully integrated, accounting system, specifically designed for the small business.

Contact Names :-   Sales   -   Steve Skinner
                                   Support -   Paul Donoghue
                                                 Lee Witts

Details of SQUIBS, S.C.A.N. DRAW and EIN-NET, from SKYTRONICS are enclosed.

PEACH COMPUTERS LIMITED, of Largs, Ayrshire, have kindly allowed us to print the following article on their programs :-

All our programs run on the single, or twin disc drive, standard Einstein. We have a very high opinion of the Einstein, particularly with regard to it's reliability, and we seem to be finding a remarkably large number of Business applications for which the machine is very suitable.

We enclose, here, a couple of sheets on PEACH PACK and MANAGER, (see enclosed articles) to give you an overall, bird's eye, view of the programs. Our advice to Users is to start with PEACH PACK, and use it for a while to become familiar. It may be all that they ever require. However, for those who require it, MANAGER is there, for automatic processing of very large amounts of data.

We also offer a customising service, where we take a PEACH PACK program and change or extend it to suit the User's exact requirements. This costs around 10:00p - 20:00p, depending on the work involved. The time varies, but it is usually about 1 - 2 weeks.

To give you an idea of what's possible, we are just completing a customisation for a Business, with about 4,000 items, each of which has a fairly detailed record, held in STOCK Files. The program uses condensed Till Files from CASHDESK as the Index Files, and, automatically, updates the complete set of records held on 4 discs. There are various ancillary functions. It all works remarkably well - indeed, it's quite eerie to watch the Einstein working away so quietly, all by itself, for quite long periods.

Another application we did recently is for a hairdresser, with a shop in a college town, who provides hairdressing to some 1,200 boys. All the boys get invoices once a term, and the 26 House Masters get complete statements, which show what each boy has spent in the term. Again, this is all done using a customised MANAGER option - in this case, based on INVOICE.

We think there will be a very large number of similar applications of MANAGER, and are currently looking at one involving some 16,000 people. By the way, a good rule of thumb is that about 1,000 items can be held on each disc, with a good record on each item. 16 discs is quite reasonable for the application we are concerned with, which is a Medical Clinic.

A further piece of information is that we offer an ongoing update service on PEACH PACK and MANAGER, at a cost of 10:00p, excluding VAT. This includes disc, manual and postage, and the service allows Users to get the advantages of extensions and improvements, at a very low cost.

ALASTAIR WARD BSc PhD FRAS MIRP

Articles from PEACH COMPUTERS LIMITED are enclosed with this letter.

BACK PAGE INFORMATION

If you wish to comment about, or send articles to the UK Einstein User Group Newsletter, please send all information to the Secretary, at the following address :-

> W.G. BURNS
> UK Einstein User Group
> 6 Spearman Street
> Woolwich
> London
> SE18 4DG

If you wish your article to be published in the next Newsletter, it must be in the hands of the Editor(s) by Friday, 20th of December, 1985, to make sure that we keep the deadline of publishing at the end of each month.

Discs, which are forever in short supply, can be obtained from KEITH STOKES, Tel: 07982-2399, for a reasonable price.

ADDRESSES

SCREENS
6 Main Avenue
Moor Park
Northwood
Middlesex
Tel: 09274-20664

Dr MIKE BAYLISS
Unit 2
Paddock Mount Offices
Dawley Centre
Dawley
Telford
Tel: Telford 501754

DAVID MARTIN
3 Mayfield Avenue
Scarborough
YO12 6DF
Tel: 0723-370691

DISTRIBUTORS

If you wish to purchase any Software/Hardware for the Einstein, get in touch with SCREENS, at the above address. The contacts there are NIGEL SINCLAIR and KETAN BHATT who will help as much as they can.

Dr MIKE BAYLISS of the BUSINESS COMPUTER CENTRE also offers help, in the way of Software/Hardware and technical advice.

Both of the above Distributors offer attractive Discount to Group members. If you do get in touch with them, please inform them that you belong to the UK Einstein Users Group. Both Distributors have a List of Group Members, which will be updated as and when necessary.

The Group is regularly in touch with TATUNG (UK), the contact there is DAVID BELL, and we will keep you posted on any developments, in our Newsletters.

