hard core

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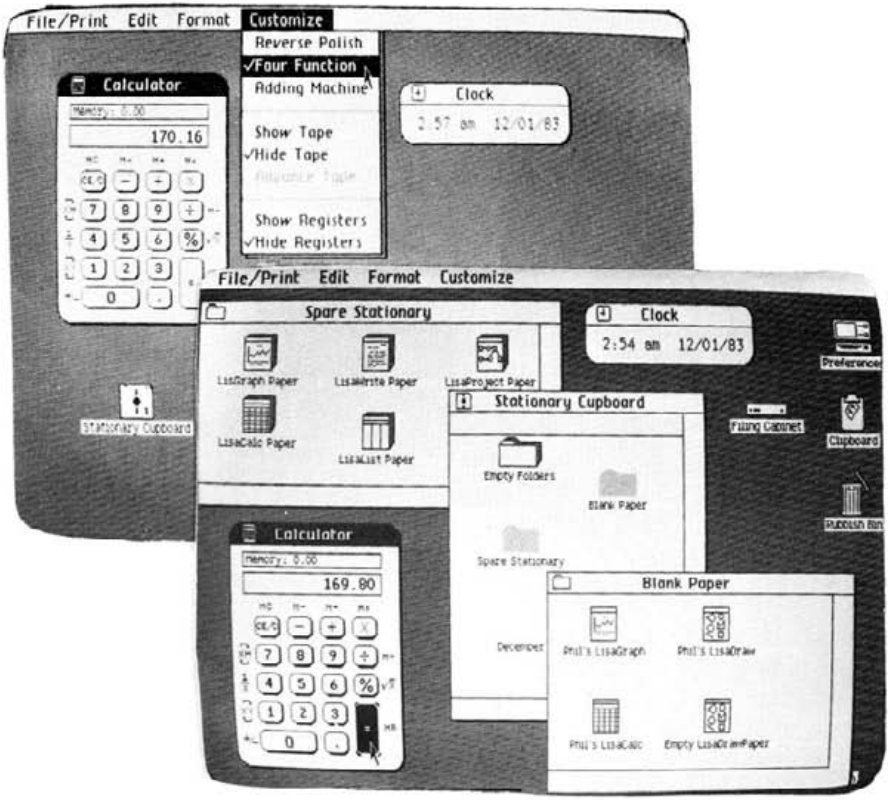

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INTERNATIONAL APPLE CORE

This month's cover comes not from Norah Arnold but from Apple itself. In case you cannot decipher it, these are two photographs taken from the screen showing Lisa at work. This is what the menu page of the future will look like.

MEMBER OF THE
INTERNATIONAL APPLE CORE

Editorial

by Tony Williams

In this issue, as ofttimes before, the Hard Core editorial is where the BASUG committee eats humble pie. Today we are apologising to all of you who have not had a satisfactory response to your letters and queries. The fact is, we are swamped more than ever by a tremendous flood of mail of all kinds, members seeking advice, members with problems etc. John Sharp, for his sins, tries his best to offer a personalised advice service, because so often your problems are highly particular and individual and do not really warrant publication in Hard Core. Sometimes he doesn't make it. There are one or two things that you can do to improve your chances of a reply. First include a stamped self-addressed envelope for the reply. This does wonders for a quick turnaround - a reply which can be dashed off in a minute, may be. If more effort is required your letter could be put to the bottom of the pile. Things shouldn't work that way but they often do. Another thing you can do to improve your chances of success is to go along to one of the local meetings (if there isn't one in your area, start one, write to our 'Lonely Apples' column). There you should bottonhole everyone in sight and hang in there until you have the answer.

We also have to apologise for the hiatus in supplies of Akkutrak disks. It did seem for a time that we were going to have to find a new supplier, but the glitch has mercifully been ironed out now, we trust.

Your chairman has referred elsewhere to the organisational changes affecting BASUG. For my part, I would like to put to our members the question "Whither Hard Core?" With the perceptible improvement in the quality of Windfall this is a question we must always be asking. In a letter to the editor, Hugh Dobbs regrets the demise of the old Liverpool Software Gazette, and believes that Hard Core should have a more 'learned' content. I, as editor, have my own ideas about where 'learned' might begin and end, but I think it is up to the members to make their voice heard about the direction we should be moving in. Some disgruntled members are quite explicit in their belief that BASUG does no good whatsoever, that the magazine is empty of content - and that the software is not pointing to the contrary, but we need more, much more, and, what is more important, constructive suggestions.

As for the software library - your long-suffering librarian and his team have by dint of prodigious efforts (this column positively drips cliches) assembled the Software Library Book. For the first time BASUG has taken an organized look at the software, and tackled the job of producing a description, pocket evaluation or at least caption for each item on each disk. Instead of lurching about in the dark, guided only by the catalog listing, you now have a peg on which to hang your decision.

Illustration: Young Sean Dowie writes in (see Letters) wanting to know how to obtain more colours when using hires. With this book he would be able to see at once that Disk 21, the Best of C.S.L. Graphics, has a program called COLOR 21 and read "Demonstrates 21 colours on the hires screen. They are produced by plotting alternate rows of different colours. Only useful for background or large scale fill-in." Or else "HI-RES COLORS" (same disk): "Demonstrates the hires colours and allows some extra combinations by allowing input of different nos." This really ought to solve his problem. (Now his problem is to dip into his piggy bank for the £1 or whatever it costs, send it in to the Box Number, and say "As a Hard Core contributor I have a credit point. I claim Disk No 21! " Sean also contributed a games review which will be published a little later).

The congratulations of Hard Core go to John Rogers and crew for a major contribution to BASUG.

Stolen: Stolen:

(Vernon Quaintance has sent us a message using Prestel mailbox facility)

Stolen at the Sutton Computer Fair:
1 Apple Disk drive. Serial No. 560601.
If you come across it being offerred for sale please tell the police, or BASUG.

Long awaited developments

by Tony Williams and John Sharp

At the moment the news embargo was lifted at 1700 hours the computer press corps assembled in the Barbican Cinema did not surge out as one man to storm the phones and tell Britain the news of Apple. Presumably the story could wait for next day, next week or next month.
Your representatives Tony Williams and John Sharp were at the Apple press conference on January 19, and attended on your behalf the very assured presentation given by exceedingly well groomed Apple executives in neat grey suits, ties and shiny shoes. The presspersons present were treated to a slick one-two over-to-you launch complete with slides and moving picture shows. At the fifteen minute question session at the end Apple's chosen people were not subjected to a barrage of searching questions from the audience, who could hardly wait to get their hands on the machines themselves (or the C and T's and cucumber sandwiches).
The theme was Evolution and Revolution - evolution in the form of the Apple IIE new Apple printers, new disks for the Apple ///, and the banner of revolution waved by a lady called Lisa.

First we had many words about Apple's healthy corporate position, about the $584.1 millions made in fiscal 1982, the European slice of this being $100 millions, 35% of which is taken by the UK. It has now been officially pronounced that 750,000 Apple II's exist throughout the world and, as sales chief Keith Hall proudly boasted, the only conventional typewriter in the Apple UK's Hemel Hempstead headquarters is used as a doorstop. (This is not an idle boast - I can recall my astonishment on one visit to Apple under the old regime to see teams of typists using anything but Apples to handle office business).

Keith Hall is interested in the printers and RevE all right, but there was no mistaking his greater enthusiasm for Lisa. As he put it, "We (i.e. Apple) invented the personal computer in 1977", so they should know best. No bones were made about future emphasis. The breakdown of use so far has been like this:

Home	7%
Small business	46%
Office	18%
Education	11%
Scientific/Industrial	12%
Other	6%

The message is loud and clear: the office sector is the most underexploited and has been the object of most of the $38 million research and development money poured into RevE and Lisa.
The IIE is to take care of the home, education, personal and small business needs, the Apple /// is pointed at small businesses - but Lisa is set to capture the office expansion.

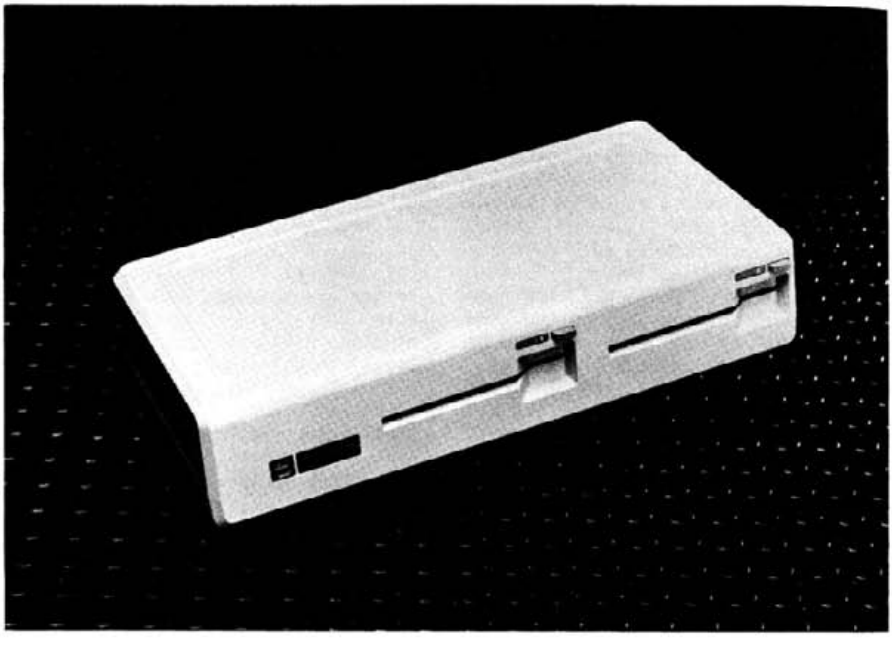
Apple is not interested in the £200 machine market but is staking all on upward trading

The Apple IIE

This is described as a 'low-entry cost' machine with a 'high degree of compatibility' with Apple II products (more of that later). It has 64k as standard, has a UK keyboard (in the UK!) upper and lower case as standard, has a self-test memory diagnostics feature and a reduced number of components on the small motherboard. The manual is much improved and aimed at 'low entry' beginners. Part of the manual is on disk. It has eight expansion slots, one of which is designed specifically for 80-column text cards. These cards are said to be low cost (£80 as standard and £180 for the Extended card giving an extra 64k.) It uses DOS 3.3, thank the Lord. The case design has been improved and port holes can be popped out in the back to make connection of accessories easier.

