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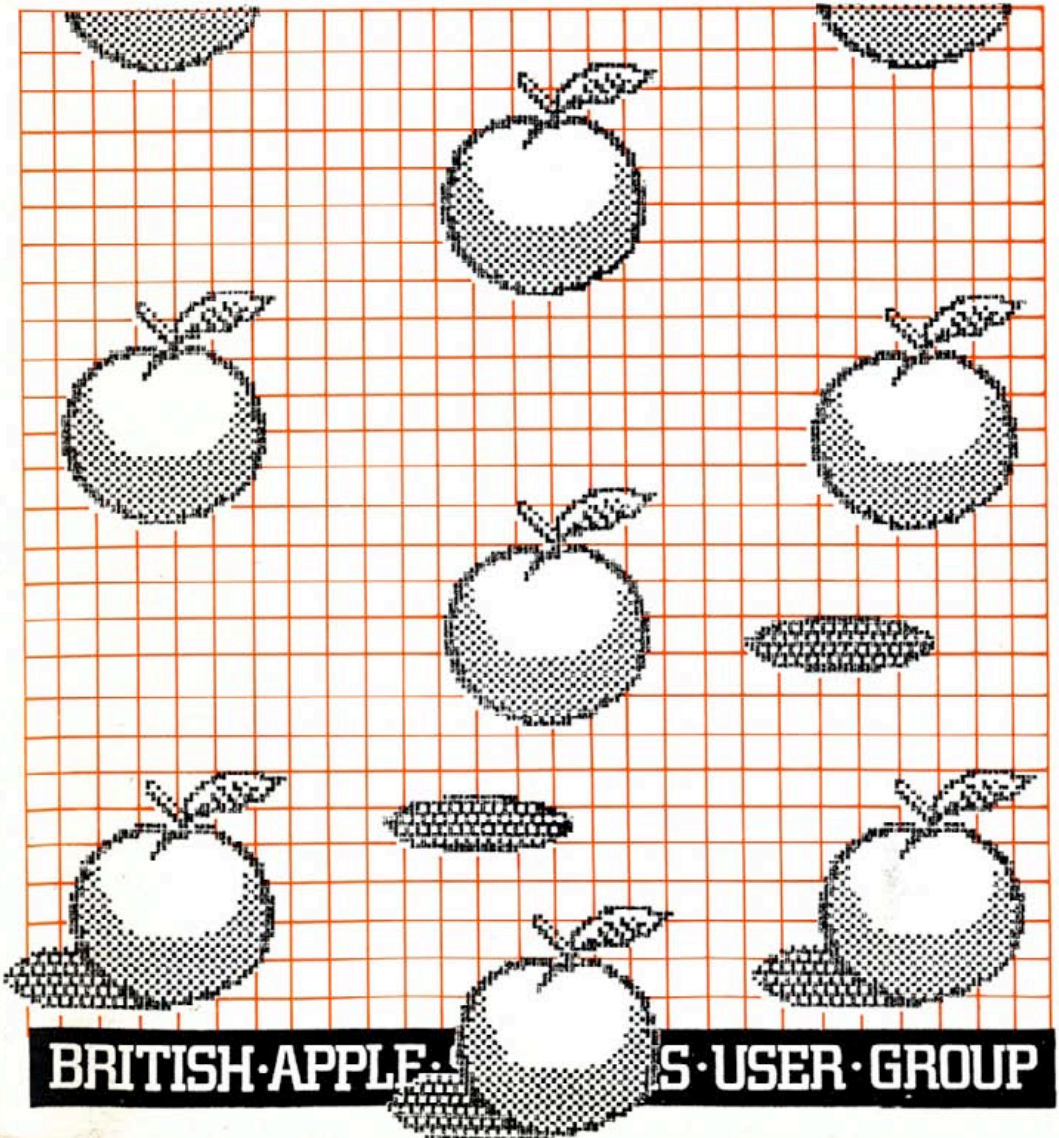
hardcore

October 1985 Volume 5 (5)



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THE JOURNAL OF THE BRITISH APPLE SYSTEMS USER GROUP

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The fully justified proportional and some other printing in this issue of HARDCORE was done with the aid of FORMAT 80, using Madeleine and Herald Elite daisywheels.

The front cover and HARDCORE logo were designed by Stefan Mucha.

Editorial

Well, when I put the last issue of HARDCORE to bed little did I think that I would be saying cheerio in this one! Apparently the Committee decided to take over the magazine at their August meeting and Jim Panks rang me to tell me the good news...and please could I do the October issue because it would be difficult for the new people to get it together in time. I'm glad to say that there has been no complaint to me from members about the magazine being inadequate and, having regard for the current state of play and past performance of BASUG, I can only tell you that I have tried to bring you an improved journal and hope you have enjoyed it. Remember that the Editor can only use what members, or some others whose arm I have twisted, write (for free). It has always been my policy to include as many contributions as space would allow. Equally, an editor can only respond on the basis of suggestions received from readers. For instance a suggestion by Charles Sheppard brought about the Tips, Tricks& Techniques section. You must make your own conclusions about the items contributed by members of the committee, some of which have been outstanding, like Peter Trinder's Updates and Roger Harris's various pieces of wisdom (regrettably both have left the committee). Unfortunately, not all have equalled their efforts. As ever, my thanks to those of you who have sent articles for inclusion, advertised, or given support in other ways.

One cannot help but ponder the future. Will Hardcore move towards the Mac - the Mac Newsletter, which you have already received, seems likely to be an indication of things to come. Since I have been told categorically that there is no intention of getting another Editor, how will the copy be gathered and edited on a regular basis? Only the future will tell. At least costs have dropped dramatically during my tenure. BASUG paid £675 for printing 1300 copies of the October 1984 issue with black and white cover, plus extra for photocopying the Updates, whereas now the printing and carriage costs for 1200 48 page copies with a colour cover are £470, additional money having also been saved by replacing unnecessary photocopying with printing. The Editor takes a financial risk because his fees and expenses come only from advertising revenue. Even then there is a considerable delay and BASUG insist that all revenue is paid direct to them. If he recruits no advertising he gets no money !

I get a sense of achievement out of putting a magazine together, so I'm thinking of starting another one. Editorial independence is important to me, though editing this issue of Hardcore has been a real test because of the necessity to exercise so much personal restraint and to continue to act, as much as possible, in the best interests of the club.

Finally, apologies for missing the Beginner's piece out of this issue, as you can deduce, space was a bit tight and I wanted to get as much new material in as possible. The reason for not having a Chairmans Corner is simply that no copy for this item was sent in by September 26th, the date when Hardcore was finally put together for printing.

Adieu from Hardcore. Peter Baron.

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PRODUCT NEWS

By Peter Baron.

I wonder how many Apple owners also have PCs ? Perhaps a PC is the in present for the man who has everything. Anyway if you have and you have, a bit of press information from Systems Constructors may be of interest. It says "Turn your PC into an Apple Computer - for just £299.00". This is, of course, the Apple Turnover board, which allows software to be transferred to and from Apple DOS or Apple CP/M, and disks to be Apple formatted, all on a PC or clone. The system will copy over all types of Apple files, though programs may obviously need modification if they are to run in the PC environment. This said, the ability to easily transfer text is of considerable value, and ASCII data transfer is very important to many business users, who could well find Apple Turnover a great help while changing horses.

Those who write regularly and seriously for publication, will know some, if not all of their faults. For many, an embarrassingly high level of same word repetition will be well up on the list. Do you use Roget or a dictionary ? Are you fed up with thumbing pages and above all are you a Wordstar/Microsoft Word/Multimate/Word Perfect/PFS-Write user ? If the answers to these questions are in the affirmative, you will probably be interested to know that Writing Consultants have produced a piece of software called 'Word Finder'. It's like an idea I've had for a long time, but I don't possess the skills to put it into operation. Writing Consultants have. This thesaurus on disk has a command structure which merges into the word processor program, so that when you want a synonym, the cursor is simply placed on the relevant word and a command key on the computer pressed. The available alternative words then appear very rapidly in a window on screen and automatic replacement can be performed by hitting another key. This product containing 90000 synonyms and 9000 key words, is available from Writing Consultants, 11 Creek Bend Drive, Fairport, New York 14450 at a special introductory price of $79.95.

APPLE SOFT FUNCTION KEYS

By Andy Jackson.

When the BBC micro first came out, I was very impressed by the function keys, which saved typing in all those long winded commands like 'CATALOG D1'.

When I started writing a program to bring this facility to the Apple II I found that there are really two parts to the problem, one simply expanding a function key after it has been pressed, the other allowing redefinition of keys in a manner akin to that of the BBC. Let us commence with the former.

My first task was to decide where to put the code - because page three was not going to be big enough by the time that a buffer for the key text had been given. Since I had a language card I decided to utilise the spare 4k bank of memory which in 'normal' operation is unused. The only problem that this raised was that I had to remember which language (INT or FP) was being used at that time - this is achieved by reading the byte at $E000 - if it is $4C (6502 JMP instruction) then it is FP otherwise it is INT.

The program listed below is quite straightforward and relatively self explanatory, but there are a few points to note. I have assumed that FP (Applesoft) is in ROM and INT (Integer) is in RAM (loaded into a 16K RAM card by DOS on boot up); if your system does not match this then change the CMP #$4C to CMP #$20.

Although only ten function keys are allowed, letters A .. J, more may be added if required but don't forget to expand the KIND table! The buffer containing the text is limited to 256 bytes. I have assumed that switch 2 (PB2) is connected - either by the 'shift key mod' or through a paddle; PB0 ($C061) or PB1 ($C062) could equally well be used. Check which 'sense' the input uses if it is negative when it is NOT pressed change the BMI FUNCTION to BPL FUNCTION otherwise there will be some 'interesting' results! If you don't have a language card then remove all the language switching code and put KIND, KBUF somewhere out of the way - below DOS is a good place but you will have to alter DOS HIMEM: and restart the language. The assembler used is the S-C macro assembler.

Function keys with no associated text do not return a result. To add more text definitions the easiest thing to do is assemble another set of definitions and BLOAD it in having enabled the RAM card appropriately. This would allow one set of keys for FP, another for INT, etc.

It is possible to add a dynamic key redefinition routine through the & vector of Applesoft (what else!) although this gets a bit tricky and is a lot longer than the code given below. Other enhancements include more keys, larger text buffer, etc. but the routine below is a good starting point.

```
                1000 ;
                1010 ; Soft keys for the Apple
                1020 ;
                1030 ; A L  Jackson 1983/1984/1985
                1040        .OR $0300
                1050        .TF FUNCTION KEYS
28-             1060 BASL   .EQ $28       ; Pointer to screen character
4E-             1070 RNDL   .EQ $4E       ; Random number to spin
4F-             1080 RNDH   .EQ $4F
38-             1090 KSHL   .EQ $38       ; Keyboard input vector
39-             1100 KSHH   .EQ $39
                1110 ;
03EA-           1120 CONNECT    .EQ $03EA ; DOS connect I/O routine
03D0-           1130 DOSWARM    .EQ $03D0 ; DOS warm start
                1140 ;
C000-           1150 KBD    .EQ $C000     ; Keyboard location
C010-           1160 CLRSTR .EQ $C010     ; Clear keyboard strobe
C061-           1170 SWITCH .EQ $C061     ; Switch input
```

```
C088-                 1180 RAMRDK  .EQ $C088     ; Bank 1 RAM read (text buffer)
C080-                 1190 RAMRD   .EQ $C080     ; Bank 2 RAM read
C082-                 1200 ROMRD   .EQ $C082     ; ROM read
E000-                 1210 LANG    .EQ $E000     ; Language type byte
                      1220 ;
0300- A9 13           1230 SETVEC  LDA #NEWKBD
0302- A0 03           1240         LDY /NEWKBD   ; Install vector to our code
0304- 85 38           1250         STA KSWL
0306- 84 39           1260         STY KSWH
0308- A9 00           1270         LDA #0
030A- 8D 80 03        1280         STA KCALL     ;  No function keys being expanded
030D- 20 EA 03        1290         JSR CONNECT       yet
0310- 4C D0 03        1300         JMP DOSWARM   ; Warm start DOS
                      1310 ;
0313- 8D 82 03        1320 NEWKBD  STA SCRNCH    ; Character read from screen
0316- AD 00 E0        1330         LDA LANG      ; Note current language
0319- 8D 84 03        1340         STA LANGSV
031C- 8C 83 03        1350         STY SAVY      ; Also remember Y for later
031F- 8D 88 C0        1360         STA RAMRDK    ; Switch in text buffer
0322- 2C 80 03        1370         BIT KCALL     ; Expanding a key already?
0325- 30 47           1380         BMI EXPAND
0327- E6 4E           1390 KEYIN   INC RNDL      ; Keep random number spinning
0329- D0 02           1400         BNE KEYIN2
032B- E6 4F           1410         INC RNDH
032D- AD 00 C0        1420 KEYIN2  LDA KBD       ; Key pressed?
0330- 10 F5           1430         BPL KEYIN     ; No - wait
0332- 2C 10 C0        1440         BIT CLRSTR    ; Yes clear strobe for next
0335- 2C 61 C0        1450         BIT SWITCH    ; Was 'function' pressed?
0338- 30 1A           1460         BMI FUNCTION
                      1470 ;
033A- 48              1480 EXIT    PHA           ; Tidy up and exit
033B- AD 82 03        1490         LDA SCRNCH
033E- AC 83 03        1500         LDY SAVY      ; First replace flashing char
0341- 91 28           1510         STA (BASL),Y
0343- AD 84 03        1520         LDA LANGSV    ; Which language being used?
0346- C9 4C           1530         CMP #$4C      ; Applesoft?
0348- F0 05           1540         BEQ FLOAT     ; Yes select it
034A- 8D 80 C0        1550         STA RAMRD     ; else must be Integer
034D- D0 03           1560         BNE DONE
034F- 8D 82 C0        1570 FLOAT   STA ROMRD
0352- 68              1580 DONE    PLA           ; Keyboard character
0353- 60              1590         RTS           ; Back to caller
                      1600 FUNCTION
0354- C9 C1           1610         CMP #"A       ; Must in range A .. J
0356- 90 E2           1620         BCC EXIT
0358- C9 CB           1630         CMP #"K
035A- B0 DE           1640         BCS EXIT
035C- E9 C0           1650         SBC #"@       ; Form index into index table
035E- A8              1660         TAY
035F- B9 00 D0        1670         LDA KIND,Y
0362- A8              1680         TAY           ; and transfer key index to Y
0363- B9 0A D0        1690         LDA KBUF,Y    ; Check for null definition
0366- F0 BF           1700         BEQ KEYIN     ; If so go round again
0368- 6E 80 03        1710         ROR KCALL     ; Else say we are now expanding
036B- 8C 81 03        1720         STY KYINDEX   ; Save pointer to it and drop into
                      1730 ;
036E- AC 81 03        1740 EXPAND  LDY KYINDEX
0371- EE 81 03        1750         INC KYINDEX   ; Update pointer
0374- B9 0A D0        1760         LDA KBUF,Y    ; Fetch next
0377- 30 C1           1770         BMI EXIT      ; If bit 7 clear end of definition
0379- 4E 80 03        1780         LSR KCALL     ; Say we are not expanding anymore
037C- 09 80           1790         ORA #$80      ; Form Apple ASCII (!)
037E- D0 BA           1800         BNE EXIT      ; exit
                      1810 ;
```

```
0380- 00          1820 KCALL   .DA #0        ; Flag to say if we are expanding
0381- 00          1830 KYINDEX .DA #0        ; Pointer into text buffer
0382- 00          1840 SCRNCH  .DA #0        ; Screen byte at cursor position
0383- 00          1850 SAVY    .DA #0        ; Temporary store for Y
0384- 00          1860 LANGSV  .DA #0        ; Flag to say which language called
                  1870 ;
                  1880 ;
                  1890         .OR $D000
                  1900         .TF KEYSDEFS
                  1910 ;
D000- 00          1920 KIND    .DA #KBUF1-KBUF
D001- 0B          1930         .DA #KBUF2-KBUF
D002- 16          1940         .DA #KBUF3-KBUF
D003- 1B          1950         .DA #KBUF4-KBUF
D004- 20          1960         .DA #KBUF5-KBUF
D005- 23          1970         .DA #KBUF6-KBUF
D006- 27          1980         .DA #KBUF7-KBUF
D007- 31          1990         .DA #KBUF8-KBUF
D008- 31          2000         .DA #KBUF9-KBUF
D009- 31          2010         .DA #KBUF10-KBUF
                  2020 ;
                  2030 KBUF
D00A- C3 C1 D4
D00D- C1 CC CF
D010- C7 A0 C4
D013- B1          2040 KBUF1   .AS -/CATALOG D1/
D014- 0D          2050         .DA #$0D
D015- C3 C1 D4
D018- C1 CC CF
D01B- C7 A0 C4
D01E- B2          2060 KBUF2   .AS -/CATALOG D2/
D01F- 0D          2070         .DA #$0D
D020- CC CF C1
D023- C4          2080 KBUF3   .AS -/LOAD/
D024- 20          2090         .DA #$20
D025- D3 C1 D6
D028- C5          2100 KBUF4   .AS -/SAVE/
D029- 20          2110         .DA #$20
D02A- C6 D0       2120 KBUF5   .AS -/FP/
D02C- 0D          2130         .DA #$0D
D02D- C9 CE D4    2140 KBUF6   .AS -/INT/
D030- 0D          2150         .DA #$0D
D031- C3 C1 CC
D034- CC A0 AD
D037- B1 B5 B1    2160 KBUF7   .AS -/CALL -151/
D03A- 0D          2170         .DA #$0D
                  2180 KBUF8
                  2190 KBUF9
                  2200 KBUF10
D03B- 00          2210         .DA #0
                  2220         .EN
```