FORTHCOMING

It is hoped that, during the next month, we will have been in touch with FMP of Torquay, to see if they can offer the Group the same facilities as SCREENS and MIKE BAYLISS, who is, incidentally, a Group Member.

There is a magazine, solely for the Einstein User, called 'THE BRAIN' being published soon, and should be available in January 1986. Cost for an Annual Subscription to this 'Bi-Monthly' magazine (is that every 2 months, or twice a month?) is 16:00p and the address to write to, for details, is :-

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THE BRAIN
Unit 101
Glenfield Park
Nelson
BB9 8AR
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MEMBERSHIP CARDS

Membership Cards will be issued to each Member as he or she joins the Group. The cards are numbered and these numbers correspond to the Membership Lists given to Distributors. They are also proof that we have received your Subscription.

LONELY HEARTS

Finally, a cry from the heart!!

Are there any Ladies out there who use the Einstein? Mrs JEAN SKILLERN, one of our Group Members, wants to get in touch with a Lady, in what seems to be, dare we say it, a predominately Male preserve. Jean's address is :-

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Mrs JEAN SKILLERN
36 Nelson Row
Ford
Near Arundel
West Sussex
Tel: 0903-724863
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So much for the Back Page Information covering just one page, so we'll close now, before we cover another page.

This Newsletter has been produced by Members of the UK Einstein Users Group.

PEACH COMPUTERS LTD.

 # # #   PEACH   PACK   # # #

EINSTEIN .... NOV 1985

We would like to introduce you to our suite of software comprising 10 programs written for the Einstein computer. Peach Pack is designed for busy users facing practical tasks of the types which arise in business and other areas.

TEXT ...
A Text writer which has up to 16 screen pages per document. There is good on-screen editing which gives very fast insertion and deletion of characters and free cursor movement. Text is a very useful program for producing notes letters and a wide range of similar textral material. Printer codes. Print outs in 40,80 or 120 characters/line.

LABELS ...
Provides facilities for printing labels with different numbers of lines. Good for such tasks as the preparation of price tickets, menus, warning notices which may be printed conveniently on self adhesive labels.

MAIL ...
Allows the preparation and storage of about 1000 names and full addresses on disc. Easy editing, with facilities for fast Find and Alphanumeric Sorting of the entries. An extremely useful program in an office or other business

INVOICE...
Keeps detailed records of transactions with choice of print out of orders / delivery notes / invoices. The program has commands for obtaining Totals and Vat. Each file holds the records of up to 20 transactions.   Easy editing for the changes and corrections which occur in practical situations.

STOCK ...
For stock control with facilities for automatic updating of stock levels and values following deliveries and sales Each file holds up to 50 stock items with associated data. Find, Sort and print of complete stock details.

WAGES ...
Allows swift calculation of wages for up to 25 employees with print out of pay slips. The user inserts the basic data for each employee then a single key obtains the wages and tax. Calculate command sums over the entire file.

PROFILE...
For keeping track of performance among up to 25 individuals (students, salesmen, ...) The program gives averages and standard deviations for 10 columns over the whole file in about a minute.

ACCOUNT...
Up to 25 accounts/file spread out as a sheet of data. The user enters details in up to 10 columns then the program gives totals and vat. The Calculate command gives the sums of all columns over the entire file in a few seconds.

RECORDS...
Around 1000 records of Name/address/data can be stored on one side of a disc. Records finds and displays/prints any of these in about 10-15 seconds. The correct file is found automatically using the initial letter of surname.

CASHDESK..
Provides many of the functions of a till including printed receipts. It also stores away details of all the sales which can be condensed and provide the basis of very efficient stock control.

EACH disc can hold around 20 files thus allowing very large amounts of data to be handled with ease and speed.

PRICE of complete pack (all 10 progs) ..... £ 30 ex vat   PRICE of partial pack (any 2 progs) ..... £ 10 ex vat

These prices include disc, detailed manual, sample data files, and post. Please add 15 % for vat.

MANAGER # #

There are many business tasks which involve loading and handling a series of files. This can be very tedious for a human operator and can take up a great deal of valuable time. Far better for such tasks to be carried out by the computer thus freeing the operator for other work. Manager is designed to do just that.