Apple /// Developments

The Apple /// gets new disk drives - called 'unifile' and, naturally, 'duofile', holding 850k each. These are very pretty with rounded edges to blend with your kitchen decor and have no door. You put the disk in and it is held in position automatically until the system is finished with it.



Duofile provides Apple III users with an additional mass storage alternative. It contains two of Apple's new 871 disk drives, with a capacity of 871, 424 bytes per disk drive, thus providing built-in backup.

Lisa

This represents an entirely new concept: the total integration of hardware and software. When you boot up this package, you can move into various modes without introducing software at all. This means, we are assured, that it is immensely user friendly, and that learning time is cut down to thirty minutes. Well, learning to get something going, not the whole system. A 'mouse' has been invented to take care of busy executives who have an antipathy toward using a keyboard for fear of being mistaken for a typist. It is also designed to replace the chrome-plated brass balls which used to click back and forward to while away the executive's hours of post-prandial creative thought. It is very, very good for showing to other visiting executives. It is very good for convincing DP managers that what they have been doing all these years has been a load of expensive rubbish and that boss now knows best. It is no good for executives who have papers on their desks, because you have to roll the mouse about on the surface in front of the machine. You would have to push the papers into a heap on one side where they would turn yellow and you would forget what they were for. Then you would have to make paper darts of them. This is all right though, because 'Lisa makes the fully electronic office a thing of the present' (well, let's say next year) and paper will be a thing of the past. Assuming that all the people who send you bills have Lisa too.

The software modes available in the integrated package include: LisaCalc, LisaWrite, LisaGraph, LisaDraw, LisaList (a kind of databasae template), LisaProject.

Questions from the floor elicited the response from Brian Reynolds that Lisa will be available in the 'fall' (correction, said Keith Hall, summer). The screen will be composed of 364 x 720 dots. The price will be around $12000 which will include a dot matrix printer

and hard disk. No steps have been taken to counter software piracy. Lisa will be capable of communicating with other Lisas, with Apples and various mainframes. An Applenet is to be set up. John Sharp's question about the proportion of Apple II software which will not run on the RevE elicited the quick response "2%". (Ah, but is it the vital two percent? It will be part of BASUG's job to discover that!).

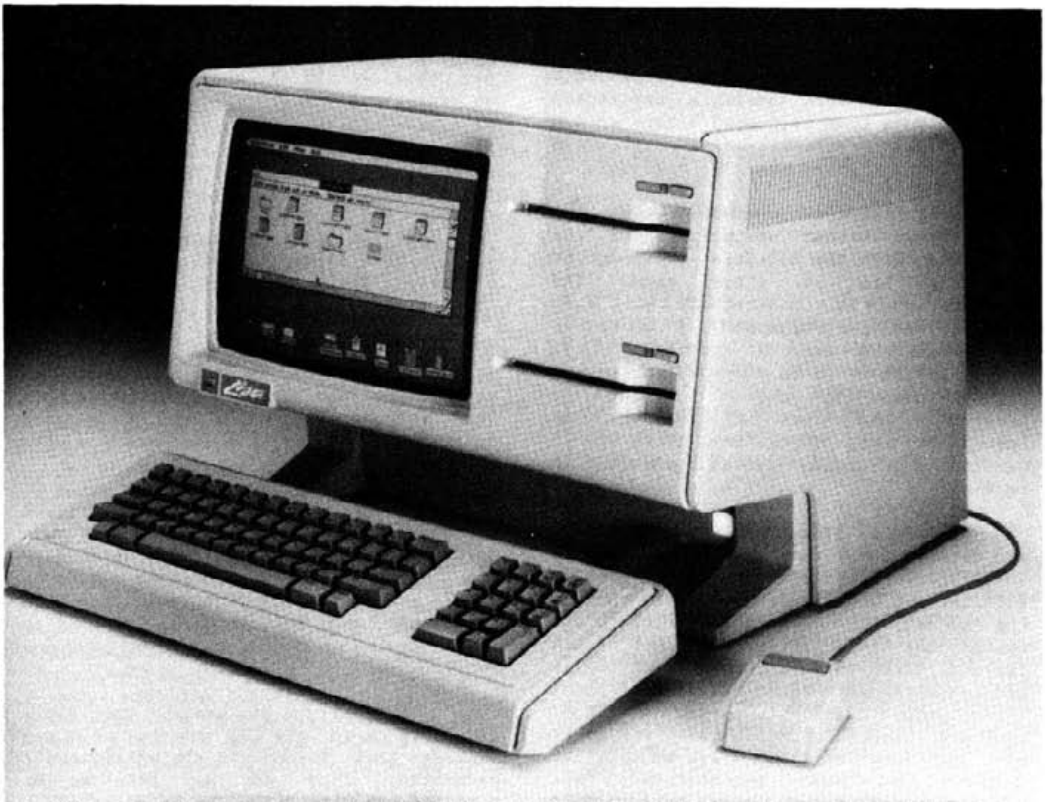
It would be presumptuous at this stage to attempt any kind of assessment of the various new products launched. Ideally Hard Core will try to assemble a team of evaluators who will tackle different aspects of the RevE. It is already fairly clear that Lisa will by definition and in terms of cost exclude many BASUG members whose interests are not centred on office applications. Since Lisa will only really be in use from late 1983 a Lisa SIG is not just around the corner.

But what of our initial impressions and reactions? I asked John Sharp to summarise for me his various jottings.

"First, I thought the Lisa screen too small to comfortably accommodate the amount of information it can hold, even though the resolution is extremely clear. The screen, contrary to rumour, is not A4 format, although documents and dumps can be obtained by printing sideways. Some resolution would be lost in this process.

"Despite the 1 megabyte of memory, it seemed to me that the system called on the hard disk rather a lot, and this inevitably slowed operations down. The delay was especially marked when switching from say LisaCalc to LisaWrite.

"When we hear that software and hardware are part of a fully integrated package we somehow assume that the software is in ROM. This may not be so. It could be, of course, that this is one of those



launches where not everything was quite ready and we were seeing a jury-rigged system. More time is needed before we can tell whether software access will be so slow.

"Accessing screen commands via the 'mouse' is rather reminiscent of the procedure with the BIT-Stik - although it needs a bit of elbow room. The presentation is undoubtedly a step forward. As for Lisacalc, I am not so sure that the step is giant-sized. I would expect it to be a great improvement on Visicalc to qualify for such an accolade. How does it compare, for instance, with Visi-On? This is a question I would like reviewers to tackle.

"Now for the IIE. Clearly you will have to relearn the keyboard. The space bar is a little short; this is no great problem but the two shift keys have moved up into the second row. The shift lock is now where the old shift was. How touch typists will take to this is anybody's guess, although when I raised this point I was told that this is the 'standard' keyboard layout. In which case, why is it not the same as Lisa, I ask myself. The RETURN has been repositioned, and dedicated delete and cursor keys as well as definable function keys introduced. All this is to the good. There is still no separate keypad.

"The 6502A processor has been used, apparently because there are more of them available than the 6502. This is not an upgrade and it still runs at 1MHz. You do not have to buy a language card, but two small 80 column cards are optional extras. Their screen display is impressive.

"Purchasers also have to buy an Apple Writer IIE. This is very similar to its predecessor and one or two commands have been introduced to allow emboldening on a daisywheel printer, for instance - a nice feature.

"As for the manual, this is a great improvement. It has certainly been made more user friendly. The DOS Master disk has been designed with beginners more in mind, and the Applesoft tutorial has been split off and put on disk. In order to avoid confusion beginners can now RUN and not BRUN FID and MUFFIN.

"One vital point. You can put your Apple II disks into the IIE and they will run (unless they belong to the mysterious 2 percent!). They do not have to be muffined or the like or reformatted in any way.

"What do I think about the prospects for the Apple II? Obviously at some time in the future production will cease and only the IIE will be available. (The IIE is in supply in quantity now - we are told). Apple assure us that they will continue to provide parts and support into the distant future, and with a user base worldwide of 750,000 it could hardly be otherwise. There seems no reason for you all to rush out and trade in your Apple IIs. The big question, I repeat, is whether your software will really run on the IIE.
At £845 Apple IIE is not going to take Apple into the supermarket class.

"Different versions with different keyboards are available in different countries in Europe.

"For the moment, I can only repeat that much, much hands-on experience is needed before we can arrive at even tentative conclusions about the impact of the "evolution" and "revolution".

Apple in the US is pushing hard one of its own publications called "The Apple II Monitor Peeled" - this is full of valuable information and is a kind of "Beneath Apple DOS" but for the monitor. For some reason Apple (UK) have decided that this will not sell in the UK and when questioned about this said, "We have not had much call for it." They wouldn't, of course, because they have not told people about it. Steve Holmes, Apple (UK) Product Manager tells me that they can be got over pretty quickly. So if you do want them, besiege Apple (UK) or your Apple dealer now. If you intend to get a RevE in the near future, all the information in the book has been incorporated in the Apple IIE Technical Manual (which has to be purchased separately)."

On the question of availability I called Steve Brooker of Pete and Pam Computers. Of the 40 IIEs ordered, 2 had been delivered (as of January 21.) None of the 80 column cards, new Apple printers or other bits and pieces had arrived and it seems that it will be sometime in March before the flow is smooth. Their biggest headache will be checking through all the peripheral cards to see if they really work with the IIE. Software is less of a problem, he estimates, but Pete and Pam are inundated with queries from customers on this point. It will take a lot of time to assemble the information, and he welcomes the suggestion that BASUG organize "software compatibility days."