SYMBOL TABLE

```
  28- BASL
C010- CLRSTR
03EA- CONNECT
0352- DONE
03D0- DOSWARM
033A- EXIT
036E- EXPAND
034F- FLOAT
0354- FUNCTION
C000- KBD
D00A- KBUF
D00A- KBUF1
D03B- KBUF10
D015- KBUF2
D020- KBUF3
D025- KBUF4
D02A- KBUF5
D02D- KBUF6
D031- KBUF7
D03B- KBUF8
D03B- KBUF9
0380- KCALL
0327- KEYIN
032D- KEYIN2
D000- KIND
  39- KSWH
  38- KSWL
0381- KYINDEX
E000- LANG
0384- LANGSV
0313- NEWKBD
C080- RAMRD
C088- RAMRDK
  4F- RNDH
  4E- RNDL
C082- ROMRD
0383- SAVY
0382- SCRNCH
0300- SETVEC
C061- SWITCH
```

0000 ERRORS IN ASSEMBLY

```
:PR#0
```

Loading method:

It is probably best to make an EXEC file thus:

```
CALL -151
C08B
C08B
BLOAD KEYDEFS,A$D000
C082
BRUN  FUNCTION KEYS
```

The CALL-151 enters the monitor, the C08Bs write enable the language card ready for loading in the tst definitions, the C082 selects ROM again. The file FUNCTION KEYS contains the code located at $300.

A STATISTICAL DATABASE - PART II

By Roger Harris.

In the previous issue I outlined a means of storing floating point numbers more compactly than via Applesoft and a means of converting them to and from groups of bytes. The conversion method recognised individual 8 bit bytes as multiples of ascending or descending powers of 256, i.e. a 'base 256' number system.

The various subroutines outlined here show just the minimum details needed to get the database to run. Attractive screen layouts and traps for errors and bad data would take up too much space. Also, the subroutines have been stripped down from a running system and some details present in the original may have been lost. In subroutine 100-199 in the last issue certain details were omitted. Here is a revised version:

```
100 X = 16896: Y = 4: FR = 0: LR = 0
105 GOTO 115
107:
110 X = 17104: Y = 208
113:
115 FOR SN = FR TO LR
120 AD = X + (FI*Y) - (SN*4)
123:
125 PP = 0
127:
130 FOR Z = 0 TO 3
135 PP = PP + PEEK (AD+Z) * (256^Z)
140 NEXT Z
143:
145 P(SN) = PP * SF(FI) / 1000
150 NEXT SN
153:
155 RETURN
```

When punching data, say, weekly, then entry into the subroutine at line 100 will READ the previous week's data from that week's small (0.4K) BLOADed file. Entry at line 115 will READ all numbers between FR (First Record) and LR (Last Record) from the large (21K) file which contains all 100 files of 52 numbers. each.

In subroutines 100-199 and 200-299 I allocated four bytes for each floating point number. In most cases, the decimal equivalent of 4,294,967,295 is likely to be bigger one will need. Elsewhere, I've used only three bytes for the number but retained the fourth byte. That fourth byte is an additional data byte which for indexing convenience is located next to its numeral bytes.

Consider the following:

```
 5 BY = 0
 7 :
10 IF A > S THEN BY = BY + 1   sun
20 IF B = T THEN BY = BY + 2   humidity
30 IF C < U THEN BY = BY + 4   clouds
40 IF D = V THEN BY = BY + 8   wind
40 IF E > W THEN BY = BY + 16  rain
60 IF F = X THEN BY = BY + 32  thunder
70 IF G < Y THEN BY = BY + 64  lightning
80 IF H = Z THEN BY = BY + 128 hail
```

In each line the IF-THEN part is only for illustration. The incrementing part, BY = BY + n has the effect of setting individual bits in the byte, BY. Thus the results of the eight IF-THEN tests used to describe the weather may be recorded in a single byte. For example, 9, (binary=00001001), represents sun and wind whilst 240, (binary=11110000), represents rain, thunder, lightning and hail!

The following subroutine will extract the results from a byte and place a one in BI(X) if bit 'X' is set.

```
300 BI(0) = PEEK (address of byte)
307 :
310 FOR X = 8 TO 1 STEP - 1
320 Y = 2^(X-1)
330 BI(X) = 0
340 IF BI(0) >= Y THEN BI(X) = 1: BI(0)
    = BI(0) - Y
350 NEXT X
357 :
360 RETURN
```

Another use of the fourth byte is in graphics applications. In an array which allocates four bytes per floating point number but only uses three of them, the vertical intercept on the HiRes Y axis may be calculated and POKEd into the fourth byte.

When plotting a graph, the Y axis will have to be calculated anyway, and you may be able to get scaled data onto the

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FILING - I.S.A.M. supports up to 10 keys each with 10 sub-keys if required, each key being up to 255 bytes, simple macros to write, update, read, delete and add records, virtual elimination of sorting, 16 multi-user record locking modes on hard disc. SCREEN - interactively designed and modified in free format using Utilities, 40 or 80 column, verification of data at entry, numeric, binary, positive and date, forward and backward skipping between fields, full editing within fields, specified decimal alignment, overlays and globals, single command to display whole screen. SUBROUTINES - called by name with up to 32 parameters, local variables, nesting 250 deep and recursive. REPORTS - free format design and modification (as for screens) using Utilities. ADDITIONAL FEATURES - addition and subtraction of character strings up to 48 digits, execute facility, extension of 'ON ERROR' capabilities.

MICHAEL SALT ASSOCIATES, 13-16 JACOB'S WELL MEWS, GEORGE STREET, LONDON W1H 5PD MEMDOS is a registered Trademark of MEMSOFT (S.A.)

graphics screen faster by calculating all the Y axis values before entering a graphics routine, and then using the instruction 'HPLOT X, PEEK (address) instead of 'HPLOT X, P(X).

So far, three subroutines have been set out. We shall need some more. First, one to READ and WRITE Scale Factors:

```
400 X = 0: GOTO 410          entry for WRITE
405 X = 1:                   entry for READ
410 FI$ = "SCALE FACTORS"
415 PRINT D$;"OPEN";FI$;",L16"
420 ON X GOTO 450
425 :
430 PRINT D$;"WRITE";FI$;FI
435 PRINT SF(FI)
440 GOTO 475
445 :
450 FOR FI = 0 TO 99
455 PRINT D$;"READ";F$;",R";FI
460 INPUT SF(FI)
465 NEXT FI
470 :
475 PRINT D$;"CLOSE";FI$
480 RETURN
```

The subroutine is designed to read all the Scale Factors but only to write one. When setting up the database all the Scale Factors should be set equal to 1. When alterations have to be made, probably only one or two will need to be altered.

The Scale Factors which I have described are ratio factors. They would be used if, say, a series of altitude measurements changed from feet to metres. If however, the altitude measurements were re-scaled to a base line at 1,000 feet after being measured from sea level then a compensating unit of 1,000 would be added to all new data before it was POKEd into the HEX file in order to maintain comparability with previous data. The compensating unit would be subtracted from each data when READing the file.

You may need both types of scale factor. Subroutines 100/199 and 200/299 are from figures taken from newspaper share price lists for performing HEX/floating point conversions. Lines 160 and 210 may need to be rewritten.

This subroutine calculates ratio factors

```
500 PRINT "OLD FACTOR=";SF(FI)
505 :
510 INPUT "      PREVIOUS DATA="; X
515 INPUT "        LATEST DATA="; Y
520 INPUT "CHANGE ON PREVIOUS="; Z
525 :
530 W = (Y-Z) / X * SF(FI)
535 :
540 IF Y = 0 THEN GOTO 515
545 PRINT "NEW FACTOR=";W
550 INPUT "IS THAT O'K ";IN$
555 IF IN$ <> "Y" THEN GOTO 510
560 SF(FI) = W
565 GOSUB 400: REM WRITE to disk file
570 RETURN
```

The database provides for up to 100 files, with each file containing a different group of data. Each file has a file number in the range 0-99. Thus, in an alphabetical list of rainfall files: file 0=Birmingham, 1=Glasgow, 2=Inverness, 3=London, 4=Manchester, 5=Portsmouth, 6=Wick, etc.

But, the file numbers may have been allocated in a sequence different to that in which the data may be obtained or conveniently punched. A HEX file containing the file numbers as single bytes will solve this. The file, called 'SEQUENCE NUMBERS' is BLOADed to address $4000.

For example, the data might be punched in 'North to South' sequence. The sequence numbers might look like this in memory:

```
4000- 00 01 02 03 04 05 06  alphabetical

4000- 06 02 01 04 00 03 05  north-south
```

Once you have established a list of sequence numbers, BSAVE it to disk thus:

BSAVE SEQUENCE NUMBERS, A$4000,L$64.

The database program makes no provision for automatic data capture or connection to a database source such as I.P. Sharp, DataStream or Extel.

You may wish to include routines to do so, but if not, the following subroutine will enable you to punch data in from, say, a printed source. It assumes that all the data will be available together, e.g. as published in a newspaper.

Data might be punched in on a regular daily or weekly basis and each day's or week's data should be assigned a consecutive number, e.g. week 1, 2, 3, 4 etc.

```
600 FOR RF = 0 TO 99
605 FI = PEEK (16384 + RF)
610 IF FI$(FI) = "" THEN GOTO 665
615 GOSUB 100                read previous
```

```
620 PRINT "FILE=";FI;", ";FI$(FI)
623:
625 PRINT "PREVIOUS=";P(0)
630 INPUT "  LATEST=";PP
635 PRINT "  CHANGE=";PP - P(0)
637:
640 INPUT "IS THAT O'K <YN> ";IN$
645 IF IN$ = "Y" THEN GOTO 660
650 IF IN$ = "N" THEN GOSUB 500:
    GOTO 660
655 GOTO 615
660 GOSUB 210                poke latest
665 NEXT RF
670 RETURN
```

Each weeks's or days's data should be referenced by a number analogous to the date. For example, Mon 2 Jan=1, Mon 9 Jan=2, Mon 16 Jan=3, Mon 23 Jan=4, etc.

```
700 X = 0: GOTO 710          entry for READ
705 X = 1                    entry for WRITE
710 FI$ = "DATE"
715 PRINT D$;"OPEN";FI$;",L16"
720 ON X GOTO 745
723:
725 PRINT D$;"READ"; FI$;",R0"
730 INPUT DA
735 INPUT DA$
740 GOTO 760
743:
745 PRINT D$;"WRITE";FI$;",R0"
750 PRINT DA
755 PRINT DA$
757:
760 PRINT D$;"CLOSE"; FI$
765 RETURN
```

Variable DA contains the number which represents the date, e.g. 3, whilst DA$ contains a description, e.g. 'Mon 16 Jan'.

When punching data it helps to have the name of each data on the screen. File numbers alone are inferior to an explanatory message which says something like 'FILE 3, HUMBERSIDE' or 'FILE 56, TEST RIG 6'.

The following subroutine will READ such messages. You will need to write a short routine to WRITE the messages into a disk file.

```
1000 FI$ = "NAMES"
1010 PRINT D$; "OPEN";FI$;",L16"
1020 FOR X = 0 TO 99
1030 PRINT D$; "READ";FI$;",R";X
1040 INPUT FI$(X)
1050 NEXT X
1060 PRINT D$; "CLOSE";FI$
1070 RETURN
```

Names could also be stored in DATA statements in the program but you may have programming difficulties if a time-series is discontinued causing a blank file and a gap in the list of names. Line 610 in subroutine 600-699 is designed to ignore blank files.

```
800 PRINT "PREVIOUS UPDATE..";DA;" ";DA$
810 PRINT "  LATEST UPDATE..";DA + 1
820 INPUT "  CALENDAR DATE..";IN$
827:
830 INPUT "IS THAT O'K (YM); YN$
840 IF YN$ = "M" THE POP: GOTO 880
850 IF IN$ < > "Y" THEN GOTO 800
857:
860 DA$ = IN$
870 DA = DA + 1          increments counter
880 RETURN
```

The next subroutine will, depending upon entry at line 900 or 901, BLOAD the two files of foundation data before punching commences or BSAVE data, respectively.

```
900 X = 0: GOTO 910          entry for BLOAD
901 X = 1                    entry for BSAVE
907:
910 FI$ = "DATA #" + STR$(DA) + ",A$4200
    "
915 ON X GOTO 950
917:
920 PRINT D$; "BLOAD";FI$
923:
925 FI$ = "SEQUENCE NUMBERS,A$4000"
930 PRINT D$; "BLOAD";FI$
933:
935 RETURN
937:
947:
950 PRINT D$;"BSAVE";FI$;",L$190"
957:
960 RETURN
```

All the foregoing subroutines can now be called by a main routine:

```
9000 GOSUB 700       read dates
9010 GOSUB 1000      read names
9020 GOSUB 900       BLOAD foundation data
9027:
9030 GOSUB 800       punch latest date
9040 GOSUB 600       punch in data
9050 GOSUB 901       BSAVE data
9060 GOTO 9030       another one?
```

Subroutine 800-899, called by line 9030, offers the opportunity to RETURN to the main menu:

```
40000 INVERSE
40005 PRINT "STATISTICAL DATABASE"
40010 PRINT "        MENU        "
40015 NORMAL
40020 PRINT "1.. PUNCH IN NEW DATA"
40025 PRINT "2.. EVALUATE FILES"
40030 PRINT "3.. END"
40035 INPUT "CHOICE.. ";IN$
40040 IN = ABS( INT( VAL(IN$)))
40045 IF IN<1 OR IN>3 THEN GOTO 40000
40050 ON IN GOSUB 9000, 8000, 40060
40055 GOTO 40000
40060 END
```

Lastly, an initialisation routine:

```
50000 HIMEM : 16383
50010 D$ = CHR$(4)
50020 DIM P(52), FI$(99), SF(99)
50030 GOSUB 40000
```

The program's first line is .....

```
0 GOTO 50000
```

That completes the section which covers the punching-in of fresh data. In the third and final part, in the next issue, I shall deal with the assembly of small daily or weekly data files into a large data file spanning fifty two days or weeks which may then be used for evaluation of data and updated as if in real-time.