OPTIONS

As you know there are 10 distinct programs in the Peach Pack suite. Manager provides a number of options for each of these 10 programs. To obtain a particular option the user enters Manager then selects the program and then the option required. For example the user may wish to send out letters to different groups of people with each letter personalised to make it more attractive. The letters will be on disk in the form of TEXT files and the names and addresses will be on disc in the form of MAIL files. Each name and address has a special code which is used by the computer to see to it that the correct letter goes to groups of people with the same code. This technique is called Mail Merging and it is very powerful and useful bearing in mind that MAIL in Peach Pack allows over 1000 names and full addresses.............Another example is where the user wishes to obtain statements for all of his customers whose accounts have remained in debit for longer than a specified period. Here all the accounts are held on disc in the form of INVOICE files and Manager works its way automatically through one file after another and prints out statements for those with persistent debits. Mail Merge may then be employed to send out standard personalised reminders................A further example is automatic updating of stock records using files which can have their origin in the CASHDESK program. Here the net sales over a period are held in CASH files (perhaps one file per day). The list of all the items held are kept on disc in the form of STOCK files. Manager loads in one of the CASH files and then works its way automatically through all the STOCK files updating as it goes. This is repeated automatically for each of the CASH files specified..............Another example is where the user requires a whole series of files printed out.   For instance this could be an extremely long document extending over some 50200 words say or it could be a print out of the entire MAIL file or all the STOCK files. In this case Manager works its way quietly through all of the specified files printing out those parts of the files requested. The whole process is completely automatic and saves the user a great deal of time.............Another very similar application of Manager is to load in different programs and their corresponding files and print out specified parts. You may be interested to know that the printouts of sample data files for Peach Pack are done in this way using Manager. Again the whole process is automatic. Indeed we are only able to provide this service in response to all enquiries because of this facility in Manager............It is our impression that there are a great many tasks which are most easily and conveniently carried out using Manager and we intend steadily increasing the number and variety of options available with a very low cost update service to allow users to take advantage of developments.

INDEX FILES

Manager is very simple to operate and involves two basic ideas. One is the number of options which are available for each of the programs in Peach Pack. The other is a new idea due to ourselves called an Index File. This is a file which is laid out as a series of lines across the screen with each line having the same format. First a program name is shown then a data file with file type and then the part of this file involved. Finally there is a symbol column which tells the computer what line to go to next. In effect an Index file is a very simple set of brief orders to the computer which are faithfully executed one line after another. For example in a single line the computer may load in the TEXT program, then a TEXT file called LETTERS say and note that it is required to print out a particular letter extending over a part of the complete file. The computer does this without any fuss or bother and then goes on automatically to the next line and so on until the entire task is completed.
The reader will be interested to know that this is the type of automatic operation which is carried out in very large main frame computers. We are ourselves quite impressed by the way in which Manager working with Peach Pack brings out the real power inherent in the Einstein which we think is an extremely fine,reliable low cost computer.

PRICE of options for all 10 progs ..... £ 20 ex vat   PRICE of options for any 2 progs ..... £ 10 ex vat

These prices include disc, detailed manual, and post. Please add 15 % for vat.

NEWSLETTER

Dear Einstein User,

Just a few short notes on new developments and programs available for the Einstein.

EIN-NET (EINstein NETworking)

This networking system for the Einstein allows up to 31 Einsteins to be linked together, giving common access to a central information store. Files can be shared and used by any user. The system is based upon a central fileserver which can either be a 5.4, 10.8 or 16.2 megabyte hard disk. Each Einstein is then connected to the system via an EIN-NET interface. The system is supplied complete with all networking software.

The fileserver comes complete with a double-sided, double-density 5.25" floppy disk drive, allowing security copies to be made with ease. The system can also be utilised as a stand-alone hard disk to add on to your Einstein.

The system operates under full CP/M 2.2. This allows you, the user, to benefit from the full range of true CP/M packages, for example, Wordstar Professional, D.Base II, Cobal, Pascal and a huge range of full professional business software. For educational users there is a large range of specialist written application software. The system is ideal for both business and educational users who wish to extend the uses to which their Einstein is put.

For details please contact Stephen Skinner at SKYTRONICS Ltd.