Steve says that the Apple II plus has a lot of life left in it yet and his educated guess is that with the inevitable drop in price it will become even more popular. Offices with two or three machines already installed and operating will be disinclined to mix machines when expansion is needed. Production of the Apple II plus is likely to continue for far longer than envisaged because of sheer demand.

In an attempt to discover how a typical peripheral manufacturer is facing up to the IIE challenge I spoke to Gordon Beckmann of Elite Software. He tells me that their software back-up card, The Wild Card, will definitely not run on the IIE. The problem is apparently that a card placed in Slot 0 disables the Apple Roms via an inhibit line on the bus. This feature is used by the Wild Card, among others. On the IIE, however, the line disables the ROMs and the RAMs. Undesirable. The fix is a simple matter, but it does require redesigning the board - which will mean a hiccup of about nine weeks.

Lisa, by the way, is an acronym for Local Integrated Software Architecture.

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Brain Poulton - [illegible]

FARMPLAN Computer Systems of Ross-on-Wye has a number of printers and printer cards surplus to requirements for sale: These include Silentype printers and cards, Centronics, Paper Tiger 40 and 54, Anadex DP8000 and DP9000. For further details contact Des Auld at Farmplan's Northern Hardware Division: 288 High St, Northallerton, N. Yorks. (Tel. 069 779 235)

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& INPUT

(Inputting from the Public at Large)

by Graham Randall

INTRODUCTION

Writing software for general use puts a much heavier burden upon the programmer. The program must apply stringent checks at every stage to ensure that the responses typed in at the keyboard are within the required range. Program statements of the form

```
100 INPUT "PLEASE ENTER YOUR AGE IN YEARS"; AG$
```

are really not adequate in collecting responses where the user may or may not be familiar with a QWERTY keyboard. Accidentally (or deliberately) hitting the CTRL key during the input can be disastrous, with screen formats ruined or the program crashing with CTRL C for instance. In addition, the standard INPUT statement can not handle the comma, colon, semi-colon and quotation mark.

The Input Anything routine published by Ian Trackman (Hardcore Vol 1 No 1 and updated December 1981) has overcome these last problems but the approach has been to widen the INPUT statement to accept all keyboard codes.

What was needed was an INPUT statement that could be used with different criteria depending upon the required response. This article describes a solution to this problem so that a statement in the form

```
100 & INPUT <Field Type>, <Field Length>, A$
```

can be used to pick up responses.

FIELD TYPES

Nine types of fields have been identified as being of general use although individual readers may well wish to alter some of these types or add new types to suit their own particular applications.

The input types available are:

TYPE	DESCRIPTION	ALLOWED RANGE
0	(Any)	Chr$(0) - Chr$(255)
1	Alpha	Chr$(32)- Chr$(95) Exc quote and 0-9
2	Alphanumeric	Chr$(32)- Chr$(95) Exc quote
3	Date	0-9 and "/"
4	Any number	0-9 "-" and "."
5	Positive Number	0-9 and "."
6	Money	0-9 "-" and "." (2 dec places max)
7	Positive Integer	0-9 only
8	A-Z only	Chr$(65) - Chr$(90)

The quotation symbol was removed from types 1 and 2 as it can present problems in disc I/O transfers

Expressions can be used in the &INPUT statement for the field type, but types less than 0 or greater than 7 give "ILLEGAL QUANTITY" errors. Type 0 accepts any keyboard input (except the quotation) and was included for completeness.

FIELD LENGTH

The field length can be an expression in the range 0 to 255 inclusive. Values outside this range give the "ILLEGAL QUANTITY" error. When type 3 (Date) is specified, the field length is automatically set to 8 to accept input in the form DD/MM/YY (e.g. 07/11/82)

STRING VARIABLE

The string variable does not need to be defined before entry to the &INPUT routine and it can be either a simple string variable (e.g. A$) or an array string variable (e.g. AR$(3)).

A string variable must be specified in the &INPUT statement even if one of the numeric types is specified. Using another type of variable gives the "SYNTAX ERROR" message.

Note that the optional string within the INPUT statement is not supported, and only one string variable can be collected by one &INPUT (See Applesoft Reference Manual P66-67). Thus

```
100 &INPUT "YES/NO ?";8,1,IN$      and

100 &INPUT 8,1,IN$,A$
```