PROGRAM GENERATORS - PART III

By Tony Corinda.

The final part of this article deals with the end program written by a Program Generator. Is the program that you get the program that you want ? Does it run without mishaps and is the overall design to your satisfaction ?

Program Generators are said to write Code free of bugs and this is probably so. Nevertheless, it does not follow that because the Code is right - the program is right. The program was constructed from instructions given by you and it is quite possible that you issued faulty instructions !

Another possibility, which is by no means infrequent, is that having seen the program in operation for the first time - you can spot straight away how improvements could be made. Which brings us to the point that - we can do something about it. Unlike commercial 'untouchable' programs, Generated Programs can be edited or re-written.

An important thing to consider is how to make the correction. You really have three options; use the Generator to reconstruct another program, use the Generator to modify large or small sections of the existing program, discard the Generator and make modifications by editing the code yourself. Your choice will probably depend on the extent of the alterations required. For example, a common mishap, often found when a program is run for the first time, is that one screen of information overlaps another. This superimposed picture is simply a matter of missing out a "Clear Screen" instruction during Program Formation. It would be a total waste of energy to spend an hour or so modifying with the Generator, when entering "HOME" into your end code would do the trick. (You might have to use "CALL-936" or "PRINT Z2$" or "PRINT CHR$(12)" depending on your configuration).

Making any additions or alterations to the end code depends largely on your ability to understand it. By comparing the end code blocks with the original flowchart it is fairly easy to follow each subroutine and section of the entire end program. The introduction of new code requires cautious regard for existing variables. In general, it is easier than usual to edit these end programs, because once you are familiar with the positioning of the Gosub Routines (up front) and the variables used throughout the main program, you have a consistent and recognisable code. Remember, every program produced with the same Generator uses similar and familiar subroutines and variables. The same applies to PEEK,POKE

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and CALL when used. This standardisation soon enables you to become adept at reading the end code.

Another way of working with the Generator is to operate a reverse situation where you write code that dictates the end result. For instance, most Program Generators are able to cater for simple screen designs. Usually these are fairly limited to "windows" and compositions of horizontal and vertical lines. These minor graphics are often very necessary, especially in business and educational programs. However, a program Generator is not supposed to be a CAD package and it is very limited on design work. To construct a window it will accept most ASCII characters. Lower case "m" or "x" are frequently used - and repeated to form "lines". These are tolerable but are by no means the best.

Some cards, VIDEX VIDEOTERM 80-Col, for example, offer "Line drawing" graphic facilities. The trouble is, unless your Program Generator recognises Control Character inputs, it will not respond to instructions. But you can get round the problem. Let the Program Generator do all the donkey work for you - when it asks for a symbol for construction of a window, input a "marker" symbol which you will easily find in the end code. The Generator will code the window design, irrespective of selection, utilising your character input. Later, when the end code has been produced, it becomes a simple matter to change this character (marker) to any one of the available graphics. In other words, you will change a "line" made up of continuous "xxxxxxxxx" to a proper straight line which can vary in thickness. (Working with a 40 col. screen, you could get the same effect by designating ASCII code 32, for 'Space', and asking for 'Inverse' printing; although you would not obtain various width of line).

For example, you might consider a window to be made up with top line, left edge, right edge and bottom line. Left and right (usually) use the same line graphic and the other two vary according to the number and position of pixels. This enables you to obtain thick and thin lines.

Give each of the three a conspicuous marker -say,"+","L" and "$". Once these markers are in place, in the end code, designate three string variables to equal the control sequence to activate the low resolution graphics: edit these into the program. Remember you can hold control characters in a string variable - as in D$=CHR$(4). In the case of the Videx card, it would be TL$="CTRL-Z/CTRL-F" (where TL='Top Line' and TL$ is then followed by keypressing Control Z with Control F- within the quotes). Then SL$="CTRL-Z/CTRL-G" and BL$="CTRL-Z/CTRL-C".

Now it is simply a matter of changing the markers to the string variables. You can do this in the end code by straightforward line editing - or, if there are many (Markers) to change use a Global Editing Utility (such as Beagle Bros. GPLE.) As an alternative, adapt your Applewriter word processor to a act as a Global Editor. Convert your program to a Text File (see Pages 75/76 DOS Manual) and then use the word processor to "FIND" and "CHANGE" to edit the program...(F)/"+"/"TL$"/A... will do all the TL$'s in one go. Make sure you use the "" quotes to avoid conflict. Using marker symbols avoids conflict with existing variables in your end code. If your word processor reserves these symbols as delimiters, use lower case letters. That's all there is to it - but the end result is a greatly enhanced program.

There is another practical thing you can do with 'Markers'. Program Generators do NOT stick lots of useful information into 'REM' statements. They do, however, allow you to enter a REM during Flowchart formation. Knowing this, you can, if you need to, effectively "Split up" the end code program into 'blocks'. The end code is usually produced in compacted form with the maximum allowable Statements on each line. This can make it hard to decode. Each Flowchart step is presented in the end code as a block. Isolating these blocks makes it ten times easier to see what is going on. A REM statement (entered through the 'Calculations' option) is kept on a SINGLE line without other code. This means that if you used REM-FCL1, REM-FCL2, REM-FCL3 etc, (simply telling yourself "REM - this is Flowchart Line 2") you can insert the REM's between each Flowchart line and will then get a distinctive Marker between each block of code and each step in the flowcharted program. One can do this throughout the whole program - or in selected areas

where it is necessary to concentrate your attention. Note: it is the Program Generator that puts the REM's into position in the end code - not you.

This REM-MARKER system is a bit elaborate and is not something you would have to do more than a couple of times, though it is a good way to learn about the end code when you are new to it. Once the REM's have split the blocks into identifiable sections of code, those blocks become familiar as they are much the same from program to program. The program may be REM-stripped afterwards to save memory.

Now a word or two about improving the execution time of the end program. There are several techniques which can be used to speed up Sorts & Searches. In particular, it pays to fully understand the manipulation of the file pointer(s). For example, in a Customer Records File, allocate a field which could be part of the Account Number. By linking this field to your pointer value you obtain direct access without much searching. The Generator usually starts a search from the first Record - and this can be very time wasting if you can start anywhere you like, by pointing directly to the record you want.

Sorting can be a very slow process and can be improved by sorting on the least amount of information (field data) which puts a list into the required order. Program Generators allow for sorting on alphanumeric fields. A specially created Numeric field, which is used as the sort code, will considerably speed things up, though such cannot be used in every program application. You can also manipulate pointers to organise speedy Batch sorting and to exclude those you don't need.

Execution time and certainly some memory can be saved by converting any duplicated Screen Displays into GOSUB routines. You frequently use the same screen format of windows, lines, data-headers and suchlike. Use one block of code to serve all 'Calls' on this screen display and keep it in a subroutine, with the other working subroutines, at the front end of the program.

It is possible to Compile your end program to greatly increase (up to 20 times) execution speed - which might be necessary for commercial purposes. The Microsoft Applesoft Compiler will do the job and will create machine language equivalents of your Basic program. This affords some program protection, and has the added advantage that you will be able to pass Common variables to other linked Compiled programs. You will have to keep an eye on the use of "RESUME" and "ONERR GOTO" when Compiling programs created with a Program Generator. Compiled programs are normally longer than their Interpreted counterparts - and they will need space on disk for a 'Runtime' Library of working routines.The Compiler can be used to debug the program before creating a binary object file.

One final comment. In this series of articles I made a brief reference to "Memdos" as a "Program Generator". This is entirely wrong and was an unintentional mistake on my part - sorry Dr.Kevin J.Molloy.

****

Z80-CPM

By A. Holderness.

Many people reading this article will, I'm sure already have a Z80 card installed in their Apple. I'm also pretty sure that the majority of those cards are not exactly over-utilised, with most of them being used solely to run Wordstar or one of the many other applications programs available solely under the CP/M operating system (I'm using Wordstar to write this, by the way, so don't think I'm just putting 'knocking copy' here!!).

What I'd like to do is briefly point out the other uses that can be made of the rather expensive piece of hardware currently occupying a valuable slot in your machine, and give in the process a brief introduction to CP/M for those of you who haven't yet explored it.

First, why bother to add a Z80 processor to your Apple? Isn't the supplied 6502 good enough? And why go to the extra expense? The answer is mainly in the wealth of software available; from applications like Wordstar and dBase II and programming languages, BASIC, Pascal, C etc that are all available commercially;

to the large number of programs available in the public domain that are equally as good and in some cases actually better than those you will shell out vast amounts for.

I am not sure whether it is widely known that BASUG is a member of the CP/M Users Group (UK). This means, amongst other things that the contents of the CPMUGUK software library are available to members of this club. Looking through the catalogue, there is a full range to meet virtually any need; from complete business packages to programming language implementations with a whole set of utilities and games filling any gaps in between!

So what's the catch? I'm afraid there are a couple. First, the Apple disk format is not one that is supported by the CPMUG, so we need to find someone who is willing to make the necessary transfers for us - that means someone who has easy access to both a machine reading (preferably) 8" disks in IBM standard format, and an Apple; with a suitable comms link between the two. Secondly, much of the software is designed around machines with a considerably larger disk capacity than is available on an Apple standard disk. You will have to consider a machine with 2 drives as an absolute MINIMUM to run CP/M effectively.

The final problem is one of the operating system itself - none of the programs (even the commercially supplied ones) come with a CP/M system on the disk, so you will have to either buy a Z80 card that comes with the operating system, or purchase CP/M as a separate item. This is rather different from the method usually used for Apple software where it will come to you on a bootable disk. All CP/M software will need the system added before it's possible to run it. On the credit side, though, I've yet to meet a CP/M program that is copy protected, so you'll have no difficulty in making a security copy of it against the inevitable day you manage to totally destroy the program with a less than judiciously placed command to the operating system (in my case, usually something along the lines of 'era *.*' when I meant to type 'era b:*.*'). If you're feeling confused over that last sentence, try a tutorial on CP/M operating system commands - or I would thoroughly recommend the 'Osborne CP/M User Guide'; an excellent manual, now just published in its third edition.

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By H. E. Freeman

PILOT - Maths, Graphics and Sound

The last article introduced some of the basic PILOT commands. Now we'll go a bit further and look at numerical and string manipulation as well as graphics and sound.

The maths facility can be used to keep scores, handle numerical input, develop worked examples, and so on. The code for numerical work is, naturally, C (for Compute) and some examples might be

```
C:  N=0
R:  N is initialised to 0

C:  N=N1+N2
R:  N is the sum of the variables N1 and
    N2
```

Variable names can be a letter, or a letter and a single digit (0-9).

Let's go back to the first part of our original program. How can we increment the our user's score when he gets the question right? If we put a Compute command at line 5 we get:

```
1.  *CHRYS
2.  T: What is the corn marigold's genus
    name?
3.  A:
4.  M: C*R*SANTH*M*M ! C*R*SANTH
5.  C: S=S+1
```

Now, what happens if the answer is WRONG? The score, S, gets incremented anyway. The way to get round this is to add a CONDITIONER to the C command which would be 'Y', so line 5 would become

```
5.  CY:S=S+1
```

This means 'IF answer is correct THEN S is incremented.'

Of course addition isn't the only mathematical expression we can use. Line 5 could decrement S and we could jump to the end of the program when S reached zero. Watch:

```
6.  CN:S=S-1
7.  J(S=0):FINISH
```

Line 7 means 'IF S=0 THEN GOSUB "FINISH"'

'FINISH' would be the segment which ended the program. The statement within the brackets is called a 'relational conditioner', and they can be rather complex:

```
1.  T: How old are you?
2.  A: #A
3.  T(A<3 ! A>99): Fancy that!
```

What's happening is that a numerical input is being A(ccepted) and tested: if #A<3 or #A>99 the rather doubting message is printed to the screen! The '!' symbol indicates an OR condition.

Note the convention for accepting numerical input. A similar method is used for string input:

```
1.  TH: Hello there.  What's your name?
2.  A: $S$
3.  T: OK $S$ , welcome to the program,
    let's start.
```

'TH' means Text Hang, so the cursor remains at the end of the current line. After input the screen looks like this:

Hello there. What's your name? George

Text manipulation is as easy as numerical work: string variables can be initialised:

```
9.  C: N1$="eggs"
10. C: N2$="flour"
11. C: N3$="water"
```

There is one little quirk in PILOT. The program must be told in advance about the expected length of any string input. So if you ask for the name of a student, and expect to put it into M$, you first use the D(imension) command to tell the program how long it might be:

```
D:  M$(25)
```

Not least among the Compute facilities is the presence of the usual mathematical functions, such as LOG(x), SIN(x), COS(x) and so on.

No computer language would be complete without some means of storing information in an ordered way: PILOT allows 1 and 2-dimensional NUMERICAL arrays. The D(imension) command is used:

```
D:  A1(20)
R:  A1 is a 1-dimensional numerical array
    with 21 spaces labelled A1(0),
    A1(1)....A1(20).
```

Graphics and sound commands are nowadays essential in a Computer Assisted Learning situation, and PILOT obliges yet again with a complete set for the manipulation of both.

The Graphics Editor is used to construct graphics files which are put on the user's disc. When needed they are called by the G(raphics) command code together with an APPLE modifier, X, which means 'execute from disc'.

GX: TREE

This command would get a file called TREE and put it on the screen ON TOP OF the current screen contents. This could be useful if you wanted to write the name of a tree on screen and then draw a picture of one. You might not want your text overlayed by graphics, so the Graphics command ES, for Erase Screen, is used:

```
 G: ES
GX: TREE
```

PILOT enables graphics screens to be drawn at two speeds (cynics among you will probably suggest SLOW and SLOWER): the fast graphics are stored as files whose names end with '!', so 'TREE!' is a fast-draw file and 'TREE' is a slow-draw file.

There are other important differences - slow-draw files OVERLAY the current screen whilst fast-draw graphics automatically perform an erase screen action. They are very greedy of disc space too.

Think about how you could use the differences between the two graphics files. With the quick-draw option we could put up the bare outline of a tree and follow it at intervals with slow-draw, overlay files of first the leaves, then the flowers, fruits, and finally a blank file to remove the leaves. It would be nice to have some text on the screen to compliment the graphics, but without a few special commands the graphics would overlay text, and text would scroll off the graphics.