SQUIBS (Skytronics QUality Integrated Business System)

This is a fully integrated accounts suite. It offers the businessman sales ledger, Purchase ledger, Nominal Ledger, Stock Control and Invoicing either as a complete package or as individual items. The programs are based on an open item accounting basis maintaining a transaction by transaction record of day to day accounts, full VAT analysis, aged debtor reports, stock lists and statements, etc. Also available is a comprehensive tailoring and user support service.

For further details please contact Paul Donoghue at SKYTRONICS Ltd.

TAILORING SERVICE

A complete range of Business software is available and can be tailored for your individual eeds.If you have any special requirements please contact us.

COMPUTER AIDED DESIGN ON THE TATUNG EINSTEIN

S.C.A.N. DRAW

A simple to use CAD package which is an ideal introduction to the use of computer aided design.

The package has been designed for the first time CAD user and features a simple and easy to follow manual, and sample drawings.

Features included in the package are   .

Colour selction, of up to 8 colours.
Background colour selection for contrast and ease of use
Allows drawing of circles, arcs, and ellipses.
Cursor key drawing on screen
Simple single key operation
Drawings can be saved to disk and recalled when required.

SCAN DRAW is an exellent introduction to CAD as it allows the user to utilise the benefits of CAD at a very low cost.

Expansion options.

As well as the standard SCAN DRAW package a number of enhancements are available.
SCAN PRINT allows the printing of designs from SCAN DRAW onto the Tatung TP80 dot matrix printer.
SCAN Plot prints designs from SCAN DRAW onto a xxxxxxxxx plotter.

A range of other enhancements are also available. For details please contact SKYTRONICS LTD.

Prices

S.C.A.N. DRAW	£75
S.C.A.N. PRINT	£25
S.C.A.N. PLOT	£75

SKYTRONICS Ein-Net Network System

The underlying Philosophy of Ein-Net is to enable as many people as possible to have access to their own microcomputer for the lowest possible cost.

There are three main software components to the Ein-Net network, and these respectively fulfill the requirement of the fileserver, standard workstations and workstations fitted with local disk drives, otherwise known as superstations.

HOW IS THIS ACHIEVED?

By providing a central fileserver.

WHAT IS THE FILESERVER AND WHAT DOES IT DO?

The fileserver is the master station of the network, and is a microcomputer equipped with a Winchester hard disk drive for data storage. This hard disk comprises central file storage for every one using the network, and the necessary software interfaces to allow the connection of printers so that they may be shared by all workstations on the network.

While the network is in operation the fileserver itself may not be used as a work station on the network, but handles all the network transactions between the wordstations and the Winchester disk drive.

For printer connection, the server is supplied as standard with an RS232 Serial interface. For Centronics parallel type printers a Skytronics I/O board must be added to the fileserver. The server is fitted with the Skytronic network interface board which contains the circuitry necessary to allow the connection of the hardware to the network. A unique network workstation number is provided on this board by a selectable 5-way DIL switch. For data protection an 800K 5.25" floppy disk drive is also fitted into the server cabinet for back-up and data transfer purposes. Connection of the server and any workstation on the network is via a simple, low cost, single twisted pair cable and a variant of RS424 differential transmission is used.

The server continuously polls all stations on the network to give each user immediate access to its files, application software programs or any shared printer.

Data is transmitted serially at a rate of 250K baud, very fast for a system of this sort. All data package transmitted end with a CRC (checksum) to detect any errors during transmission. On the receipt of a data packet, the receiving station checks that all the packet has been received correctly, and if an error has occured, signals this to the fileserver, at which point it will retransmit the package.

In use each active workstation i served from its own RAM buffer in the server, reducing disk access, and by doing so, increasing the availability of the data, hence increasing the operating speed of the network. If several stations require disk access simultaneously, each station sends and transmits data to and from its buffer in packets, allowing time for other stations to send and receive likewise. Under normal conditions, system response is very rapid, and is not held up by stations accessing the line for anything other than disk or shared printer access.Each station is connected by an umbilical cord of this cable, via a 3 pin socket, to a wall mounted junction box. The maximum overall length of the network is in the region of 600m(2000ft) and up to 31 workstations may be connected to the cable at any point along its length.