are not permitted

```
SOURCE FILE: INN.TEXT
0000:           1 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
0000:           2 xx
0000:           3 xx  & INPUT TYP,FL,IN$
0000:           4 xx
0000:           5 xx  C.E.RANDALL
0000:           6 xx  NOVEMBER 1982
0000:           7 xx
0000:           8 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
0000:           9 xx  LISTING 1
0000:          10 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
0000:          11 xx
0000:          12 xx
0000:          13 xx
0019:          14 RANGEL  EQU  $19       ;OK LO LIMIT
001A:          15 RANGEH  EQU  $1A       ;OK HI LIMIT+1
001B:          16 FL      EQU  $1B       ;FIELD LENGTH
001E:          17 TYP     EQU  $1E       ;INPUT TYP
001F:          18 CNTR    EQU  $1F       ;GP COUNTER
0024:          19 CH      EQU  $24       ;CURSOR POSN
0028:          20 BASL    EQU  $28       ;SCREEN ADDR
0050:          21 LINNUM  EQU  $50       ;GP REGISTER
006F:          22 FRETOP  EQU  $6F       ;END OF $ AREA
0083:          23 VARPNT  EQU  $83       ;PTR TO LAST VAR VALUE
0200:          24 BUF     EQU  $200      ;INPUT BUFFER
03F5:          25 AMPV    EQU  $3F5      ;& JMP VECTOR
D412:          26 ERROR   EQU  $D412     ;ERR HANDLER
DD67:          27 FRNNUM  EQU  $DD67     ;EVAL FORMULA
DD6C:          28 CHKSTR  EQU  $DD6C     ;CHECK IF STRING
DEBE:          29 CHKCOM  EQU  $DEBE     ;CHECK IF COMMA
DEC0:          30 SYNCHR  EQU  $DEC0     ;SYNTAX CHAR CHECK
DFE3:          31 PTRGET  EQU  $DFE3     ;GET NEXT VAR
E452:          32 GETSPA  EQU  $E452     ;MAKE SPACE FOR STRING
E5E2:          33 MOVSTR  EQU  $E5E2     ;MOVE STRING
E6FB:          34 CONINT  EQU  $E6FB     ;CONVERT TO 1 BYTE
F28C:          35 RSHM    EQU  $F28C     ;RESET HIMEM
FD0C:          36 RDKEY   EQU  $FD0C     ;READ KEYBOARD
FDED:          37 COUT    EQU  $FDED     ;PRINT CHAR
FF3A:          38 BELL    EQU  $FF3A     ;PRINT BELL
0000:          39 xx
0000:          40 xx
----- NEXT OBJECT FILE NAME IS INN
94D2:          41         ORG  $94D2
94D2:          42         MSB  ON
94D2:          43 xx
94D2:          44 xx
94D2:A2 02     45 INN1    LDX  #$02      ;SET & VECTOR
94D4:BD E2 94  46 INN2    LDA  AMPJ,X
94D7:9D F5 03  47         STA  AMPV,X
94DA:95 4F     48         STA  LINNUM-1,X
94DC:CA        49         DEX
94DD:10 F5     50         BPL  INN2
94DF:4C 8C F2  51         JMP  RSHM
94E2:4C E5 94  52 AMPJ    JMP  INN3      ;&JMP
94E5:          53 xx
94E5:          54 xx
94E5:          55 xx  INPUTTER STARTS HERE
94E5:          56 xx
94E5:          57 xx
94E5:A9 84     58 INN3    LDA  #$84      ;"INPUT" CODE
94E7:20 C0 DE  59         JSR  SYNCHR
94EA:20 67 DD  60         JSR  FRNNUM    ;GET TYP
94ED:20 FB E6  61         JSR  CONINT    ;1 BYTE INT
94F0:E0 09     62         CPX  #$09      ;TYP 0-8 ONLY
94F2:30 05     63         BMI  IN2
94F4:A2 35     64         LDX  #$35      ;ILLEGAL QTY ERR
94F6:4C 12 D4  65         JMP  ERROR
94F9:86 1E     66 IN2     STX  TYP
94FB:20 BE DE  67         JSR  CHKCOM    ;COMMA
94FE:20 67 DD  68         JSR  FRNNUM    ;GET FL
9501:20 FB E6  69         JSR  CONINT
9504:86 1B     70         STX  FL
9506:20 BE DE  71         JSR  CHKCOM    ;COMMA
9509:20 E3 DF  72         JSR  PTRGET    ;GET $ ADDR
950C:20 6C DD  73         JSR  CHKSTR    ;CHECK IF STRING
950F:A9 FF     74         LDA  #$FF      ;INITIALISE
9511:85 1F     75         STA  CNTR      ;"." FLAG TO -1
9513:A2 02     76         LDX  #$02      ;2 TABLE ENTRIES
9515:18        77         CLC
9516:A5 1E     78         LDA  TYP       ;GET TYP
9518:2A        79         ROL  A         ;MULT BY 2
9519:A8        80         TAY            ;AS OFFSET
951A:B9 ED 95  81 LOAD    LDA  TABLE+1,Y
951D:95 18     82         STA  RANGEL-1,X
951F:88        83         DEY
9520:CA        84         DEX
9521:D0 F7     85         BNE  LOAD
9523:C0 04     86         CPY  #$04      ;DATE ?
9525:D0 04     87         BNE  LOOP
9527:A9 08     88         LDA  #$08      ;YES
9529:85 1B     89         STA  FL        ;FL=8
952B:          90 xx
952B:          91 xx
952B:          92 xx MAIN INPUT LOOP
952B:          93 xx
952B:          94 xx
952B:20 0C FD  95 LOOP    JSR  RDKEY
952E:C9 88     96         CMP  #$88      ;BS
9530:D0 14     97         BNE  NOBS
9532:E0 00     98         CPX  #$00      ;1ST CHAR?
9534:F0 28     99         BEQ  SKIP      ;TO NOGO
9536:20 ED FD 100         JSR  COUT
9539:CA       101         DEX
953A:C6 1F    102         DEC  CNTR      ;DEC COUNT
953C:A4 1F    103         LDY  CNTR
953E:C0 FF    104         CPY  #$FF      ;LESS THAN -1 ?
9540:10 E9    105         BPL  LOOP
9542:E6 1F    106         INC  CNTR      ;YES, RESET
9544:30 E5    107         BMI  LOOP      ;ALWAYS
9546:C9 8D    108 NOBS    CMP  #$8D      ;CR ?
9548:F0 73    109         BEQ  EXIT
954A:C9 9B    110         CMP  #$9B      ;ESC ?
954C:F0 6F    111         BEQ  EXIT
954E:E4 1B    112         CPX  FL        ;FULL UP?
9550:F0 65    113         BEQ  NOGO
9552:C9 95    114         CMP  #$95      ;->
9554:D0 06    115         BNE  NOCU
9556:A4 24    116         LDY  CH        ;PICK UP FROM
9558:B1 28    117         LDA  (BASL),Y  ;SCREEN
955A:D0 3C    118         BNE  OK        ;ALWAYS
955C:C9 A2    119 NOCU    CMP  #'"'      ;QUOTE?
955E:F0 57    120 SKIP    BEQ  NOGO
9560:A4 1E    121         LDY  TYP
9562:C0 01    122         CPY  #$01      ;TYP 1 ?
9564:D0 08    123         BNE  NOT1
```

```
9566:C9 B0      124          CMP  #'0'      ;REMOVE
9568:30 04      125          BMI  NOT1      ;0 TO 9
956A:C9 BA      126          CMP  #':'      ;IN TYP 1
956C:30 49      127          BMI  NOGO
956E:C5 1A      128 NOT1     CMP  RANGEH    ;IN RANGE?
9570:10 45      129          BPL  NOGO
9572:C5 19      130          CMP  RANGEL
9574:10 22      131          BPL  OK
9576:C0 04      132          CPY  #$04      ;ONLY "-"
9578:30 3D      133          BMI  NOGO      ;OR  "."
957A:C0 07      134          CPY  #$07      ;NOW FOR
957C:10 39      135          BPL  NOGO      ;TYP 4,5 OR 6
957E:C9 AE      136          CMP  #'.'      ;DEC POINT?
9580:D0 0A      137          BNE  DASH
9582:A4 1F      138          LDY  CNTR
9584:C0 FF      139          CPY  #$FF      ;1ST "."?
9586:D0 2F      140          BNE  NOGO
9588:E6 1F      141          INC  CNTR      ;YES, SET FLAG
958A:F0 1E      142          BEQ  OK1       ;ALWAYS
958C:C9 AD      143 DASH     CMP  #'-'      ;MINUS SIGN?
958E:D0 27      144          BNE  NOGO
9590:E0 00      145          CPX  #$00      ;YES BUT
9592:D0 23      146          BNE  NOGO      ;1ST CHAR ONLY
9594:C0 05      147          CPY  #$05      ;BUT NOT IF
9596:F0 1F      148          BEQ  NOGO      ;TYP=5

9598:A4 1E      149 OK       LDY  TYP       ;FINALLY
959A:C0 06      150          CPY  #$06      ;IF TYP 6
959C:D0 0C      151          BNE  OK1
959E:A4 1F      152          LDY  CNTR      ;CHECK "." FLAG
95A0:C0 00      153          CPY  #$00      ;& IF SET
95A2:30 06      154          BMI  OK1
95A4:C0 02      155          CPY  #$02      ;MAX OF TWO
95A6:F0 0F      156          BEQ  NOGO      ;DIGITS
95A8:E6 1F      157          INC  CNTR      ;INC COUNT
95AA:48         158 OK1      PHA            ;SAVE ON STACK
95AB:29 7F      159          AND  #$7F      ;CLR TOP BIT
95AD:9D 00 02   160          STA  BUF,X     ;ADD TO BUFFER
95B0:68         161          PLA            ;RECALL AND
95B1:20 ED FD   162          JSR  COUT      ;AND DISPLAY
95B4:E8         163          INX
95B5:D0 03      164          BNE  GOBACK    ;ALWAYS
95B7:20 3A FF   165 NOGO     JSR  BELL
95BA:4C 2B 95   166 GOBACK   JMP  LOOP
95BD:           167 xx
95BD:           168 xx
95BD:           169 xx  INPUT COMPLETED
95BD:           170 xx
95BD:           171 xx
95BD:85 1F      172 EXIT     STA  CNTR      ;SAVE LAST CHAR
95BF:8A         173          TXA            ;PUT LEN INTO A
95C0:48         174          PHA            ;AND IN STACK
95C1:20 52 E4   175          JSR  GETSPA    ;MAKE SPACE
95C4:A2 00      176          LDX  #<BUF     ;LO BUF ADDR
95C6:A0 02      177          LDY  #>BUF     ;HI BUF ADDR
95C8:20 E2 E5   178          JSR  MOVSTR    ;MOVE STRING
95CB:A0 02      179          LDY  #$02
95CD:B9 6E 00   180 STORE    LDA  FRETOP-1,Y
95D0:91 83      181          STA  (VARPNT),Y
95D2:88         182          DEY
95D3:D0 F8      183          BNE  STORE     ;ALL SAVED?
95D5:68         184          PLA            ;GET $ LEN
95D6:91 83      185          STA  (VARPNT),Y ;& STORE IT
95D8:           186 xx

95D8:           187 xx
95D8:           188 xx
95D8:AA         189          TAX
95D9:A5 1F      190 BLANK    LDA  CNTR      ;LAST KEY
95DB:C9 9B      191          CMP  #$9B      ;=ESC ?
95DD:F0 0C      192          BEQ  RET
95DF:E4 1B      193 BLANK1   CPX  FL        ;NO-BLANK OUT
95E1:F0 08      194          BEQ  RET       ;REST OF FIELD
95E3:A9 A0      195          LDA  #$A0      ;SPACE
95E5:20 ED FD   196          JSR  COUT
95E8:E8         197          INX
95E9:D0 F4      198          BNE  BLANK1    ;ALWAYS


95EB:60         199 RET      RTS
95EC:           200 xx
95EC:           201 xx
95EC:           202 xx
95EC:           203 xx
95EC:           204 xx  TYPE TABLE
95EC:           205 xx
95EC:           206 xx
95EC:80 FF      207 TABLE    DFB  $80,$FF   ;(ANY)
95EE:A0 E0      208          DFB  $A0,$E0   ;ALPHA
95F0:A0 E0      209          DFB  $A0,$E0   ;ALPHA/N
95F2:AF BA      210          DFB  $AF,$BA   ;DATE
95F4:B0 BA      211          DFB  $B0,$BA   ;ANY NUM
95F6:B0 BA      212          DFB  $B0,$BA   ;+VE NUM
95F8:B0 BA      213          DFB  $B0,$BA   ;MONEY
95FA:B0 BA      214          DFB  $B0,$BA   ;+VE INT
95FC:C1 DB      215          DFB  $C1,$DB   ;A-Z ONLY

95FE:           216 xx
95FE:           217 xx
95FE:           218 xx

xxx SUCCESSFUL ASSEMBLY: NO ERRORS
```

The program resides just below the DOS area and starts by setting up the Ampersand jump vector and resetting HIMEM.

The &INPUT statement is then scanned to extract the type, field length and string variable. With the type found, the acceptable range (RANCEL to RANGEH-1) is then stored in Page 0 locations $1B and $1C with the relevant values extracted from the table.

The main INPUT loop carries out all the necessary checks so that each keypress is either accepted and added to the input buffer at $200, or is rejected and the bell sounded. Note the the backspace and retype keys (left and right arrow) are also supported.

The program exits when RETURN or ESC is pressed. This last character is copied into location $1D so that ESCape can be easily tested for and the input ignored. The string in the input buffer is moved

```
  19 RANGEL    03F5 AMPV      28 BASL     FF3A BELL
  1F CNTR      950F BLANK1    0200 BUF    DEBE CHKCOM
  6F FRETOP    DD6C CHKSTR      1F CNTR   E6FB CONINT
?94D2 INN1     958C DASH      D412 ERROR  958D EXIT
94F9 IN2         6F FRETOP    DD67 FRMNUM E452 GETSPA
955C NOCU      94F9 IN2       ?94D2 INN1  9404 INN2
9598 OK          50 LINNUM    951A LOAD   952B LOOP
958D EXIT      9546 NOBS      955C NOCU   9587 NOGO
95EB RET       95AA OK1       9598 OK     DFE3 PTRGET
DD6C CHKSTR      19 RANGEL    FD0C RDKEY  95EB RET
E452 GETSPA    955E SKIP      95CD STORE  DEC0 SYNCHR
FD0C RDKEY       1E TYP         83 VARPNT

  94E2 AMPJ      1A RANGEH      1B FL       1E TYP
?95D9 BLANK      24 CH          28 BASL       50 LINNUM
  24 CH          83 VARPNT    0200 BUF    03F5 AMPV
FDED COUT        94D4 INN2    94E2 AMPJ   94E5 INN3
  1B FL        951A LOAD      952B LOOP   9546 NOBS
958A GOBACK    955E SKIP      956E NOT1   958C DASH
94E5 INN3      95AA OK1       9587 NOGO   958A GOBACK
E5E2 MOVSTR    95CD STORE     ?95D9 BLANK 95DF BLANK1
956E NOT1      95EC TABLE     D412 ERROR  DD67 FRMNUM
  1A RANGEH    DEBE CHKCOM    DEC0 SYNCHR DFE3 PTRGET
F28C RSHM      E5E2 MOVSTR    E6FB CONINT F28C RSHM
95EC TABLE     FDED COUT      FF3A BELL
```

to the string storage area at the top of RAM and the rest of the field on the screen is filled with blanks.