A single text window (the Americanese being 'viewport') is available which sets the text area apart from the graphics. Unfortunately the commands can't confine the graphics to specific areas, so any graphics file must take the text area into account.

The text screen is divided into 40 columns of 24 rows, and setting a text window is straightforward:

17. G:V0,39,20,24

This command will put a V(iewport) the width of the screen and 4 lines deep at the bottom of the screen. Text will scroll within this window, but will be overwritten by the next graphics screen. Returning the screen to text is done simply by the command G: V, but this still leaves the graphics on-screen. The command G: ES will wipe it away.

It's enough to say that animation in PILOT is possible but cumbersome - best left to the determined user. Animating sound rather than light is much easier. As usual there is a straightforward command, S(ound) which requires parameters for pitch and duration.

```
R:  Pitch, Duration
S:  50,255; 1,1
R:  the highest note for the longest
    time, followed by the lowest, shortest
    note.
```

Complex noises can be made by using the sound effects editor to make sound effects files on disc. These are called by the command SX, S(ound) eX(ecute direct) in a similar way to the disc-based graphics files.

In conclusion then, PILOT is one way of writing interactive graphics and sound illustrated programs with the minimum of fuss and the maximum of return for time spent. The number of commands is small, all are fairly logical and easy to learn.

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TIPS, TRICKS & TECHNIQUES

Versatile INIT Command

By Roger Harris.

The INIT command does several things. It erases all existing data from a disk and rewrites all the data tracks, the Directory, Catalog, and DOS tracks.

It will also write an Applesoft program resident in memory at the time of the command onto the disk with the special provision that if the system is booted, either by switching on the power or by typing IN#6, the program, often called the HELLO program, will be loaded into memory and RUN, automatically.

This feature is very convenient. If you INIT using, say, INIT BATTLE.GAME then BATTLE.GAME will be written into the CATALOG. However, if you want to boot with another program you will probably have to re-INIT the disk with the other program in memory using a new name.

The following boot program makes it possible to boot using any other program on the same disk and it need be only one line long. At least two sectors of disk space will be needed.

```
10 D$ = CHR$(4)
20 GOTO 400: REM See following text.
97:
100 PRINT D$; "RUN APPLE.DARTS"
300 PRINT D$; "RUN BRICK.OUT"
400 PRINT D$; "RUN CRAZY.MAZE"
500 PRINT D$; "RUN HOOP.A.LOOP"
600 PRINT D$; "RUN MENU"
700 PRINT D$; "BLOAD HEX.FILE,A9216":END
800 PRINT D$; "CATALOG": END
900 PRINT D$; "EXEC STATS.FILE"
```

Type it into the computer. Insert program names as appropriate. Change the address in line 20 to select the desired program. Then, remembering that an INIT will destroy existing data on the disk, type INIT A. You could use any name. I prefer to call it A because I use variations of the above on many disks and A seems easiest to remember.

Every time you want to change the boot program, just LOAD A. Alter the appropriate line. Then, SAVE A. Simple, INIT!

String Editor

By R.C.Lowe

This useful little routine allows the user to edit a string, if the string is of zero length when the routine is called then it can be considered as an input routine . The width of the screen acts as a 40 character window on a 254 character string, the arrow keys move the cursor and scroll the window . Control-D deletes one character, and control-I inserts one space

```
20000  REM ** LINE STRING **
20010  IF CH > OS + LL - 1 THEN OS =
       OS + 1
20020  IF CH > 254 THEN CH = 254
20030  IF CH < OS THEN OS = OS - 1
20040  IF CH < 1 THEN CH = 1
20050  IF OS < 1 THEN OS = 1
20060  VTAB VT: HTAB 1: PRINT  MID$
       (LN$,OS,LL);" "
20070  SP = CH - OS + 1
20080  VTAB VT: HTAB SP: GET IN$
20090  IF IN$ =  > " " AND IN$ <
       = "THEN 20160
20100  IF IN$ = RA$ THEN CH = CH +
       (CH <  > SL AND CH < LN + 2)
       :LN$ = LN$ + MID$ (" ",1,CH >
       LN):LN =  LEN (LN$): GOTO 20010
20110  IF IN$ = LA$ THEN CH = CH - (CH
       <  > 1):LN$ =  LEFT$ (LN$,LN -
       ( RIGHT$(LN$,1) = " ")):
       LN =  LEN (LN$): GOTO 20030
20120  IF IN$ = CD$ THEN LN$ =  MID$
       (LN$,1,CH - 1)+  MID$ (LN$,CH
       + 1):LN = LEN (LN$):GOTO 20010
20130  IF IN$ = CI$ AND LN <  > SL THEN
       LN$ =  MID$ (LN$,1,CH - 1) + " "
       + MID$ (LN$,CH):LN =
       LEN (LN$): GOTO 20060
20140  IF IN$ = CM$ THEN  RETURN
20150  GOTO 20080
20160  REM   LETTERS
20170  LN$ =  MID$ (LN$,1,CH - 1) +
       IN$ +  MID$ (LN$,CH + 1):LN =
       LEN (LN$):CH = CH +(CH < SL)
20180  GOTO 20010
```

The lines from 20100 to 20130 process the input commands, <- -> CTRL-D and CTRL-I , they use boolean logic tests on various limits to get the whole command on to one line, unfortunately this also makes it difficult to read . If you want to add

more commands , such as kill buffering , then you will have to decipher the lines, but to just use it you can simply enter the routine and ignore how it works .

Before you can call the routine a number of variables have to be setup , the following listing will do that.

```
1000 REM ** INIT **
1010 CD$ = CHR$ (4)
1020 LA$ = CHR$ (8)
1030 CI$ = CHR$ (9)
1040 CM$ = CHR$ (13)
1050 RA$ = CHR$ (21)
1080 LL = 40
1090 SL = 254
1100 RETURN
```

The variable LL is the width of the window on the string, you may have to set it to 39 or less to stop it interfering with other lines on the screen. SL is the maximum length of the string.

To demonstrate the program's operation enter the following routine.

```
1  REM DEMONSTRATION OF STRING EDITOR
10 GOSUB 1000: REM INIT
20 HOME
30 VT = 12
40 OS = 1
50 CH = 1
60 LN$ = "FOUR SCORE AND SEVEN YEARS
   AGO, OUR FATHERS BROUGHT FORTH ON
   THIS CONTINENT A NEW NATION,
   CONCEIVED IN LIBERTY AND DEDICATED
   TO THE PROPOSITION THAT ALL MEN ARE
   CREATED EQUAL. NOW WE ARE ENGAGED IN
   A GREAT CIVIL WAR, TESTING"
70 LN = LEN (LN$)
80 GOSUB 20010
90 END
```

VT is the VTAB that the line will be set at, OS is the offset of the window in the string, CH is the character position of the cursor, LN$ is the string and LN is the length of the string. All the values must be legal when the routine is entered or strange things will happen.

****

Moving Line

By R.C.Lowe

A nifty littly hires routine that is great fun to play with is this one ; the hires moving line program .

The program is great for beginners as it produces very pretty results from only a little code , and it can easily be tweaked to produce various other effects.

So that beginners can fully understand it I will give a "line by line commentary".

```
10  TEXT
20  HOME
30  INPUT "HOW MANY LINES?";NL
40  DIM X1(NL)
50  DIM Y1(NL)
60  DIM X2(NL)
70  DIM Y2(NL)
80  YL = 189
90  XL = 274
```

These lines simply set up the arrays that will be needed later and define the X and Y limits of the hires screen.

```
100  HGR2
```

This sets up hires screen number 2 and fills it with black , if you want to have a background of a different colour then add the lines from 110 to 130 .

```
110  HCOLOR= number of background colour
120  HPLOT 0,0
130  CALL 62454
```

The CALL statement causes the Apple to execute a machine language program at 62454 , this M/C program is the built in fill-screen routine .

```
140  HCOLOR= 3
```

This is the colour of the lines , if you do not have a black background then you may want to change this from the currect setting of WHITE1.

```
150 X1 = 10
160 Y1 = 10
170 X2 = 20
180 Y2 = 30
```

These are the screen coordinates of the ends of the line in its starting position.

```
190 V1 = 4
200 V2 = 5
210 V3 = 5
220 V4 = -4
```

These are the "velocities" of the ends of the lines . By changing these four and the

previous four values you can make the program produce a different pattern. If you set a velocity to big or to small the program will halt with an illegal quantity error as it tries to plot off the edge of the hires screen.

```
230 FOR I = 1 TO NL
240 X1(I) = X1
250 Y1(I) = Y1
260 X2(I) = X2
270 Y2(I) = Y2
280 NEXT
```

This block of code is not strictly needed but it makes me feel better to know that the four arrays , X1,X2,Y1 and Y2 , have starting values that I know about .

```
290 CL = NL
```

The value of the variable CL-1 indicates the point in the array that represents the current line position .

```
300  HPLOT X1,Y1 TO X2,Y2
```

Now the line is drawn, this most important part of the program is probably the simplest .

```
310 X1(CL) = X1
320 Y1(CL) = Y1
330 X2(CL) = X2
340 Y2(CL) = Y2
350 CL = CL + 1
```

The position of the line that has just been drawn is now stored in the arrays and CL is incremented ready for the next line.

```
360  IF CL > NL THE CL = 1
```

This line makes sure that CL does not "fall off" the end of the arrays ,instead it is set to point the the beginning , this gives the arrays an apparent cyclic structure.

```
370  HCOLOR= 0
```

The colour is set to the background colour

```
380  HPLOT X1(CL),Y1(CL) TO X2(CL),
     Y2(CL)
```

The line , the position of which , is stored in the arrays at CL is erased. Because of the cyclic structure of the arrays the one erased will be the oldest line stored .

```
390  HCOLOR= 3
```

Now the colour is set back to the line colour .

```
400  X1 = X1 + V1
410  Y1 = Y1 + V2
420  X2 = X2 + V3
430  Y2 = Y2 + V4
```

The line is moved by adding the velocities to the coordinates of the end points .

```
440  IF X1 > XL THEN V1 = V1 * - 1
450  IF Y1 > YL THEN V2 = V2 * - 1
460  IF X2 > XL THEN V3 = V3 * - 1
470  IF Y2 > YL THEN V4 = V4 * - 1
480  IF X1 < 5 THEN V1 = V1 * - 1
490  IF Y1 < 5 THEN V2 = V2 * - 1
500  IF X2 < 5 THEN V3 = V3 * - 1
510  IF Y2 < 5 THEN V4 = V4 * - 1
```

Then a check is make that the end points have not gone over one of the edges of the screen , if a coordinate has then it is multiplied by -1 to reverse its sign.

```
520  GOTO 300
```

Finally we return to the statment that will draw the next line.

This program will provide a very pretty demonstration of animation . But more importantly , by tinkering with its workings , perhaps to add colour or sound, a lot can be learned about the programing methods needed to produce animation.

****

Cheap Air

By Roger Harris.

Computers run better when kept cool, I'm told, and many different types of computer fans are available. A cheap but noisy alternative might be to use a domestic fan-heater to do the job. Some are of a compact box shape not much bigger than a disk drive and will sit neatly behind the Apple.

I have seen adverts for computer fans which claim that air sucked through the case deposits less dust than blown air. This might be due to dust being charged

with static electricity by the spinning fan blades. Also, that hot air from the power supply unit might damage chips if it is not sucked out away from the motherboard. Maybe, maybe not. Mine runs cool and with very little dust.

When correctly positioned, the fan-heater should blow a strong blast of air through the vent slots at the back of the case and also through the vent slots of the VDU monitor.

IMPORTANT: Make sure that you use lots of Sellotape to immobilise the heater switches in the 'off' position!

****

Call for Help

I use an Apple II+ with a Videx 80 column card at home and an Apple IIe with a Cirtech 80 column card at work. My problem involves 'GETTING' data when using the IIe. The Cirtech manual leaves me fumbling in the dark about the problem by saying:-

"INPUT & GET: The 80 column card will not reliably support these commands. Use the 'blinking underline cusor input routine' on the Applesoft sampler disk or read $C000 directly."

Searching through all the disks which came with the Apple, I am unable to find such a routine. Reading $C000 directly works alright until I press the right arrow which disables the Cirtech card. I presume that had I purchased the Apple 80 column card I would have received better instructions. I enclose a copy of the input routine I have been using satisfactorily with the Videx 80 column card as well as my humble attempt to make the routine work on the Cirtech 80 column card (my cursor routine obscures the first character to be read from the screen). Ideally I should like to be able to use the same routine for both cards if this is possible. Can you help?

Best Regards,

J.C.R. Eaton

Cirtech--->

```
100  REM  INPUT IIe
110  REM  A$= KEYBOARD INPUT
120  REM  AZ= ASC (A$)
130  REM  BE$= BELL
140  REM  HZ = HORIZONTAL CURSOR POSITION
150  REM  HTZ= CURSOR POSITION (HTAB)
160  REM  K = COUNTER
170  REM  LZ= ANSWER LENGTH
180  REM  LNZ= LINE NUMBER (VTAB POSITION)
190  REM  NA$= ANSWER (INPUT STRING)
200  REM  QU$= QUESTION
210  REM  R$= CURRENT REPLY STRING
220  REM  VZ= CURSOR VERTICAL POSITION
230  REM SIMPLE DEMO
240  D$ =  CHR$ (4): PRINT D$;"PR#3": PRINT  CHR$ (12)
250  BE$ =  CHR$ (7):R$ = "THSI RUOTNE DOSNT WORK"
260  QU$ = "CORRECT THIS LINE: "
270  LZ = 30:LNZ = 5:HTZ = 1: GOSUB 310
280  VTAB 15: POKE 1403,1: PRINT "YOUR CORRECTION IS: ";NA$
290  END

300  REM INPUT ROUTINE FOR CIRTECH 80 COLUMN CARD
310  VTAB LNZ: POKE 1403,HTZ - 1
320  PRINT QU$;
330  HZ =  PEEK (1403) + 1:HTZ = HZ::VZ =  PEEK (1531) + 1:NA$ = ""
340  IF  LEN (R$) >  = 1 THEN  PRINT R$;: VTAB LNZ: POKE 1403,HZ - 1
350  VTAB LNZ: POKE 1403,HZ - 1: PRINT C1$
360  REM ATTEMPT AT A FLASHING CURSOR ROUTINE
370  IF  PEEK ( - 16384) < 128 THEN C = C + 1: IF C = 10 THEN C = 1
     :MM =NOT MM: IF MM = 1 THEN C1$ = "
380  IF  PEEK ( - 16384) > 128 THEN  GET A$: GOTO 410
390  IF MM = 0 THEN C1$ = " "
400  GOTO 350
410  POKE  - 16368,0:AZ =  ASC (A$)
```

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QX-10 Desk Top Computer £1295
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SOFTWARE

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CARRIAGE WITHIN UK: items which may be dispatched by POST (eg. peripheral cards etc) add £2.00 per order under £50.00. ORDERS EXCEEDING £50.00 CARRIAGE FREE. SOFTWARE PACKAGES: CHARGED SEPARATELY MINIMUM CHARGE £4.00. Items which must move by CARRIER (such as printers, monitors etc) will be delivered within 24-hours for a charge of £10.00. OR ALTERNATIVELY within 48-HOURS at a charge of £7.50. Add 15% VAT to all prices given. Remember, VAT is also applicable on carriage at 15%. Terms STRICTLY CWO. DEALER ENQUIRIES WELCOME. FOREIGN enquiries if possible by telex please. Favourable rates to most destinations. CALLERS BY APPOINTMENT ONLY.