EXAMPLE A

Referring again to the simple example shown at the beginning of this article, the program line becomes:

```
100  PRINT "PLEASE ENTER YOUR AGE IN YEARS
";: &INPUT 7,2,AG$
```

Type 7 is selected, as the age must be a positive whole number, and the field length is 2 allowing ages in the range 0 to 99.

EXAMPLE B

```
100  REM  &INPUT
110  REM  EXAMPLE B


120  PRINT  CHR$ (4);"BRUN INN"
130  DIM IN(5,1),IN$(5)
140  DATA  2,20,1,20,2,20,7,4,6,6
150  FOR I = 1 TO 5: FOR J = 0 TO 1
160  READ IN(I,J): NEXT J,I
170  TEXT : HOME : POKE 34,1
180  INVERSE : PRINT "     STOCK  RECORD  EXAMPLE      ": NORMAL
190  FOR I = 1 TO 20:UL$ = UL$ +  CHR$ (95): NEXT I
200  REM
```

```
       MAIN LOOP
210  HOME : VTAB 6
220  PRINT "  ITEM TYPE  = "; LEFT$ (UL$,IN(1,1)): PRINT
230  PRINT "  SUPPLIERS  = "; LEFT$ (UL$,IN(2,1)): PRINT
240  PRINT "    ADDRESS  = "; LEFT$ (UL$,IN(3,1)): PRINT
250  PRINT "STOCK LEVEL  = "; LEFT$ (UL$,IN(4,1)): PRINT
260  PRINT "  UNIT COST  = "; LEFT$ (UL$,IN(5,1))
270  VTAB 19: PRINT "ENTER THE DATA...  AND PRESS 'RETURN'": PRINT
290  PRINT "BACKSPACE 1 CHAR......PRESS '<-'"
292  PRINT "  RETYPE  1 CHAR......PRESS '->'"
294  PRINT "TO SKIP BACK.........PRESS 'ESC'"
300  REM

       GET RESPONSES


310  FOR I = 1 TO 5
315  IF I < 1 THEN I = 5: GOTO 340
318  VTAB I * 2 + 4: HTAB 16
320  &  INPUT IN(I,0),IN(I,1),IN$(I)
330  IF  PEEK (31) = 155 THEN I = I - 1: GOTO 315
340  NEXT I
350  VTAB 19: HTAB 1: CALL  - 958: PRINT "ANOTHER RECORD? (Y/N) ";
360  &  INPUT 8,1,A$
370  IF A$ = "Y" THEN 200
380  IF A$ < > "N" THEN 350
390  END
```

This example shows how easy it is to set up a screen format and use the &INPUT to check the responses. The array IN() is used to specify the various field types and lengths while the string array IN$() is used to hold the typed responses.
The ESC key is detected in the main &INPUT loop and is used to backtrack through the responses if found. This allows an earlier response to be overwritten or edited using the retype (right arrow) key.

MEMBERSHIPS!

Have you rejoined? Remember: Hard Core is a club magazine and its existence depends on your subscriptions. Please don't forget to mail off your cheque for £12.50 now!

MULTIPLE COPIES FROM APPLEWRITER 1

by MICHAEL CLARK

In HARDCORE, October 1982, Roger Mather asks for a way of modifying APPLEWRITER 1 to enable it to print a number of copies of a single original without requiring the operator to press C for each copy. Here is a patch I have been using for some time to do this. If you type C after printing the first copy, up comes the query 'How many copies?'. If you type in any response from 1 to 99 followed by the usual carriage return, the program will proceed to print the desired number of copies; any other response takes you back to the menu. Printing can be aborted by pressing RESET, which again returns you to the menu. (This is already built into the program).

The patch is quite straightforward and may be entered in the following way:-

1. BLOAD PRINTER.
2. From the monitor enter two patches:

(i) *AAA:43 18 (replaces 0E DC)

(ii) the following 139 bytes from $1843 to $18CF

CONTINUED ON PAGE 17

SALE
BOOKS BOOKS BOOKS

We have a number of small quantities of books as end of lines, which we would like to give BASUG members the opportunity of having at bargin prices. There are at least 10 of each left.

PROGRAMMING THE APPLE is a thick book on all aspects of programming, with many listings which are explained in detail, as well as a simple illustration of machine code, and hints and tips on memory organisation. Normally £16.50.
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MICROSOURCE 1 Branch Road, Park Street

Stop Press

We have just had time to squeeze in a report on the File Handling Course and BASUG workshop in Milton Keynes on Saturday 29 January, followed by another workshop the next day. The File Handling course given by Nik Spicer was attended by some fifteen people, for the most part coming from neighbouring counties. The general verdict was that the course was successful - certainly by the end of the day participants were into some pretty involved stuff.

The workshop was attended by 150 people - but none of them ours. These were keen TRS-80 users (who were sharing the venue and costs with BASUG). The BASUG workshop was attended by - guess! One member. Mind you, he had a whale of a time trying out all the software on sight on a RevE on hand. Everything worked - VIDEX 80, RAMEX 128k card, Multiplan, Applewriter II (no, not the Applewriter IIE, but the old one. It uses ESC in the same old way, and simply does not access the IIE's extra features. The Global PLE, Zapple, Bill Budge and various graphics packages - all work. The new bits seem to be transparent when you use Apple II plus software. Software that needs the language card works too - the extra RAM operates like a language card in fact. So our solitary member had a good time and got through a lot. The Sunday workshop was three times as encouraging - three people came, all of whom personally recruited by Bob Raikes. This disappointing turn-out despite the publicity makes forward planning very difficult, and Bob Raikes has warned that he cannot afford the time for such ill-starred ventures much longer.

Lonely Apple Column

Apple Users Need Contacts:

The following addresses have been sent in by members seeking the company of fellow Apple users in their areas:

K. Evangelidis, [illegible]
(Wants to contact other members who have an interest in Technical Analysis of investments).

Dr Marr, [illegible]

```
:ASM
                    ****************************************
                    *                                      *
                    *       PATCH FOR PRINTER MODULE       *
                    *                                      *
                    *           IN APPLEWRITER 1           *
                    *                                      *
                    * to allow printing of multiple copies *
                    *                                      *
                    *   by Michael Clark, November 1982    *
                    *                                      *
                    *  DON'T FORGET TO PATCH *AAA:43 18    *
                    *         (replaces 0E DC)             *
                    *                                      *
                    ****************************************
                    *
                    *
                    CP        EQU  $DCE
                    COUT      =    $FDED
                    RDKEY     =    $FD0C
                    KEY       =    $C000
                    STROBE    =    $C010
                    COUT1     =    $FDF0
                              ORG  $1843
1843: 20 82 08                JSR  $882        ;is there a file in memory?
1846: B0 06                   BCS  MULTCOP     ;yes
1848: 20 64 12                JSR  $1264       ;no: print warning
184B: 4C 03 08                JMP  $803        ;and return to PRINT MENU
184E: A2 11         MULTCOP   LDX  #17
1850: BD 8B 18      LOOP0     LDA  CUE,X
1853: 20 ED FD                JSR  COUT
1856: CA                      DEX
1857: D0 F7                   BNE  LOOP0
1859: 20 0C FD                JSR  RDKEY
185C: C9 B1                   CMP  #"1         ;is first digit < 1?
185E: 90 17                   BLT  RTN2        ;yes - so return to menu
1860: 20 C2 18                JSR  CONV
1863: 8D 8A 18                STA  COPYNUM
1866: 20 0C FD                JSR  RDKEY
1869: C9 8D                   CMP  #$8D        ;carriage return?
186B: D0 2F                   BNE  TENS        ;branch if there's a second digit
186D: AD 00 C0      LOOP1     LDA  KEY
1870: C9 9B                   CMP  #$9B        ;escape key?
1872: D0 06                   BNE  CONT1       ;no - so continue
1874: 8D 10 C0      RTN1      STA  STROBE      ;yes - so clear keyboard strobe
1877: 4C 03 08      RTN2      JMP  $803        ;and return to MENU
187A: A0 01         CONT1     LDY  #1
187C: 84 19                   STY  $19
187E: 84 12                   STY  $12
1880: 20 CE 0D                JSR  CP          ;print next copy
1883: CE 8A 18                DEC  COPYNUM
1886: D0 E5                   BNE  LOOP1
1888: F0 EA                   BEQ  RTN1
                    COPYNUM   DS   1
188B: A0 BF D3
188E: C5 C9 D0
1891: CF C3 A0
1894: D9 CE C1
1897: CD A0 D7
```

```
189A: CF C8      54   CUE      ASC  " ?SEIPOC YNAM WOH" ;'HOW MANY COPIES? '
                  55   *                                ;backwards
189C: 20 C2 18 56   TENS     JSR  CONV
189F: AA       57            TAX
18A0: 20 0C FD 58            JSR  RDKEY
18A3: 20 F0 FD 59            JSR  COUT1
18A6: C9 8D    60            CMP  #$8D
18A8: D0 CA    61            BNE  RTN1
18AA: AD 8A 18 62            LDA  COPYNUM
18AD: 0A       63            ASL                ;double first digit
18AE: 8D 8A 18 64            STA  COPYNUM       ;save result
18B1: 0A       65            ASL                ;double again
18B2: 0A       66            ASL                ;and once more
18B3: 6D 8A 18 67            ADC  COPYNUM       ;(x 8 + x 2 =)x 10 (carry is clear
18B6: 8D 8A 18 68            STA  COPYNUM
18B9: 8A       69            TXA
18BA: 6D 8A 18 70            ADC  COPYNUM       ;add in units (carry still clear)
18BD: 8D 8A 18 71            STA  COPYNUM
18C0: 90 AB    72            BCC  LOOP1         ;always taken
                  73   *
                  74   *Subroutine to check for digits and convert to decimal
                  75   *
18C2: 20 F0 FD 76   CONV     JSR  COUT1
18C5: C9 B0    77            CMP  #"0
18C7: 90 AE    78            BLT  RTN2
18C9: C9 BA    79            CMP  #$BA
18CB: B0 AA    80            BGE  RTN2
18CD: 29 0F    81            AND  #%00001111 ;convert ASCII to decimal
18CF: 60       82            RTS

--END ASSEMBLY--

ERRORS: 0

141 BYTES

SYMBOL TABLE - ALPHABETICAL ORDER:

CONT1   =$187A    CONV    =$18C2    COPYNUM =$188A    COUT    =$FDED
COUT1   =$FDF0    CP      =$0DCE    CUE     =$188B    KEY     =$C000
LOOP0   =$1850    LOOP1   =$186D    MULTCOP =$184E    RDKEY   =$FD0C
RTN1    =$1874    RTN2    =$1877    STROBE  =$C010    TENS    =$189C

SYMBOL TABLE - NUMERICAL ORDER:

CP      =$0DCE    MULTCOP =$184E    LOOP0   =$1850    LOOP1   =$186D
RTN1    =$1874    RTN2    =$1877    CONT1   =$187A    COPYNUM =$188A
CUE     =$188B    TENS    =$189C    CONV    =$18C2    KEY     =$C000
STROBE  =$C010    RDKEY   =$FD0C    COUT    =$FDED    COUT1   =$FDF0
```