MASTERCARD VISA

TEL: (0342) 24631 • TLX: 957418

```
420  VTAB LN%: POKE 1403,H% - 1
430  REM PROCESS KEYBOARD CHARACTER
440  IF A% = 13 AND  LEN (NA$) < 1 THEN NA$ = R$: PRINT NA$;: GOTO 530
450  IF A% = 8 THEN R$ = "X" +  RIGHT$ (NA$,1) + R$: IF NA$ <  > "" THEN H%
     = H% - 1: VTAB LN%: POKE 1403,H% - 1: PRINT " .";:NA$ =  MID$ (NA$,1,
     LEN (NA$) - 1)
460  IF A% = 18 AND R$ > "" THEN H% = H% + 1:NA$ = NA$ +  LEFT$ (R$,1)
470  IF A% = 21 OR A% = 2 THEN H% = H% -  LEN (NA$):R$ = "X" + NA$ + R$
     :NA$ = ""
480  IF A% = 3 THEN H% = H% +  LEN (R$):NA$ = NA$ + R$:R$ = ""
490  IF A% < 32 THEN A$ = "":H% = H% - 1
500  IF  LEN (NA$) < L% THEN  PRINT A$;:H% = H% + 1: VTAB V%:
     POKE 1403,H% - 1:NA$ = NA$ + A$:R$ =  MID$ (R$,2)
510  IF  LEN (NA$) >  = L% THEN  PRINT BE$;: PRINT " ";: GOTO 550
520  IF A% <  > 13 THEN 380
530  IF H% + L% > 80 THEN  FOR K = H% +  LEN (NA$) TO 80: PRINT " ";: NEXT
     : GOTO 550
540  FOR K =  LEN (NA$) TO L%: PRINT " ";: NEXT
550  H% =  PEEK (1403) + 1:HT% = H%
560  RETURN

                                   Videx ---->

100  REM  A$= KEYBOARD INPUT
110  REM  A%= ASC (A$)
120  REM  BE$= BELL
130  REM  H% = HORIZONTAL CURSOR POSITION
140  REM  HT%= CURSOR POSITION (HTAB)
150  REM  K = COUNTER
160  REM  L%= ANSWER LENGTH
170  REM  LN%= LINE NUMBER (VTAB POSITION)
180  REM  NA$= ANSWER (INPUT STRING)
190  REM  QU$= QUESTION
200  REM  R$= CURRENT REPLY STRING
210  REM  V%= CURSOR VERTICAL POSITION
220  REM SIMPLE DEMO
230  D$ =  CHR$ (4): PRINT D$;"PR#3": PRINT  CHR$ (12)
240  BE$ =  CHR$ (7):R$ = "THSI RUOTNE DOS WORK"
250  QU$ = "CORRECT THIS LINE: "
260  L% = 30:LN% = 5:HT% = 1: GOSUB 300
270  VTAB 10: POKE 1403,1: PRINT "YOUR CORRECTION IS:";NA$
280  END

290  REM INPUT ROUTINE FOR VIDEX 80 COL CARD

300  PRINT  CHR$ (30); CHR$ (31 + HT%); CHR$ (31 + LN%);
310  PRINT QU$;
320  H% =  PEEK (1403) + 1:HT% = H%::V% =  PEEK (1531) + 1:NA$ = ""
330  IF  LEN (R$) >  = 1 THEN  PRINT R$;: PRINT  CHR$ (30)
     ; CHR$ (31 + H%); CHR$ (31 + LN%);
335  REM GET KEYBOARD CHARACTER
340  GET A$:A% =  ASC (A$)
345  REM PROCESS KEYBOARD CHARACTER
350  IF A% = 13 AND  LEN (NA$) < 1 THEN NA$ = R$: PRINT NA$;: GOTO 440
360  IF A% = 8 THEN R$ = "X" +  RIGHT$ (NA$,1) + R$: IF NA$ <  > ""
     THEN H% = H% - 1: PRINT  CHR$ (30); CHR$ (31 + H%); CHR$ (31 + LN%);:
     PRINT " ";:NA$ =  MID$ (NA$,1, LEN (NA$) - 1)
370  IF A% = 21 AND R$ > "" THEN H% = H% + 1:NA$ = NA$ +  LEFT$ (R$,1)
380  IF A% = 24 OR A% = 2 THEN H% = H% -  LEN (NA$):R$ = "X" + NA$ + R$:
     NA$ = ""
390  IF A% = 3 THEN H% = H% +  LEN (R$):NA$ = NA$ + R$:R$ = ""
400  IF A% < 32 THEN A$ = "":H% = H% - 1
```

```
410   IF  LEN (NA$) < LZ THEN  PRINT A$;:HZ = HZ + 1: PRINT  CHR$ (30);
      CHR$ (31 + HZ); CHR$ (31 + VZ);:NA$ = NA$ + A$:R$ =  MID$ (R$,2)
420   IF  LEN (NA$) >  = LZ THEN  PRINT BE$;: PRINT " ";: GOTO 460
430   IF AZ <  > 13 THEN 340
440   IF HZ + LZ > 80 THEN  FOR K = HZ +  LEN (NA$) TO 80: PRINT " ";:
      NEXT : GOTO 460
450   FOR K =  LEN (NA$) TO LZ: PRINT " ";: NEXT
460   HZ =  PEEK (1403) + 1:HTZ = HZ
470   RETURN
```

****

Another Response to INSTR

Dear Sir,

Here is my response to R.C.Lowes request in April's Hardcore. The variables must be set up first and in the order shown in the example. When the program is called, the machine code compares the contents of the Z2$ substring variable with the contents of the Z1$ main string variable and puts the position of the substring in the Z0% variable. I hope the code comments show how it all works. Information on variable storage and structure can be found in the back of the Applesoft manual.

To discover the secrets of our favourite computer's memory, I can highly recommend "What's Where in the Apple" by William F. Luebbert. From 0000 to FFFF it gives details of more POKEs and CALL addresses than you would believe!

I hope all of this is of some help.

G. Jack

```
ORG $300
LENZ1 EQU $06 ;Z1$ VARIABLE LENGTH
LENZ2 EQU $07 ;Z2$ VARIABLE LENGTH
STRPOS EQU $08 ;STRING COMPARE POSITION
WK1 EQU $09 ;WORK STORE
SVARL EQU $69 ;VAR TABLE START ADDR LOW
SVARH EQU $6A ;VAR TABLE START ADDR HIGH
Z0L EQU $FA ;RETURN INTEGER LOW
Z0H EQU $FB ;RETURN INTEGER HIGH
Z1L EQU $FC ;STRING VARIABLE LOW
Z1H EQU $FD ;STRING VARIABLE HIGH
Z2L EQU $FE ;SUBSTRING VARIABLE LOW
Z2H EQU $FF ;SUBSTRING VARIABLE HIGH
;
LDA #$01 ;INITIALISE STRING POSITION
STA STRPOS
LDA SVARL ;GET VARIABLE SPACE START ADDR LOW
STA Z0L ;STORE IT
LDA SVARH ;GET VARIABLE SPACE START ADDR HIGH
STA Z0H ;STORE IT
LDY #$09
LDA (SVARL),Y ;GET Z1$ LENGTH
CMP #$00 ;IF VARIABLE DOES NOT CONTAIN
BNE *+5 ;ANYTHING (LENGTH 0)
JMP RETURN ;THEN RETURN IMMEDIATELY
STA LENZ1 ;STORE IT
INY
LDA (SVARL),Y ;GET Z1$ ADDR LOW
STA Z1L ;STORE IT
INY
LDA (SVARL),Y ;GET Z1$ ADDR HIGH
STA Z1H ;STORE IT
LDY #$10
LDA (SVARL),Y ;GET Z2$ LENGTH
CMP #$00 ;IF VARIABLE DOES NOT CONTAIN
BNE *+5 ;ANYTHING (LENGTH 0)
JMP RETURN ;THEN RETURN IMMEDIATELY
STA LENZ2 ;STORE IT
INY
LDA (SVARL),Y ;GET Z2$ ADDR LOW
STA Z2L ;STORE IT
INY
LDA (SVARL),Y ;GET Z2$ ADDR HIGH
STA Z2H ;STORE IT
LDA #$00 ;SET Z0% VARIABLE TO 0
STA (Z0L),Y
TAX ;ZERO X REGISTER
TAY ;ZERO Y REGISTER
LOOP TYA ;SAVE Y REGISTER
PHA
LDA (Z2L),Y ;GET Z2$ CHARACTER
STX WK1 ;SWITCH X AND Y REC
LDY WK1
CMP (Z1L),Y ;COMPARE TO Z1$ CHARACTER
BEQ MATCH ;MATCH FOUND
PLA
TAY
LDX STRPOS ;SET X REGISTER
INC STRPOS ;INCREMENT POSITION COUNTER
CPX LENZ1 ;END OF STRING?
BCS RETURN ;STRING NOT FOUND
LDY #$00 ;BACK TO START OF Z2$ STRING
JMP LOOP
MATCH PLA ;RESTORE THE Y REGISTER
TAY
INY
CPY LENZ2 ;END OF Z2$ STRING?
BCS FOUND ;YES...Z2$ STRING FOUND
INX ;NEXT Z1$ CHARACTER
CPX LENZ1 ;END OF Z1$ STRING?
```

```
BCS RETURN ;YES...STRING NOT FOUND
JMP LOOP
FOUND CLC
CLD
LDA #$03
ADC ZOL ;ADD 3 TO ZOZ ADDR
STA ZOL ;TO GET THE ADDR
LDA #$00 ;WHERE IT'S VALUE
ADC ZOH ;IS STORED
STA ZOH
LDA STRPOS ;GET STRING POSITION
LDY #$00
STA (ZOL),Y ;STORE IT
RETURN RTS ;RETURN TO PROGRAM
```

HOTLINE UPDATE

By. C. Williams.

Several members ringing the Hotline have asked questions about how it operates and the type of questions we attempt to answer so here's some details.

Firstly some facts and figures. During the last 8 months of operation the Hotline has received a total of 165 calls from individual members. These are the original calls and do not include follow up calls where these are necessary. Of course some members have called more than once on different subjects. This represents an average of some 20 calls a month but the pattern is by no means regular some weeks having 10 to 15 calls and others none at all.

The intention is to offer help on all topics concerning the Apple range of computers and of course anything to do with BASUG. In general I think that we succeed in giving positive help towards the solution in about 90% of cases. As for the remaining 10% that can be a very different story for as we all know some problems are extremely difficult or even impossible to solve.

The questions that are asked vary greatly, from those of the absolute beginner to sometimes quite technical subjects. Approximately 60% of the calls are dealt with on the spot. These are typically, where can I get a book, software package, hardware item or computer repair. Others concern information about the club such as software library, local groups and membership and The Force.

Another 30% are normally dealt with by myself or one of the volunteers and cover such things as 'why won't the program I have just written work' or 'what do I need to run CP/M on the Apple' and requests for advice on various cards and accessory equipment mainly for the II series machines. Sadly amongst these are the 'my dealer sold me XYZ software or hardware and I can't get it to work and the dealer doesn't want to know' question.

And then we come to the 10% failures, and here we have a jumble of intractable problems which perhaps can be resolved but need more than just a phone call. Popular amongst these are questions concerning the fitting of hard disk drives or 8 inch drives to the Apple II. Not the tailor made item available from dealers with the interface and software but the one picked up in a sale with no documentation or interface and designed for another machine. Such items can present tremendous problems requiring a high degree of technical skill. Other questions concern the operation of printers, cards and software which are not using one of the normal industry protocols. When purchasing these items a bargain price sometimes means that the item will not do the things that YOU want it to do when in certain combinations of software/card/printer or will not work with Pascal or CP/M. Graphic dumps and Appleworks are notable sources of difficulty.

If you want to join the volunteers then we still require people on Appleworks, Brother printers and 8 inch and hard disk systems and of course Macintosh.

[Please note that due to disagreement with current BASUG committee policy and other trouble in't mill, Chris has decided not to run the HOTLINE after 31.12.85]

Small Ads

Help Wanted

Paul Wilkinson is trying to trace a source of Amateur Radio Software for the Apple. Will any member able to help ring him on [illegible] (after 6pm).

Books.

Recently published computer and scientific books for sale at substantially reduced prices (approx 1/3 retail). Phone [illegible] for the new October list.

APPLE II POWER SUPPLIES

By Roger Harris.

Just how long should a power supply unit, (PSU), last before it fails? Mine began to fail in August last year after no more than about 7,000 hours. Some industry data indicates an average life five times that figure.

Normally when one switches on the power, the Apple springs into life immediately. Mine took an increasing number of seconds before that happened. Then, it wouldn't start at all. I wiggled the plug, jiggled the switch and tested the line fuse but to no avail.

A new Apple PSU costs around £161, if available, whilst a reconditioned one might cost £60-£75 and may have a three month guarantee. A reconditioned PSU is simply one which not failed YET. It is somebody else's dud which has been repaired, tested and deemed in apparent good working order.

Apple have a ruling on PSU's. They will only supply a reconditioned PSU if the failed one offered by the customer in compulsory exchange has not been opened, i.e. the pop rivets are intact. Thus even a broken on/off switch could cost one a whole new PSU.

First, I had mine repaired privately. It lasted about six weeks. I then wanted to save money so I bought a reconditioned one. It lasted for three and a half months.

At this stage I felt that to buy even a brand new Apple PSU would be throwing good money after bad; in subsequent conversations with PSU manufacturers I was told, off the record, that Apple buys the £161 Astec PSU for about $24 in the Far East. They are available for $49.95 in the USA; see adverts in the back pages of BYTE magazine.

There were three possible solutions: Find a PSU with similar output, find a look-a-like equivalent PSU, or simply capitulate to Apple and buy their £161 tin box.

The standard Apple switch-mode PSU has a 240 volt AC input and four DC outputs:

+5 volts, 2.50 amps
+12 volts, 1.50 amps
-12 volts, 0.25 amps
-5 volts, 0.25 amps

An excellent library source of PSU manufacturers is the Electrical And Electronic Trades Directory 1985, (ISBN 0 86341 031 6).

Manufacturers or suppliers of various types of similar switch-mode PSU's are listed, (except for Peanut Computer), and their products would need to be fitted with input and output wiring and some are supplied as bare-board, i.e. un-cased, units.

You may risk severe electrical damage to the computer, the PSU and yourself if you attempt to make connections without expert electronics knowledge.

Prices include VAT, but not delivery:

Amplicon Electronics, Brighton, £113.
phone (0273) 608331.
BICC-Vero, Eastleigh, £86.
phone (04215) 60211.
Calex Electronics, Leighton Buzzard, £97
phone (0525) 373178.
Kingslo, Newbury, £50.
phone (0635) 32585.
Peanut Computer, Dewsbury, £68.
phone (0924) 499366. Apple compatible look-a-like, actually it's black, with input & output caoles and plugs, fits drilled holes, use old screws, 7.5 Amp output, one year guarantee, ventilation slots. (I bought one).
Powerline, Reading, £75.
phone (0734) 868567.
STC Instrument Services, Harlow, £122.
phone (0279) 29522.
VER Controls, Norwich, £107.
phone (0603) 721215. Will customise.

A range of transient suppressors and line conditioners is available from: Galatrek International, Gwynedd, phone (0492) 640311.

HARDWARE & SOFTWARE REVIEWS

NIGHTINGALE MODEM.
MASTERCARD SERIAL CARD.
DATA HIGHWAY SOFTWARE.

By Tony Game.

HARDWARE REQUIRED:
Apple II+ or //e
Disc drive
BT telephone line and new type jack socket.

The Nightingale modem was one of the first to use the now omnipresent AMD multifunction chip, and offers the usual options of Baud rates from 300 to 1200, the latter half duplex only, as well as 1200/75 for Prestel. Bell tones are there, but to obtain BT approval they have been deactivated by the removal of a knob. This could readily be replaced by anyone wishing to (legally) use them.

The modem functioned faultlessly throughout the test. It is a black box 190mm by 180mm and stands 60mm high with a top which forms a platform comfortably able to hold a standard telephone. The front panel has three press button switches, one to connect the line and the others to set the baud rates. There are LED's for power on, and a yellow one which fascinatingly blinks green and red respectively for incoming and outgoing data, though the red and green distinction was not always easy to detect. This LED provision is a little sparse compared with many other modems but sufficient.

The back panel contains a socket for a telephone, a self test button, and an RS232 DIN socket. I regard it as unfortunate that the DIN socket has been used rather than a D type which is so much more versatile, but used with the Mastercard this would be no problem.

The front panel baud selection buttons are marked out with a series of lines to show their correct combinations for various settings, but these are curiously difficult to understand. This and the DIN socket are the only quibbles that I had. A self test facility is available, to determine that the serial connections have all been made correctly.

The Mastercard provides a standard RS232 interface. It contains an 8k eprom with elementary terminal software, and can be software configured for all standard baud rates and data word formats. Perhaps its greatest feature is the provision of a true split baud rate for 1200/75. This is something that standard Apple serial cards, particularly the Super Serial Card do not have, and the constant software switching from 1200 to 75 and back required for viewdata reception, has a decidedly detrimental effect upon the display. The card could also be used if required to drive a serial printer.

There is an eighteen page handbook which is clear and well written although it does not succeed in dispelling the odd confusion of the front panel buttons and markings.

The Mastercard can be made to emulate a CCS type interface, which would be needed for use with American software such as ASCII Express, by changing the position of three links. I could not help feeling that it would have been well worth while to have provided this action by means of an external switch, since few people are going to want to take the lid off the Apple and remove the card whenever they need to change. A cable, terminating in a DIN plug to fit the Nightingale, is also provided.

The true split baud rates available for Prestel make the Mastercard faster and nicer to use than my own Super Serial Card, especially when data is being keyed in for sending mailboxes.

A ten page instruction manual gives all the required information in a sensible and readily available lay-out.

Data Highway is essentially two completely separate programs on one disk. All that they share is the original setting up which tells them which ancillary equipment is in use. On initial booting the user is asked questions concerning the serial card in use, whether one can display lower case, and whether one has an 80 column card. The support of 80 column cards is well implemented, with cards ranging from the

original M & R, right up to the IIc, being properly utilised. The information supplied at this point is saved to the disk and only needs changing if the setup is changed.

Next one is presented with a menu to allow a choice of either the Viewdata program or the ASCII terminal one, or various utility programs for preparing macros, changing the configuration, or setting the character filters.

The Viewdata program has been previously reviewed in Hardcore, though now it has several largely cosmetic embellishments.

The terminal program is a powerful means of accessing standard ASCII based systems such as Bulletin boards and Telecom Gold, or talking to one's friends computers. Configuration is done from a separate menu and can be saved to disk so that it becomes the default condition. This powerful program has been carefully designed for ease in use, most of its options being readily apparent and easy to utilise, though the tyro will still have to spend some time with the 100 page manual before he can use its every feature with assurance.

The Data Highway manual is informative and well laid out, though the index is, regrettably, somewhat brief.

All the features of Copy buffer, Load buffer, Open and close buffer are in Data Highway, as is a switchable auto buffer save when the buffer fills. The switch from terminal mode back to command level (where the options of Data Highway are available to be altered), is very easy to use, being controlled by the Escape key. A clever feature gives one a few seconds to complete alterations before a menu is displayed.

Full Protocol and Standard ASCII transfers are supported, the Protocol transfers sending Text, Binary or Applesoft files, and there is also a very interesting and unusual protocol mode for transferring a whole disk in any of the Apple disk formats of DOS Pascal or CP/M, so that to all intents and purposes the transfer is made at 1200 full duplex speeds. As far as I know this is quite unique. Ewen Wannop has explained his organisation of this previously in Hardcore.

Macros for auto log ons etc, are written in a separate file, and then called into the main program. They are powerful and easy to use, but one or two criticisms might be made. There is no facility in the main program to inspect the macro, so apart from being told that one has been loaded, there is no means of checking what it contains. There are no facilities for string handshakes, or for pauses, or conditional handshakes, all of which are very useful in environments such as Telecom Gold, Compuserve etc. Nor can the Baud rate or data word setup be defined in the macros. However, I understand that the latest version does in fact contain these options.

The very useful ability to filter out and/or change incoming characters, is implemented from a separate menu. This allows one to get rid of incoming ASCII codes which happen to play havoc with one's 80 column card etc.

Alas this review is out of date even as I sit writing it, because the Mastercard is now in its second revision, and Data Highway is now available for 68k machines in an entirely different configuration (supporting colour in the IIe and IIc on the double hi res screen), so what I have reviewed will only be supplied for 48k machines. The Nightingale is now available with Auto answer and Auto dial options, and plug in boards can be obtained to give existing Nightingales these invaluable features as well.

What were my final feelings then? They were very favourable indeed. Anyone setting out on the complex comms road would certainly not be making a mistake in investing in this package, especially at the attractive rates being offered for the full deal.

Title: Sensible Speller IV
Publishers: Sensible Software.
UK Price: £105
Hardware needed: Apple II/II+/IIe/IIc, 48K RAM, 40 col display, DOS 3.3 and at least one disk drive.

By Peter Baron.

This must be the prince of spelling verifiers for the Apple range of computers. The standard DOS 3.3. version may be used with CP/M as well and a Pascal version is available on request. With just a few programs, like 'Incredible Jack', 'Cut and Paste' and 'Easy Writer',

it does not work, but one can set it up for most other word processors which save their files as standard binary or Apple text, as well as for a custom document RWTS routine.

Booting Sensible Speller produces a simple on screen menu which allows selection of the main speller, utilities or an exit Assuming that the speller has been selected, it is, for the most part, only necessary to keep pressing return in order to move rapidly through options which may not be immediately required, such as listing, adding or deleting dictionary words, to arrive at the actual spelling check. It is preferable to have two drives in operation and the Random House dictionary disk, containing a vocabulary of 80,000 words, goes in the second, while the document disk replaces the main program in the first. The program is very rapid, being able to verify by means of high speed word comparison. Actual speed depends, of course, on the number of mistakes and the efficiency of the operator.

When the inevitable misspelt word is discovered, it can be corrected in context and if you are not sure about the spelling Sensible Speller will even suggest possibilities. If you still cannot find the word, use of a wild card is possible. Since it uses an American dictionary, it is still necessary to watch out for words like 'sulfur', but these can be replaced and up to nearly 10,000 words can be added to the dictionary, or special dictionaries created. Sensible Software actually markets a number of these like Stedman's Medical (65,000 words for $99.95) , Black's Law (20,000 words) and a technical list (40,000 words for $59.95). Correction done, the Speller writes its temporary file back to disk, replacing the original if requested, and this can be used for the final hardcopy. As with the previous 'Apple Speller', the words in a document are automatically counted, a process which facilitates document analysis by listing each word used and the number of times it was found.

The ProDOS version of Sensible Speller works with virtually all wordprocessors using that particular disk system, but evidently is not available for CP/M and Pascal.

Finally, I can only say that in processing large amounts of text, I have found Sensible Speller the easiest and most effective of the verifiers I have used.

Aztec C Compiler for the Apple][Version 1.05
Consists of: 7 floppy discs, 144 page manual
Publisher: Manx Software Systems
UK Distributor: Grey Matter, Ashburton.
Price: £175
Hardware Needed: 64k RAM, 2 disk drives
Review Machine: 128k Apple][e

By Terry Cymbalisty

Introduction

The Aztec C system is (to my knowledge) the only C compiler available which compiles 6502 code on the Apple][range of computers. The system consists of a comprehensive set of tools for producing code using the C programming language. The basic system consists of a compiler, relocating assembler and linkage editor.

The major components of the Aztec C software development system are the SHELL command parser, the Aztec C native code compiler, the Aztec C pseudo-code compiler, the Aztec relocating pseudocode assembler, the Aztec relocating 6502 assembler, and the Aztec linkage editor.

The Aztec C compilers for the Apple][produce both 6502 assembly language (native code) and a pseudo-code. The pseudo-code tends to be 50% smaller than native code and is interpreted at run time. Both the native and pseudo-code are assembled by the appropiate assembler to produce relocatable object files. Pseudo-code and native code object files are freely mixed by the Aztec linker to produce hybrid modules that will run both native and interpreted code. Aztec C meets the full Kernighan and Richie standard. Actually, Aztec does not support bit fields - a redundant feature of the language - but it usually should be possible to move C source code from a Unix system to an Apple and compile it without change.

What is C?

C is rapidly becoming one of the most important and popular programming languages. Its use is growing. People try it and like it. C is a modern language which incorporates the control features that computer science theory and practice find desirable. The design

of C makes it natural for users to use top-down planning, structured programming, and modular design. The result is a more reliable, understandable program. C is an efficient language. It is also a portable language. C is powerful and flexible. C is friendly. C is the language of Unix, a powerful and increasingly important operating system.

Programming Example

First boot DOS 3.3 from another DOS disk. Insert the Startup disk and brun SHELL. Type cd d2 to change the active drive from drive one to drive two. Then type cc d1 to make the current 'execution' disk drive one. The program is then entered using the supplied editor VED by typing ved args.c ,where args.c is the name of the file to be created, for example. Once the file has been entered, it must be compiled by typing c65 args.c .The final stage is linking. The compiling stage produced a file named args.rel hence the following is entered ln args.rel sh65.lib ,where sh65.lib is the native code library. The resultant binary file will be named args .

Other Features

The SHELL is a pseudo-Unix type environment which the Aztec system runs under. If the user is at all experienced with Unix then he will have no problems with SHELL. If not then SHELL is perfectly well documented within the excellent supplied documentation. The DOS 3.3 commands are replaced by Unix type commands which are very powerful and flexible. As an example the SHELL command to print a file to the standard output device (ie the screen) is CAT. Hence using the above example one would enter cat args.c. But if one wanted the file sent to the printer, say, then one would enter cat args.c > pr: where pr: is the printer device name and > is the redirection symbol. VED is the supplied editor. The commands within VED are a subset of those used within VI, the standard Unix editor. VI is probably the most flexible and powerful editor I have used and I have used quite a few including Wordstar.

Conclusions

If one wishes to get to know C and use it as a powerful compiler running under DOS 3.3, then the Aztec system is highly recommended. Not only is it the only system available, but it is an extremely well executed product. I have heard that a professional Prodos version is soon to be released. I would be extremely interested to hear of other members' experiences with C. Thanks to Mr John Cross of Grey Matter, Ashburton, Devon for the kind loan of the review copy.

Title: The Graphics Department.
Publisher: Sensible Software.
UK Price: £110.00
Hardware required: Apple][+. //e. //c or compatible with at least 48K and Applesoft BASIC, at least one disk drive and standard 40 col monitor. A printer is optional.

By Peter Baron.

Primarily intended for professional and business people, this menu driven unprotected package consists of four modules incorporating the most commonly desired graphics functions. Three double sided DOS 3.3 disks and a manual are supplied, so the program code is of considerable length. This could lead one to believe that using the Graphics Department might be rather tedious because of the amount of disk swapping. While it cannot be denied that any compulsory disk changing has definite nuisance value, this is minimised by sensible design of the menu and location of the modules.

Each of the four modules reflects the name of the function provided. Thus, there is a Charting kit, which allows the entry of alphanumeric data to construct bar, line, and pie charts, as well as scatter, X/Y and area graphs, a Lettering Kit with over 40 fonts in multiple sizes, Graphics Tools for drawing circles, elipses, lines, squares and the like and a Slide Projector allowing the display of up to 32 high resolution colour pictures or diagrams on a monitor or TV.

Obviously, this is quite a bundle, but there is more to it ! The Lettering Kit fonts cater for 20 to 70 characters per line and with proportional spacing, and the X and Y axes of the upper and lower case letters can be independently varied to produce an inifinite variety of scripts. Apart from the functions mentioned above, Graphics Tools can add

designs to graphics created by another module, but interestingly, the screen serves as a work space for the definition and manipulation of rectangular sections of variable sizes. For example, this allows blocks of text surrounded by lines, to be joined together with other lines to form flow type diagrams. In addition, Apple shape tables can be employed and one can transfer information between the two graphics pages in memory. Text and graphics can, therefore, be freely mixed.

The Slide Projector is one way in which the results of all this work can be presented. A formatted disk will store up to 16 slides and the projector has a capacity for 32. Control of a multi-coloured slide display can be manual or automatic, with repeats and a frequency as fast as one picture every 1.5 seconds.

Needless to say, as with all Sensible Software products, the manual is of an excellent standard, being both comprenensive and easy to use. Apart from the usual directions, it describes error messages and shows all available fonts. The printer interface supports a wide variety of cards and dot matrix and daisywheel machines, allowing for very versatile configuration. An alternative printer interface is included for those with other 'intelligent' printer cards, new or way out set ups.

The features in this comprehensive set of software tools make excellent use of the Apple's colour and graphics capabilities, though Apple //e and //c owners with double hi-res might feel that it could have gone a step further, but that would no doubt have excluded a very large section of the market with an undesirable restriction on transportability.

Casio fx-411 calculator.
BY : Mike Dawson.

What has a calculator got to do with a computer user group you might ask. In fact what use is a calculator to someone who has the biggest and most expensive version of a button box number cruncher ?. If at any time you have craved after a hexadecimal brain (but who's that warped ?) when trying the ultimate self torture of machine code programming then this calculator is worth considering.

For we mortals who habitually program in Applesoft, yet have ambitions about magazine articles or books giving that latest ultra-fast m/c routine, this calculator will take away the misery of hex to decimal conversion. In fact it will also do binary and octal conversions, calculations and logical functions. The logical functions include AND, OR, XOR XNOR, NOT and NEG.

As if that were not enough, this masterpiece of brain relief will also perfom the mundane everyday things such as polar to rectangular co-ordinate conversions, trig functions, factorials .....and basic maths, in case you have forgotten what 2 + 2 used to be! And it is solar powered, so you can work over a hot computer and not worry about the batteries running out.

The calculator comes packaged in a small pocket sized wallet, priced at approximately £17.25 including VAT, and is obtainable from Dixons, Boots and other retail outlets.

Supplier:Davis Rubin Associates
Book :£18.95 (342p.pbk)
Disks :£20.00 per set of 4 double sided disks.
Combined:Book and disks £37.95

By Chris Williams.