3. UNLOCK PRINTER.
BSAVE PRINTER, A$803, L$10CD
LOCK PRINTER

Swanley,Kent

Dear Tony,
In response to Roger Mather's letter in the October 'Hardcore' here is a suggested solution to the problem of producing multiple copies of a document.
After 'P' for 'Print' is chosen the user is asked 'HOW MANY COPIES (IN HEX, <FF)?'. There is no trapping of incorrect entries, and the input is in hex to use only monitor routines and to keep the extra code short. Unless non-perforated paper is being used it is likely that the user will want a 'new page' instruction at the end of the script.
If an 'escape' is attempted during printing it will need to be pressed repeatedly to reduce the counter to zero before printing will end.

BLOAD PRINTER, CALL-151

```
 803:4C 43 18
 A82:20 4A 18
 A95:4C 5B 18
1843:A9 00 85 FF 4C
1848:37 0A A5 FF F0 09 C6 FF
1850:A9 C3 8D 00 02 D0 03 20
1858:6F FD 60 20 58 FC A2 00
1860:BD 7E 18 E8 20 F0 FD E0
1868:1F D0 F5 20 6F FD A0 00
1870:A9 00 20 A7 FF A5 3E 85
1878:FF C6 FF 4C 6A 0B C8 CF
1880:D7 A0 CD C1 CE D9 A0 C3
1888:CF D0 C9 C5 D3 A0 A8 C9
1890:CE A0 C8 C5 D8 AC A0 BC
1898:C6 C6 A9 BF 8D

1843- 20 82 08 B0 06
1848- 20 64 12 4C 03 08 A2 11
1850- BD 8B 18 20 ED FD CA D0
1858- F7 20 0C FD C9 B1 90 17
1860- 20 C2 18 8D 8A 18 20 0C
1868- FD C9 8D D0 2F AD 00 C0
1870- C9 9B D0 06 8D 10 C0 4C
1878- 03 08 A0 01 84 19 84 12
1880- 20 CE 0D CE 8A 18 D0 E5
1888- F0 EA 01 A0 BF D3 C5 C9
1890- D0 CF C3 A0 D9 CE C1 CD
1898- A0 D7 CF C8 20 C2 18 AA
18A0- 20 0C FD 20 F0 FD C9 8D
18A8- D0 CA AD 8A 18 0A 8D 8A
18B0- 18 0A 0A 6D 8A 18 8D 8A
18B8- 18 8A 6D 8A 18 8D 8A 18
18C0- 90 AB 20 F0 FD C9 B0 90
18C8- AE C9 BA B0 AA 29 0F 60
```

BSAVE PRINTER,A$803,L$109A

```
1843-   A9 00      LDA   £$00
1845-   85 FF      STA   $FF
1847-   4C 37 0A   JMP   $0A37
```

This loads 00 into the counter, $FF.

```
184A-   A5 FF      LDA   $FF
184C-   F0 09      BEQ   $1857
184E-   C6 FF      DEC   $FF
1850-   A9 C3      LDA   £$C3
1852-   8D 00 02   STA   $0200
1855-   D0 03      BNE   $185A
1857-   20 6F FD   JSR   $FD6F
185A-   60         RTS
```

This checks whether $FF contains a number >0; if so it bypasses getting an instruction from the keyboard, and puts a 'C' in the buffer, to continue.

```
185B-   20 58 FC   JSR   $FC58
185E-   A2 00      LDX   £$00
1860-   BD 7E 18   LDA   $187E,X
1863-   E8        INX
1864-   20 F0 FD   JSR   $FDF0
1867-   E0 1F      CPX   £$1F
1869-   D0 F5      BNE   $1860
186B-   20 6F FD   JSR   $FD6F

186E-   A0 00      LDY   £$00
1870-   A9 00      LDA   £$00
1872-   20 A7 FF   JSR   $FFA7
1875-   A5 3E      LDA   $3E
1877-   85 FF      STA   $FF
1879-   C6 FF      DEC   $FF
187B-   4C 6A 0B   JMP   $0B6A
187E-   C8 CF D7   DFD   'HOW
....                    MANY COPIES
                        (IN HEX,
                        <FF)?'
```

If 'P' is chosen, this asks for the number of copies, puts the figure in $FF, decreases it by 1 for the first copy, and returns to the print routine.
Yours sincerely,

Ray Harris.

readers' letters

Leighton Buzzard

Dear Sir,
In the last issue of Hardcore, there was a letter from Andrew Beveridge about the problems of writing Assembler programs on a cassette based system. I had the same problem.
I was about to give up, having been told by my local dealer that it was impossible, when I came across Big Mac, an assembler produced by Call Apple. Although this was written for disk use, the documentation gives details of where different parts of the program are in memory, and also the Zero-page pointers to both the Source and Object files.
If a copy of Big Mac is obtained on disk, it can be written to tape by loading the program, and then resetting out. Enter the monitor using CALL-151 and then type 803.24FFW. This will write out the whole of the program to tape.
The program can then be read back into memory on a non-disk machine by typing 803.24FFR from the monitor.
The first part of the program handles all the disk functions, so once the program is in memory, do a C18G from the monitor. You will then be in the Big Mac editor. This functions normally.
When the program has been typed in and assembled, both the source and the Object files can be written to tape. Quit the Editor using the Q option, and the address and length of the Object file can be read. Make a note of these. Now hit Reset.
Look at bytes $E and $F in 0 page. These bytes give you (in reverse order) the end address of the Source file. To save the source file, enter the monitor and type 2500.(address in F,E)W. To save the object file, add the length of the file to the starting address, and write this to the tape.
One of the advantages of tape is that you can assemble larger files than DOS users, as you can use the space normally used by DOS.
I hope this is of some help.

Bob Raikes.

Waterford

Dear Tony
...With regard to Hard Core, I miss the Liverpool Software Gazette... In other words I would like to see more 'learned' stuff in addition to what is being published these days. I enclose the current version of my Apple Forth disk. It has one major bug: you MUST type EMPTY-BUFFERS before attempting any disk access. The WHERE word in the EDITOR package also needs rewriting and I have improvements for COPY and DECOMPILE under development. I will send you a revised version later. Use COPYA rather than FID as there are FORTH screens which do not appear in the catalog but which are marked in the VTOC as used.

Yours

Hugh Dobbs

(Ed. Many thanks for the FORTH disk, Hugh. It has gone into the capable hands of our Software Librarian.)

Guildford

Dear Mr Raikes,

I attended a "Starting Machine Code" course earlier on, given by Ian Trackman in London. I am writing to say that this was a really excellent introduction and it would have been jolly good value at ten times the cost (what an independent consultancy might reasonably have charged for the same material plus frills). My opinion is backed by over 20 years in and around the DP industry.
Can we have a follow-up course now, on, say, assembler programming for Apple Pascal users, to give an overview of editing, assembling and linking in this particular environment? I have in mind as potential attenders, people like myself who do a lot of Pascal programming but wish to tweak a few external routines to improve performance.

Yours sincerely,

Dr. H.C. Luxmore-Peake

Sunningdale

Dear Tony,

I opened my Hardcore envelope with the usual excitement and was delighted to see how well the Calendar has reproduced. Then I noticed that part of the listing had been omitted. I hope that not too many readers will be frustrated but the DATA lines 5010 - 5110 are in December

1981's Windfall. You have also left out lines:-
6000 PRINT:PRINT D$"PR£n":PRINT"Ctrl I 132N":PRINT CHR$(27);CHR$(20): REM Sets Centronics 737/739 to condensed printing.

6001 PRINT "Ctrl 120L":REM This sets the GRAPPLER CARD left margin 20 spaces in.

Lines 4010 and 4015 load up the two machine code graphics programs contained in the PRINTOGRAPHER.

I hope this makes matters clearer to our fellow members.

I was also interested to see what I thought was the answer to the problem that I have been having with Applewriter II but I can't seem to get the ESC Ctrl Q sequence to work in the Top Line command as you suggested. The Control 80N works fine. Any thoughts?

Yours sincerely,

Peter Trinder

(Ed. Peter, sorry about the calendar boo-boo. I can only blame the production department (me) for losing the bits while pasting up. Actually the listing didn't quite fit the pages available, so I trimmed a bit off. As for the wretched Apple Writer II problem. I can't get it to work now, but of course it did then, or at least once. I thought computers were not supposed to behave in an erratic way, but I'll be hanged if I can locate what I am doing wrong. The street talk is that you do it using the glossary, but that doesn't make a ha'porth of difference. I do hear tell that the Centronics 737 is fading fast. I'm not surprised.)

```
5000  DATA 31,JAN,28,FEB,31,MAR,3
0,APR,31,MAY,30,JUN,31,JUL,3
1,AUG,30,SEP,31,OCT,30,NOV,3
1,DEC
5010  DATA SUN,MON,TUE,WED,THU,FR
I,SAT
5020  DATA 32,48,48,48,48,48,32,4
8,32,32,32,32,32,48,48,32,32
,32,32,32,48,48,48,32,32,32,32,
32,48,32,48,48,48,48,48,32
5030  DATA  32,32,32,32,32,32,49,
32,49,32,32,32,32,49,49,49,4
9,49,49,49,49,32,32,32,32,32
,32,49,32,32,32,32,32,32,49
5040  DATA   32,50,32,32,32,32,50
,50,32,32,32,32,50,50,50,32,
32,32,50,32,50,50,32,32,50,3
2,32,50,32,50,50,32,32,32,50
```

```
5050  DATA 51,32,32,32,32,51,32,5
1,32,32,51,32,32,51,51,32,51
,51,32,32,51,51,51,32,51,32,
32,51,51,32,32,32,51,51,32
5060  DATA 32,32,32,52,52,32,32,3
2,32,52,32,52,32,32,32,52,32
,32,52,32,32,52,52,52,52,52,
52,52,32,32,32,32,52,32,32
5070  DATA 53,53,53,32,32,53,32,5
3,32,53,32,32,32,53,53,32,53
,32,32,32,53,53,32,53,32,32,
32,53,53,32,32,53,53,53,32
5080  DATA 32,32,32,54,54,54,32,3
2,32,54,54,32,32,54,32,54,32
,54,32,32,54,54,32,32,54,32,
32,54,32,32,32,32,54,54,32
5090  DATA 55,32,32,32,32,32,55,5
5,32,32,32,32,55,32,55,32,32
,32,55,32,32,55,32,32,55,32,
32,32,55,55,55,32,32,32,32
5100  DATA 32,56,56,32,56,56,32,5
6,32,32,56,32,32,56,56,32,32
,56,32,32,56,56,32,32,56,32,
32,56,32,56,56,32,56,56,32
5110  DATA 32,57,57,32,32,32,57,5
7,32,32,57,32,57,32,57,32,32
,57,57,32,32,57,32,32,57,32,
32,32,32,57,57,32,32,32,32
```

Linthorpe

Dear Tony,

Cleveland always seems so remote from activities down south - even when they are as far north as Watford! Do you know of any fellow users in the north east or of any Apple clubs in the area? I shall be most grateful if you could put my name in your column to that any fellow users in my area might get in touch.

Yours sincerely,

(Dr) John Marr

(Ed. There aren't any BASUG groups that we know of, but we are glad to print your address and offer encouragement. For other people seeking contacts, see our Lonely Apples column. When I lived in Middlebrough I thought it was the centre of the world, but still...)

Exeter

Dear Sir

I purchased an ITT 2020 in 1980 but off loaded it in spring, 1982 because it does not easily support the application of software and peripherals and bought an Apple europlus instead. I used my machine mainly for writing scripts ready to go to the publisher and also for research into interactive CAL (data bases, graphics/ sound). I think my comments about the architecture of the Apple might be of interest to other Apple users.

I have no serious complaints as such, but there is little advantage in having the human/machine interface controls made so discreet and discrete. I would prefer all controls, I/O slots, for instance, to be 'up front' for easy access, beneath a hinged flap if necessary to guard against accidental activation. The on/off switch should be improved and brought to the front and the lid redesigned so that it does not endanger the internals. Similarly the speed adjustment of the disk drives should be made available on the side of the machine rather than inside the boxed casings. The UHF modulator potentiometer ditto.

The I/O slots should be accessible in any variety of combinations at the flick of appropriate switches (a) to save overloading the power unit (b) to disenable one card that is not compatible with another function (e.g. the 80 column card with graphics applications). These switches would probably be additional (optional) to the soft switches controlled by the programs.

I would also suggest that upper and lower case fonts be made available in various styles and sizes. Experience indicates the current lower case "m's" and "w's" are not discernable as such on 40 columns by young pupils. This makes them useless for language development work. Maybe 20 columns would improve the situation. A personal preference would be for the user to specify the size of print, anywhere from 1 to 132 columns width each character and mixed on the same line as well as mixed styles: bold, italic, cursive, plus underlining, etc. In fact everything publishers are capable of.

On the software side, since Apple is such a superb tutor in its own right, ALL software and peripherals should be accompanied by a tutorial disk which will take the user step by step through operating the full potentials with testing and scoring facilities. This would supplement some of the less welcome aspects of manuals - which should be merely reference material. I feel that this 'tutorial' would open up the computer to a much wider audience of unsophisticated first time buyers. My own experience has shown that I spend more time dealing with technical problems of implementation rather than producing effective simulations etc.

Yours,

Peter Davies

(Ed. You will be interested to hear that Apple has indeed incorporated your suggestion about different type styles on screen - but not, unfortunately, on the RevE. You have to move up to Lisa to get that kind of facility. The disk tutorial suggestion has also been taken up for the new RevE manual.)

London

Dear Hard Core

I would like some help. The game I am writing has need of several colours, most of which are not found in the normal rather limited hires set of colours. They are all, however, found in the lores set. If it is possible to implement these lores colours on the hires screen I would like to know how.

Yours sincerely,

Sean Dowie

Marple Bridge, Stockport

Dear Sir,

Applewriter II and the TEC printer

I think that I have the answer to the problems mentioned in the letter from A. W. Owen of Altrincham in the December issue. Simply set the printer to serial mode rather than line mode, using switch 411. However, serial mode is not bidirectional.

I have an Apple II with Videx 80 column card, Applewriter II and a TEC F10/55 printer with an Apple Super Serial card.

I can get underlining with Ctrl-Shift-P, bold print with Esc-O and shadow print with Esc-W. However, you must use Ctrl-V before the escape codes and Ctrl-V afterwards. Also, these codes do not work if you use lower case letters. You must type Esc-O not Esc-o.

I can also get half a line up or half a line down with Ctrl-D and Ctrl-U.

I can also alter the characters per inch with Esc-E-nn, where nn is the number of 120ths of an inch. Thus Esc-E-10 gives 12 characters per inch.
I can also alter the lines per inch with Esc-L-nn, where nn is the number of 48ths of an inch. Thus Esc-L-06 gives 8 lines per inch as demonstrated in this paragraph.
If you set the line spacing to 8 to the inch then imbed the command .LI1 for double spacing, you can get the effect of 'line and a half' spacing which the TEC printer does not normally provide.
I have not tried all the escape codes but the ones I need seem to work all right. I enclose a photocopy of this letter and hope that you can send it on to A.W.Owen. I shall be pleased to answer hear from him and would like to exchange hints and tips.

Yours sincerely,

E.G.Wood

White Lodge Centre for
the Assessment, Treatment
and Education of Spastic
Children
[illegible]
[illegible]
[illegible]
Tel. [illegible]

Dear Sir,

As you can see by our note paperheading we are a centre attempting to maximize the life chances and experiences of spastic children. We usually meet them in the first year of their life and they leave us at around 7-8 years to go onto schools, handicap units and residential centres.
We have been presented with an Apple computer and are currently designing and writing software to support the work of the centre and are hoping to have the computer actively in use in the nursery and school units at the beginning of next term.
Having given you the background to our story - I come to the crunch. Can you help us please? We have many ideas and designs for programs - if they are well specified would any of your members be willing to help us by actually writing the programs? We are supported entirely from voluntary contributions and are therefore unable to offer payment in money only in satisfaction for the help that will have been given to these children.
If anyone is willing to help and interested in knowing more about what we are doing please contact me either at the centre (9 a.m. - 4 p.m.) or at my home (Tel. [illegible]).

Hoping that someone will help us.

Yours faithfully,

Mrs Janet Larcher
(Home tel. [illegible])

(Ed. When I spoke to Mrs Larcher she tells me that the problem so far has been that available programs are far too complex and involved. The job is to use big letters, simple instructions and - of course, lots of input trapping. There should be dozens of volunteers willing to meet such a challenge - and you don't need to live in the area!)

Bracknell

Dear BASUG Committee,

... I found the Quick Reference index to Hardcore articles particularly useful.
Please convey my thanks to Ian Trackman whose Machine Code course I attended at the beginning of December. The content and presentation of the course was excellent and I am certain that everyone who attended considered it worthwhile giving up their weekend. The only advice I would give to the next course attendees is to take a packed lunch unless they like walking the streets of London City looking for an oasis!
Finally, with the announcement of Digital Research's CP/M card, I believe that we are fortunate to own the best all-round micro on the market. There is still nothing to match the Apple for versatility in home and business use - but I do not need to preach to the converted!

Brian Poulton

Saint Davids University College
Lampeter

Dear Sir,
Can you please help me. I believe that I have corrupted the directory on a very important disk. The disk will not CATALOG or SAVE, LOAD, etc - it returns an I/O ERROR. In Hard Core (October 1982) on p 37 you mention utilities that may repair the directory. Can you give me further details, e.g. availability, cost, etc.
Merry Christmas

Leigh Sparks

(Ed. Merry Christmas to you too, Leigh. If we had left your letter any longer the greeting might do for next time. John Sharp replies:
There are some utilities in the Software Library - they tend to be 3.2 though. You need a utility to write and read the disk sectors or a program to do the work for you. Sensible Software do Disk Recovery or there is a similar program on the Bag of Tricks disk. Of the two the latter would probably be better value since there is a thick manual and four programs altogether, giving all the disk utilities you might want for the moment.)

Maidenhead

Dear Sirs,

USE OF PRINTER CONTROL CODES WITH APPLE WRITER II

I have an Apple II Europlus with Epson MX80-F/T2 printer updated to an F/T3 by EPROM change and Epson interface card (issue B EPROM). With this combination I have been experimenting with the use of the CTRL-V command to drive the printer.
Following the Seedlings page in the December Hard Core you may care to note for the benefit of other members that the CTRL V commands functions for ESC E,F,G and H provided the ESC operated twice and the capital letter is put after the second CTRL V. I have not tried other commands of this type.
Unfortunately commands of the type ESC Rl do not work. I presume the printer receives the ESC because the R is not printed whereas the l is and the command is ignored. It is not the update because the command work from Applesoft. Please can you let me know a solution when one is found so I can use superscript and subscript printing.