This package consists of 8 disk sides of public domain software and a very useful book containing documentation for most of the programs and for other programs that are not on the disks but may become available in future. All of these originate in the USA and most of them seem to have been designed for the Kaypro machine. The originals have been converted, mostly successfully, for the Apple CP/M system but there are a few which don't run properly due to configuration problems, or the dialect of BASIC not being the one available on the Apple. Fortunately these are in the minority and can probably be fixed with a little effort on the part of the purchaser. Due to the limitations of disk capacity on the Apple, the programs have been rather split up across the disks provided and the first job any purchaser will have is to copy the programs to other disks and discard some of the surplus,

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which are KAYPRO files showing the original sets of programs no longer applicable to the Apple system. The supplier is currently making efforts to resolve these minor problems.

Space here precludes a full review of all the programs available but perhaps a brief survey will give an idea of what's on offer.

The disks contain several games, including text versions of chess, a rather nice version of the well known biorhythm program, othello, golf, and a space trader game. There are also a number of others written in BASIC, which returned a variety of errors due no doubt to the BASIC dialect, and these would need some work to get them running. Various useful general utilities are provided, including a calendar generating program, a variety of disk catalog facilities, and a password utility which enables the protection of COM files from unauthorised use. There is also a utility for scrambling files, using a keyword so that the file is safe from inquisitive eyes, of course the key word holder can unscramble the file when required. One of the interesting inclusions is SQUEEZ, which compresses a file for storage, in some cases to 60% of its original size. The file has to be UNSQUEEZed for future use, but in some circumstances it would be an economical way of storing data for future reference.

For the enthusiastic hacker there are several interesting tools, such as DU-V86 a powerful disk utility which enables track by track examination of a CP/M disk, with many options for examining and dumping disk sectors and NSWP205, a file maintenance program giving a number of facilities such as find, copy, rename, and many others. Also, there is RPIP, a version of PIP which overcomes the irritating habit that CP/M has of not allowing a disk to be changed when copying files.

In conclusion, these disks and the book are full of interest and I would happily have paid the asking price for just a few of the utilities included and indeed have paid more for less (haven't we all).

Davis Rubin Associates - 0386 841181

GRAPHIC MOUSE SYSTEM

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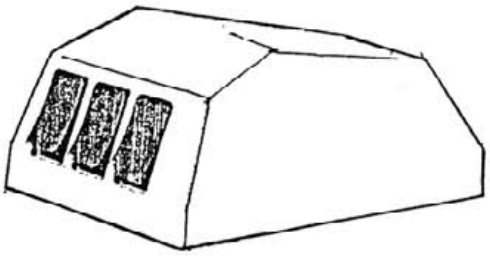

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Title: Gutenberg Senior.
Producer: Gutenberg Software Ltd.
Price: $460 (Canadian)
Hardware required: Apple II+/IIe/IIc/or compatible, 64K minimum, two disk drives preferable and Apple Imagewriter recommended. Various printer interfaces.
By Peter Baron.

If you have any serious interest in word processing, you should know about Gutenberg, which is a unique package capable of producing print in a great variety of formats and at least 55 languages. In fact it is claimed to have the most comprehensive word processing and formatting capabilities ever designed for a microcomputer of this size and I know of no other which allows one, with such ease, to create characters in languages like Hebrew and Russian (or anything else you care to design with the special facilities provided) and reproduce them in a sophisticated format on paper as camera ready copy. If this is not required, the text produced is suitable for computerised typesetting. Gutenberg also has the ability to include graphics with text; either those created with the aid of its own Paint program or with other graphics packages. Such diagrams may be cropped and embedded in the text.

A new and improved version of the Senior system is currently being distributed and readers may obtain a free descriptive booklet by writing to Gutenberg Software at 47 Lewiston Rd., Scarborough, Ontario, Canada M1P 1X8. You may also like to refer to Peter Trinder's article in Hardcore (issue 3 (6)) and that by H. Silverstone in Washington Apple Pi, Vol. 7(2).

It is impossible for one to embark on a full review with such limited space, but to mention just a few points, Gutenberg Senior now has an automatic tabbing feature, so that ragged, uneven text can be accurately aligned in columns. The processor utilises a powerful macro system for text formatting and font changing, so that these must be included in the text at appropriate places. They appear like <BO> (for bold on) or in more complex forms for much more comprehensive commands. A new macro has now been included in its repertoire, so that certain textual elements can be captured and manipulated on paper. Thus, headers, footers and the like can be printed automatically. By the way, variables are available to allow automatic counting and other mathematical operations involving +, -, * and /.

All the usual commands for editing are provided. Three modes may be utilised, command, insert and x-over. Insert is used primarily for inputting text from either of the two alphabets concurrently available on screen, while command mode allows movement through the text, transportation operations, searching, replacing and the like. It is also possible to use programmed editing in the sense that any key may be programmed to represent a sequence of editing commands. Also, many of the editing features have been enhanced and improved in the new version and the copy buffer expanded from 1.5K to 3.5K, resulting in greater ease of use and enhanced speed capability for the writer. X-over mode enables existing characters to be written over.

Gutenberg's full range of printing facilities are only available with the Apple Imagewriter or dot matrix printer, which, among other features, have extensive character downloading abilities. It will work with others, including the C. Itoh Prowriter, NEC 8023 and, to a lesser extent, with Epsons such as the MX 80 and MX 100 type III. A user configurable printer program is provided, so that others can be used, including daisywheels, but graphics and microspacing may not be available with it. Numerous set formats for producing hardcopy with differing printers are included on disks which accompany the masters.

Also on the two master disks, is a communications program, which, though limited to use with the Super Serial Card, permits data transfer via a modem at various baud rates to other computers. Transfer of files between Gutenberg's special disk system and DOS 3.3 is enabled by a Global command, to allow interfacing with other word processors and spelling verifiers.

The manual consists of 750 pages, divided mainly into introductory, tutorial and reference sections. In the words of the introduction, "As a new user of Gutenberg, you should be aware that you are embarking on a process of learning, experimentation and discovery."

Probably more than any other program, Gutenberg presents an opportunity for the creative writer to produce an end result which does justice to the finished presentation of his work, be it in English or another language.

BOOK REVIEWS

By Chris Williams and Peter Baron.

Title:Programming Tips and Techniques for the Apple II and IIe (403p.pbk)
Author:John L.Campbell
Publisher:Robert J.Brady Co (Prentice Hall) Price:£19.35
ISBN: 0-89303-273-5

My first reaction on seeing this book was 'not another book on the Apple II' but closer acquaintance has proved that it is likely to be very useful, especially for newcomers to the Apple II computer. The volume is divided into sections covering the various aspects of the Apple II and starts with a chapter on programming in Basic,giving clear examples and good advice on structuring programs and providing user friendly menu's.

Other chapters deal with error handling, data processing, inputs, outputs, sound, graphics and the DOS operating system, in a logical and easy manner, covering most problems that the new programmer encounters. At the end there is a comprehensive set of appendices giving detailed information on both hardware and software, with useful lists of Peeks and Pokes.

In conclusion, this book is one of the most comprehensive I have seen on the Apple II and should prove invaluable to members wishing to learn Applesoft Basic and more about the machine. Though not cheap, at the price it seems good value when compared with many others of less merit.

A FEW WORDS ABOUT SOME OTHERS.

Apple ProDOS Disk File Handling (£13.85), written by Graham Keeler, is published by Prentice Hall and covers all aspects of disk and file handling with this system and, to some extent with DOS 3.3. A variety of listings appear, including a practical introduction to databases with two substantial programs. **Pascal Programs for Database Management** (£18.65), by Tom Swan, published by Hayden contains the source code for a complete and very comprehensive relational database system. It is divided into two sections, one intended to instruct and help business type users, the other, perhaps of more relevance to programmers, to examine the whole process from the computer's point of view. Software is available, but the Pascal system is necessary to run it. **Choosing and Using Program Generators** by Chris Naylor (£7.95), published by Sigma Technical Press, may interest readers of Tony Corinda's articles. It contains reviews of more than ten major generators for over 100 micros, including The Last One. Want a laugh ? Then look at the cartoons in **Dedini. A Much, Much Better World** (£6.95), published by Microsoft, which pokes fun and some wisdom at all you freaks. Oh Mac men and ladies, I'm sorry that you haven't had more in this issue, but the Macwriters seem to have stopped, or are they saving up ? But you might gain something by reading **Macintosh: A Concise Guide to Applications Software** (£19.60), by Dirk van Nouhuys, published by Wiley. It explains what the computer is capable of doing and shows how to run many of the popular software packages. **The Applesoft Subroutine Cookbook for the Apple II** (£18.35) by David Busch, published by Brady Communications Co./Prentice Hall, contains listings with line by line descriptions of the code. Our reviewer thought that the routines were basic and that the level of coding was not very good. He felt that the price was too high and that this volume could not qualify as a subroutine library because of the elementary nature of its contents. **Apple II/IIe Robotic Arm Projects** (£18.15) by John Blankenship, published by Prentice Hall is more interesting, for those who wish to construct some working parts. In fact, it aims to introduce the subject by means of practical projects, so that a reader who understands the whole of the book should be able to complete the final task of constructing a human-sized robot arm. The text appears to be a bit thin on mechanical directions, but does contain a variety of training and control programs.
Interested in graphics ? There are a few books around like, **Personal Graphics for Profit and Pleasure** (£9.95) by M. Barnett and G. Barnett, which deals with animation, perspective projections and geometrics. **Apple Graphics Activities Handbook** (£7.95), by H. Bailey and J. Kerlin, published by Prentice Hall, offers step by step instruction by means of a series of pictorially designed activities and **IIc Basic Paint** (£16.95), by B. Hicks and S. Baron, published by Wiley, teaches BASIC and lets you paint your way to more advanced techniques by means of its own painting program.

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CP/M COMMANDS

By A. Holderness

Now, those of you who already know cp/m are saying 'not again!!', and turning rapidly forward to the next article, and those of you who are still getting to grips with it will be wondering just what this is all about.

With a bit of luck, this will be useful to both groups, so please read on - firstly, there are two types of commands that can be entered at the cp/m operating system level (when you've got an A> or something similarly informative staring at you from the screen) - transients and built-in commands.

When a command is entered at the keyboard, the Command Processor first checks to see if it's one of the built-in commands (DIR, ERA etc) and if it's not found in the list, looks for a .COM file of that name on the current disk. If it's found there, then the o/s loads the file and commences execution. If neither is true, then the command is returned with a '?' following it.

The intention of this article is to give a brief guide to the built-in commands. These summaries are available elsewhere (not in the Digital Research manuals unfortunately), but you may find it useful to have them presented in a brief format for future reference here - anyway, it's one of the benefits of membership!

DISCLAIMER

Firstly, this article only refers to cp/m version 2.2 as it's the only one I've got available on this machine (anyone want to write on the joys of version 3.0??). Secondly, if in doubt refer to the supplied manuals - they are the definitive guide (ok, I know they're pretty awful; makes me think of the old saying "Those who can write, write. Those who can't write computer manuals! (or articles about cp/m for Hardcore???)).

DISK NAMES

The cp/m disks are lettered from A to P. Apple cp/m systems only have available A..F (on the 56K system), (and A..D on the various 60K versions). Whenever a disk is specified, it is in the form 'A:', with a following colon. The operating system prompt will also tell you which drive you are currently using (A> etc).

FILE NAMES

A filename has a structure of D:XXXXXXXX.XXX - the disk letter, followed by a colon then eight descriptive characters and a three character file extension. The descriptive part can include any of the characters available from the keyboard with the exception of control characters, and <>.,;:=?*[] The three character extension can be anything you choose to use - but some types are reserved by cp/m itself and others by various applications programs, so some care needs to be taken. The 'conventions' are as follows:

.ASC - File containing ASCII text
.ASM - Assembly language source
.BAK - Backup file
.BAS - Basic source file
.C - C source file
.COB - Cobol source file
.COM - Executable transient program
.DAT - Data file
.DOC - Document file
.HEX - Intel hex object file
.INT - Basic intermediate code file (Cbasic)
.IRL - Indexed library file
.LIB - Library file
.MAC - Assembly language source (for macro assemblers)
.OVR - Overlay file
.PAS - Pascal source file
.PLI - PL/I source file
.PRN - Assembly language listing file
.REL - Relocatable machine code file
.SRC - Source file
.SUB - Command file for SUBMIT program
.SYM - Symbol table
.TXT - Document (text) file
.$$$ - Temporary file

Some commands require that the full name of the file be entered - this is referred to in the manuals as an 'unambiguous file name', usually abbreviated to 'ufn'. Others will accept part-names;

otherwise known as 'ambiguous... (you guessed it!)' or 'afn's.

To use an afn, the 'don't care' parts of the filename are replaced by ?'s. So if you have a set of files called, say 'DATA1.DAT', 'DATA2.DAT' and 'DATA3.DAT' on your disk, you can specify the lot by typing 'DATA?.DAT'. If the numbers run above 10, you can either use the form 'DATA??.DAT', or a shorthand method - 'DATA*.DAT'. The '*' is expanded to as many '?'s as are required to fill the section that you've specified out to the full 8 characters permitted. Unfortunately, this means that you will also match with a file called, for example, 'DATAFRED.DAT', so you need to take care. The same system applies to the extension part of the filename. One word of warning - the '*' character is expanded from wherever it appears, so it's no good entering '*01.DAT', as this is equivalent to '????????.DAT', and will match all the .DAT files on the disk!

SINGLE CHARACTER COMMANDS

There are a few single entry commands available at the operating system level - all of these are control characters, and I'm going to use the normal cp/m convention of indicating them with a preceding 'Δ', as they appear on the screen: as (↑)

ΔC - Reboot (warm start) cp/m
ΔE - Start a new line (this is a hang-over from the days of teletypes and non-wrapping screens - if your command exceeds the width of the screen, then ΔE will return the cursor to the start of the next line - included for the sake of completeness; now forget it!
ΔH - (backarrow) - Backspace + delete
ΔI - Tab 8 columns (the right-arrow key on the Apple is usually mapped to produce ΔI rather than it's usual ΔU)
ΔJ - Linefeed
ΔM - (return) - need I say more?
ΔP - Printer on/off. This is a toggle key. Note that if the printer is not available, the system will hang, and require resetting to continue.
ΔR - re-type current line (See 'DEL')
ΔS - Stop/start output
ΔU - Delete line. (You can't get ΔU on the Apple unless you reassign the right-arrow key using CONFIGIO, but don't worry, as...)
ΔX - Same as ΔU
DEL- (Δ@) - Delete and display (a teletype leftover again; if you meant to type 'DIR DATA.FIL', and actually typed 'DIR DSTA.FIL', using Δ@ will result in a display of 'DIR DSTA.FILLIF.ATSATA.FIL' by the time you've corrected it - then you use ΔR to see what you ended up typing.... stick to ΔH (=backarrow)!)

BUILT-IN COMMANDS

The built-in commands are as follows (with examples of usage)

ERA afn - ERAses files from the disk ERA *.* will remove all files - in this case, you are prompted with 'All(y/n)?' before the operation is carried out.
DIR afn - Produces a DIRectory of the disk. DIR entered alone is equivalent to DIR *.* - the only case where a missing file name is expanded by the system. DIR *.DAT will, for example produce a list of all files with the .DAT extension on the disk.
REN ufn1=ufn2 - RENames files. The file called ufn2 is renamed to ufn1 (there's a lot of this 'backwards' stuff in cp/m!). (ufn1 may have a drive specification; ufn2 may not)
SAVE n ufn - Saves n pages of 256 bytes of memory from the program area onto disk.
TYPE ufn - Displays the contents of a file on the screen (or printer if you pressed ΔP first. Used for ASCII files, but if you want to list a core image, the system will try to do it for you; with (usually) unfortunate consequences to the screen display. The display may be halted and restarted with ΔS, and terminated by ESC.
USER n - Allows the user to move to another logical area on the disk - not a lot of use on an Apple system with only 140K available on the disk - more useful on hard-disk systems to keep separate applications apart.

All the other cp/m commands are stored on the disk as .COM files and are loaded as required.

[Ed. I'm sorry, but it's a peculiarity of the daisywheel...please read control for the delta character (Δ).]

READER'S LETTERS

West Hampstead,
London NW6

Dear Peter

As a new user of the Mac I have some questions and a few suggestions for SIGMac's consideration. I just bought 2 packages of 10 SONY 3.5" diskettes at what I think is a good price from Kingsley Enterprises, 87 Whitefield Road, Stockton Heath, Warrington WA4 6NB; telephone 0925 64207.

What about printer ribbons for the Imagewriter? We could get a discount if we bought in bulk (P &P quoted me a price of 4.50 but 4.00 each for 10). Is BASUG interested in carrying these items for members or taking orders to be submitted together? Also, I am getting pretty tired of swapping disks in and out of the internal drive - are any other users interested in buying external drives; if we put in an order together we should be able to get a reasonable discount.

Here are a few of the million questions I have about the Mac:

1) Though I just bought a Mac I did not get the Seattle fonts. Does Seattle only come with Multiplan?
2) Does the font editor on SIGMac disks 15/16 let you create fonts of different sizes?
3) Often it seems like an eternity for the Mac to quit an application or eject a disk. What is it doing?
4) I only have a one drive Mac. Although I can use the disk copy utility to copy a complete disk in 4 swaps, if I just want to move one file from one disk to another, it takes as long.

   Why does finder use so little memory when copying? Is there anything that can be done to speed this up?
5) Is there a way to use the finder (e.g. to list the files on a disk) while in an application? Could this be done using a desk accessory?
6) I've seen special graphics characters (a little rabbit, a leafy border, etc.) that can be entered from the keyboard supposedly by holding down the shift-option-control keys (not to be confused with the Cairo or Alexandria fonts!) on a North American Mac but cannot get them on mine?!
7) Is Alexandria available?
8) What changes have to be made to a MacWrite document say in the New York font to get Times Roman on the LaserWriter?
9) Do you know of any way to get access to a LaserWriter? I'd be willing to pay the equivalent of photocopying prices. Anyone interested in buying shares in a LaserWriter?!

Sincerely

Shmuel Browns

FROM THE FORCE: ANOTHER RESIGNATION.

From: T.GAME (BSG002) Posted: Tue 10-Sep-85 19:04 BST Sys 84 (34)
Subject: RESIGNATION FROM COMMITTEE.

When Bob Raikes suggested a couple of years ago, that I should become a member of the committee, he assured me that non-attendance at the actual meetings would be of no consequence, because my views about the agenda could be adequately expressed before-hand. He undertook to keep me informed of what was to be discussed so that I might do this. It now seems, however, that this arrangement is no longer satisfactory, as I find that I had no idea at all of what was to be discussed at the last meeting. If I had I would have wished to argue in the strongest terms for caution. I would have wished to draw to the committee's attention, Quentin Reidford's retiring statement that this year should be one of quiet consolidation rather than of innovation. Had I known that there was any proposal to ask the editor of Hardcore to resign his post, I would have tried to argue against this in the strongest terms. Even had I felt that there was any large reason for dissatisfaction with his editorship, I would have wanted the editor to have been acquainted with these views, and given a chance to justify, and, or, amend his approach. I do not believe that it will be possible for Hardcore to be produced, except in the very shortest term, without an editor, and would have strongly suggested that the time to [dispense with] an editor, if indeed it was necessary, was when another was available.

Like many of the rest of us, Peter Baron is not perhaps perfect, but I have seen no indication that this decidedly shabby treatment of him is at all possible to justify. Indeed I would have felt it reflected dishonourably upon the club, and could not have allowed my vote against it to go unrecorded, had I been given the chance to make my views known. In short then I feel it is now clear that a non-attending, and uninformed committee member is the last thing the club needs in its present condition, and I have accordingly sent the secretary my letter of resignation. I hope that no-one will think for a moment that I am any the less prepared to help out with the chores as I always have done, or that my loyalty to BASUG is in any way diminished. As my final word to the committee, may I perhaps urge upon you all, what is surely obvious, the need for the greatest caution over a period. I am myself totally convinced that this is not the time for innovation but for quiet, competent leadership, under which the club can consolidate its affairs, and gather its strength, until it is ready to undertake future improvements not only with confidence, but also with ability. My best wishes to you all, Tony Game.

[Ed. 1. It should be understood that Tony does not attend committee meetings because he has a medical condition which prevents him from travelling. He runs BABBS 1 - the bulletin board.

2. No agenda for the relevant committee meeting was given to me and I had no idea that any discussion about me personally was to take place. It is, of course, entirely debateable as to whether the action referred to above will or will not help BASUG's finances in the long term.]

Moordown,
Bournemouth, Dorset

Dear Sir/Madam,

I wonder if anyone can help?

First of all, many thanks for the Applewriter patch which enables the embedding of 'null' characters (See Hardcore Oct 84 p.14).

I understand that there also exists a patch to prevent the justification of 'shortlines' (lines justified to a shorter length because of the inclusion of, for example, printer control commands - see inCider p100 Feb 85) - does anyone know how to achieve this ? I have written to the editor of the inCider article, but as yet have received no reply.

Many thanks.

Roger Deacon-Smith

Haywards Heath,
Sussex.

Dear Editor,

I have just read the review of MEMDOS in the June issue. I hope you find room to print this letter, it would be a shame if the views expressed by the reviewer were to deny to others the almost total freedom to do anything with a database that I enjoy. I would not still be using my old Apple II+ if it were not for this excellent system.

Most of his vices I see as virtues. As a very inadequate programmer I have been able to write my own database applications which, because they solve my problems, knock spots off the packages I've looked at costing £400 to £500.

A great strength is the direct use of Basic variables in masks and files, and it seems silly to complain about it, because a sloppy programmer might duplicate variables.

I agree that the full disc copy utility is a bit slow, and one or two others a bit odd, but most are first class.

His remarks about searching, ranges etc., make me believe he thought he was reviewing a database management package. The joy of MEMDOS is that the searching problem is solved in eight lines.

```
10 LET" O,1,F,Filename
20 INPUT "Price ?";X
30 PR 1
40 LET"N,1": IF WS THEN 70
50 IF Y > X THEN PRINT "PRODUCT
   "P$" PRICE "Y
60 GOTO 40
70 LET" C,$
80 PR O:END
```

The job is done, the list printed, no hassle. The time taken to write that and

include it in a menu is probably less than that taken to boot most database packages and answer the half dozen irrelevant questions.

MEMDOS needs to be lived with for a week or two to appreciate its power, it will coexist with DOS 3.3. to swap data, and the card does not affect the normal running of the Apple in any way.

I could go on.
Best wishes,

Jon Parry.

[Ed. Poor old Dave has taken a bit of a bashing over that review. Please appreciate that he did it with the best of intentions - to give an informed personal opinion designed to help others.]

Finchley,
London.

Dear Peter,

Please find enclosed an interesting cutting from last week's 'COMPUTING' (25.7.85) concerning a 16 bit coprocessor for the Apple.

[Said cutting refers to a board costing $250 which uses a 65C082/816 microprocessor. It is made by an Australian company called Ninth Shuttle and upgrades the Apple II to a full 16 bit computer. The chip is supposed to be pin-compatible with the standard 6502.]

Yours,

Dave Miller.

The Peak,
N.T., Hong Kong.

Dear Dr. Baron,

First, my thanks to R. Harris for the Instring routine, I have used it to increase the speed of the standard Microsoft .. Eliza program from about 30 seconds a response to around 3 seconds.

Thinking of programs like Eliza, does anyone know how the conversational programs by Brian Raffin Smith work ? I have seen a transcript for his MARTA program and it appears to be a considerable improvement over Eliza, yet Mr. Smith claims that the programs are not much bigger than Eliza.

On the subject of a possible list of BASUG members, would it not be possible to include a 'tick me' box on membership forms that could be used to indicate whether or not the member would be willing to have his name printed in Hardcore... I doubt whether many people would wish to keep the fact of their membership to BASUG a secret, we are not, after all, exactly a subversive orgranisation !

.....
Yours,

Raymond C. Lowe
[Sorry I had to cut you short Raymond]

East Tytherton,
Wilts.

Dear BASUG,

Thanks very much for the new member package. We are actually a one man (almost) business running everything on an Apple /// using Profile Hard Disc and a Ricoh Flowriter printer. We have various programmes, all SOS based and including PFS and Keystrokes, all loaded on Catalyst 2.0. Our interest in therefore almost entirely in general databases, spreadsheets, word processing etc. for professional use.

We joined BASUG hoping to find some help with our system as computer firms seem only interested in persuading us to scrap what we have carefully built up to buy the latest wizardry. Our interest is in gradually and surely building on what we already have and we certainly do not want to have to enter all our data again, which now exceeds 5 MB....

[The letter goes on to ask:
1. For Apple /// users to be put in touch.
2. They wish to find some way of using candidate career information on PFS files, running to one or two screens per PFS field, on Word Juggler or Applewriter /// to produce candidate career reports in a different format.
3. They wish to buy another 256K Apple /// with monitor and 5 or 10 MB Profile.]

....and we look forward to receiving any helpful information or programmes you have that are SOS based and not just in Apple II emulation.

Yours truly,

John Figes.

MEMBER'S CORNER

BASUG Ltd seems in a pretty poor way, if the report of the AGM and the accounts are anything to go by. This is not the first year that this has been the case and if you wonder why, then you are not alone. It seems that the blame for the present state of affairs must fall squarely on the committee who, whilst they make pious noises about cutting administration costs and working efficiently seem to have had little effect on the general trend. Most of the committee members have been in office now for some years and the only conclusion I can come to is that they have done a pretty poor job. Well that's a pretty serious statement and perhaps needs some justification, so here are a few points to ponder.

The decision to become a Limited Company was taken by the committee for reasons of self preservation (see Hardcore Vol3 No4), so that if BASUG collapsed they would not be personally liable. This decision, perhaps, had some merit if BASUG Ltd had been properly run, but instead the club has reaped no noticeable benefit, quite the reverse, now having an accountants bill of £1000 to pay to tell us we have no money. Ironically the fact that the Company continues to operate in its present financial state implies that the committee are personally liable in law.

Having taken the decision to become a Limited Company, they then proceed to breach company law in a number of respects not least in the presentation of accounts to the AGM. The accounts presented were handed to members as they entered the AGM, thus giving no opportunity for individuals to study them and denying the majority of members the opportunity of attending the AGM to question them if they so wished. As if this weren't enough the accounts presented were not for the current financial year just ended but for the year ending June 1984.

What can members of the club do about this. If there is one thing certain, it is that the club membership includes many talented and enthusiastic people from both the computer and business worlds. Why don't such people stand for the committee. Well, the fact is that most of them don't know how to, because the rules governing BASUG Ltd are not known to the majority of members. One can only assume that the committee don't want them to know and committee members now form an elite who make the rules and run the company and committee membership becomes by invitation only. Of course almost by accident we do get talented and capable people elected to the committee, but they rapidly find that they are in a minority and are forced out.

It seems, from what one can understand from the AGM and the various statements from time to time in Hardcore, that there are going to no meetings other than the AGM, no workshops, no software catalog (unless you pay for it), no technical library (if there ever was one) and no representation at shows other that the Apple annual show. And what of The Force, the committee's pride and joy. Well it's fallen far short of it's promise, the members who joined have all the benefits of Telecom Gold but what have BASUG contributed. Very little I'm afraid. The latest innovation of our own newsfile to be updated every week or two has stayed with it's original content at the time of writing for a period of 10 weeks and the poorly arranged PRPOST is almost static.

It makes one wonder what a member can expect from BASUG and perhaps the Chairman could make a clear statement in the next Hardcore of exactly what the club intends to provide for a member in return for his annual subscription. It would also be of interest to see a statement of how the Company stands for the year ending 30th June 1985, in anticipation of the formal accounts, since the books for that period are now available. Hopefully, such a statement would show both the detailed income and expenditure in a manner which can be understood by the average member.

Will this article be published?. That's a decision for the Editor of Hardcore who has the editorial freedom to publish whatever he considers merits a place in the magazine. Well that freedom will be no more, the committee has abolished the post of Editor and taken control of Hardcore, as from this issue so write by all means but if your views are like mine don't expect to be published.

Well there it is, one members view of BASUG Ltd. I don't expect all members to agree with the views expressed and least of all do I expect the committee to agree. If you still don't know where I stand well

I'm for the club and the members and against the committee with no desire to be other than a member of a thriving and active club for one of the best computers on the market.

CAPRICORN

GROUPS

Diary has been omitted from this issue, but please note that meetings are as follows:
Herts Group. First Tuesday of the month - 8 pm.
Birmingham Group. Second Friday of the month - 8 pm.
Croydon Group. Third Monday of the month - 7.30 pm.
Hants & Berks Group. Second Monday of the month - 7.30 pm.
Essex Group. First and third Wednesdays of the month - 8 pm.
Central London Group. First Thursday of the month - 6 pm.
Harrogate Group. Third Wednesday of the month - 7.30. pm.

London Group-Special Notice

A meeting has been arranged for Saturday 12th October 1985 in room 97 at GLC Headquarters where Yvan Zaneboni will present an 'In Depth Study of 6502 Machine Code Programming'. It is hoped that all members attending will come away with a greater understanding of the subject and some working routines. If possible bring a machine with you. The course will run from 10am to 5pm with a break for lunch and a modest charge (maximum £5) depending on numbers will be made to cover costs and a contribution to BASUG. Please advise Chris Williams on [illegible] in advance if you intend to come.

Herts and Beds Group.

1st October - Computer Music, DS3 on the Apple II, etc.
5th November - Bob Sather of Dark Star, Snapshot, Shuttle, Copy-Kit etc.
3rd December - Books and Magazines

PRIZE WINNERS.

Vol 5(4):- Box of disks-G. E. Randall. £5 each to Shmuel Brown (letter) & Dr. Charles Sheppard (tip).
Vol 5(5):- Box of disks-Howard Freeman. £5 each to Roger Deacon Smith (letter) & Roger Harris (tips).

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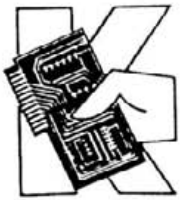

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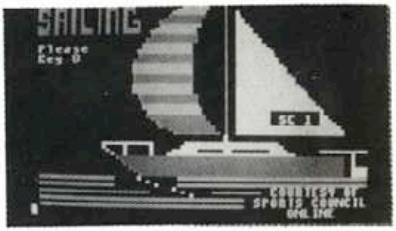

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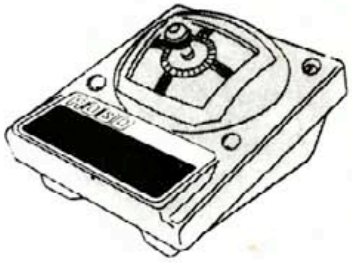

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