You may also care to note that the SO,SI and DC2 can be sent to the printer via the CTRL V command if the appropriate CTRL (lower case letter) is used.

Regards,

Barry Hill

Finchley

Dear Sir,

Does anybody in BASUGLAND know whether the 'Vision 80' or the Digitek 'Screenmaster' 80-column terminal cards work with the ITT? I have Pascal and am used to using 80-column terminals and so find 40 columns, upper case with this language difficult to work with.
I have been unable to get satisfactory replies from the dealers I have contacted but some say that there is a chance that the cards are not compatible with the clock on the ITT. The Videx, which has its own clock (like the Vision 80 and the Screenmaster) does work quite happily with the ITT. If all three cards have internal clocks then why are two of them incompatible with the ITT while the other isn't (in fact the Videx uses dual ported memory for the screeen in the range $C800-$CFFF which requires a high degree of synch between the host and the card clocks)? None of the dealers has actually tried the two cards with the ITT, they have just picked up this fact third hand in conversation.
I would be most grateful if someone could advise me on this very confusing matter.

A few months ago I sent in a brief article about changing the RESET Vector to the Applesoft ONERR routine. Unfortunately the Assembly program called 'Resetfix' contained a few bugs which made the result of its running uncertain. Please find enclosed the amended version which, as far as I know, runs okay.

Is there anybody in BASUGLAND who is into genealogy? An associate of mine wants to put his family tree 'onto the computer' I have neither the time nor the knowledge necessary to write a genealogy filinf system. He is willing to pay.

May I congratulate you on the high quality of 'Hard Core'.

Yours

Dave Miller

```
SOURCE FILE: RESETFIX
----- NEXT OBJECT FILE NAME IS RESETFIX.OBJ0
95C1:                1          ORG  $95C1
95C1:                2 **********************************
95C1:                3 *                                *
95C1:                4 *                                *
95C1:                5 *            RESETFIX            *
95C1:                6 *                                *
95C1:                7 *  APPLESOFT PROGRAM PROTECTOR   *
95C1:                8 *                                *
95C1:                9 *   BY  D.M.MILLER   1:8:1982    *
95C1:               10 *                                *
95C1:               11 **********************************
95C1:               12 *
95C1:               13 *
95C1:               14 ***NOTE: THIS PROGRAM ONLY WORKS WITH APPLESOFT BASIC!
95C1:               15 *
95C1:               16 *
95C1:               17 * EQUATES: PROGRAM CONSTANTS
95C1:               18 *
95C1:               19 *
0033:               20 PROMPT   EQU  $33        MONITOR PROMPT CHARACTER.
0073:               21 HIMEM    EQU  $73        APPLESOFT HIMEM POINTER.
0076:               22 LINNUM   EQU  $76        APPLESOFT LINE NUMBER.
00D8:               23 ERRFLAG  EQU  $D8        APPLESOFT 'ONERR' STATUS FLAG.
00DE:               24 ERRCODE  EQU  $DE        APPLESOFT 'ONERR' CODE.
03F2:               25 RSETVTR  EQU  $3F2       AUTOSTART RESET VECTOR.
03F4:               26 RSETCMP  EQU  $3F4       AUTOSTART RESET COMPLEMENT BYTE.
D412:               27 ONERR    EQU  $D412      APPLESOFT 'ONERR' ROUTINE.
95C1:               28 ;
95C1:               29 ;
95C1:               30 ; INITIALISING CODE:
95C1:               31 ;
95C1:               32 ;  THIS SETS UP THE RESET VECTOR
95C1:               33 ; TO POINT TO THE START OF THE RESET CODE. IT ALSO
95C1:               34 ; RESETS APPLESOFT HIMEM BELOW THE PROGRAM
95C1:               35 ; FOR PROTECTION & IT SAVES THE OLD
95C1:               36 ; RESET VECTOR IN 'EXIT'.
95C1:               37 ;
95C1:               38 ;
95C1:AD F2 03       39          LDA  RSETVTR    MOVE CURRENT RESET..
95C4:8D E5 95       40          STA  EXIT       POINTER.
95C7:AD F3 03       41          LDA  RSETVTR+1
95CA:8D E6 95       42          STA  EXIT+1
95CD:A9 E7          43          LDA  #>START    REPLACE RESET VECTOR WITH POINTER..
95CF:8D F2 03       44          STA  RSETVTR    TO PROGRAM START.
95D2:A9 95          45          LDA  #<START
95D4:8D F3 03       46          STA  RSETVTR+1
95D7:49 A5          47          EOR  #$A5       SET FOR RESET COMPLIMENT.
95D9:8D F4 03       48          STA  RSETCMP    PREVENT SYSTEM BOOT.
95DC:A9 E5          49          LDA  #>EXIT     SET APPLESOFT HIMEM POINTER.
95DE:85 73          50          STA  HIMEM      TO PROTECT PROGRAM.
95E0:A9 95          51          LDA  #<EXIT
95E2:85 74          52          STA  HIMEM+1
95E4:60             53          RTS
95E5:               54 ;
95E5:               55 ;
95E5:00 00          56 EXIT     DW   $0000      ACTUAL RESET POINTER
```

LOOK! . . . A NEW NAME

apple ACCESSORIES

All items fully guaranteed for one year
Free postage and packing within UK
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Many m

	NET	INC. VAT
BUSINESS SOFTWARE		
Access	170.00	195.50
Calcstar (CP/M) (80 column spread sheet) ..	59.00	67.85
dBase II (CP/M)	325.00	373.75
Data Star (CP/M) (powerful data entry)	122.00	140.30
D.B. Master (version 3.02)	109.00	125.35
D.B. Master statistics	58.00	66.70
D.B. Master utilities (links with visi's)	58.00	66.70
Desk Top Plan II	110.00	126.50
Graphmagic (bar graphs, pie charts, etc)	52.00	59.80
Mathemagic	52.00	59.80
Multiplan (microsofts superior spreadsheet)	155.00	178.25
PFS Filing system (new improved)	68.00	78.20
PFS Graph	68.00	78.20
PFS Report	53.00	60.95
Supersort (CP/M)	85.00	97.75
The General manager	68.00	78.20
Versaform (form generator in Pascal)	192.00	220.80
Visi + (Visicalc consolidation)	19.45	22.37
Visicalc	105.00	120.75
Visicalc expander (use with 32K/128K cards)	53.00	60.95
Visicalc utilities	34.00	39.10
Visidex	122.00	140.30
Visifile	115.95	133.34
Visiplot	93.00	106.95
Visischedule	144.00	165.60
Visitrend/plot	142.00	163.30
WORD PROCESSING		
Applewriter II	72.00	82.80
Executive Secretary	145.00	166.75
Executive Speller	45.00	51.75
Format 80	195.00	224.26
List Handler	69.00	79.35
Pie Writer (40/80 columns)	85.00	97.75
Sensible Speller (New fast proof reader)	69.00	79.35
Sensible Speller (CP/M)	69.00	79.35
Screenwriter II (70 col w/out 80 col card)	75.00	86.26
SuperText (40/80 columns)	109.00	125.35
Wordstar 3.01 (CP/M) (enhanced features) ..	135.00	155.25
Word Handler	105.00	120.75
Zardax (40/80 & inc. form letter)	125.00	143.75
PRINTERS		
Epson MX80T-3 (up to 132 col & hi-res)	305.00	350.75
Epson MX80FT-3 (as above & friction drive)	339.00	389.85
Epson MX82FT (very hi-res graphics)	359.00	412.85
Epson MX100FT-3 (100 cps & wide carriage	429.00	493.35
Mannesman Tally MT 120 (160 cps)	365.00	419.75
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```
95E7:             57 ;
95E7:             58 ;
95E7:             59 ;
95E7:             60 ; ACTUAL CODE:
95E7:             61 ;
95E7:             62 ;  THIS WILL INTERCEPT THE RESET
95E7:             63 ; WHEN PRESSED AND PROVIDING THAT APPLESOFT
95E7:             64 ; IS IN DEFERRED EXECUTION MODE AND
95E7:             65 ; THE ONERR FUNCTION HAS BEEN INITIALISED,
95E7:             66 ; (BY AN 'ONERR GOTO..'STATEMENT),
95E7:             67 ; CONTROL WILL BE HANDED TO THE USER'S
95E7:             68 ; BASIC ERROR ROUTINE. IF, THOUGH,
95E7:             69 ; ONERR GOTO.. IS NOT IN EFFECT OR APPLESOFT
95E7:             70 ; IS IN IMMEDIATE EXECUTION MODE, THEN
95E7:             71 ; THE RESET WILL BE HANDLED BY THE NORMAL
95E7:             72 ; ROUTINES (THE ADDRESS IN THE RESET VECTOR
95E7:             73 ; AS FOUND BY THIS PROGRAM WHEN FIRST
95E7:             74 ; RUN).
95E7:             75 ; A DOS COLD START WILL DISABLE THIS PROGRAM
95E7:             76 ; AND ANY USAGE OF STRINGS AFTER THAT TIME
95E7:             77 ; WILL RESULT IN THIS PROGRAM BEING ERRASED.
95E7:             78 ;
95E7:             79 ;
95E7:             80 ; START OF CODE
95E7:             81 ;
95E7:             82 ;
95E7:A6 76        83 START   LDX  LINNUM     GET LINE NUMBER.
95E9:E8           84         INX
95EA:F0 11        85         BEQ  NOEXEC     PROGRAM NOT EXECUTING.
95EC:A6 33        86         LDX  PROMPT     GET PROMPT CHARACTER.
95EE:E0 DD        87         CPX  #']        SQUARE BRACKET?
95F0:F0 0B        88         BEQ  NOEXEC     YES, NOT EXECUTING.
95F2:A6 D8        89         LDX  ERRFLAG    IS 'ONERR' IN FORCE?
95F4:10 07        90         BPL  NOEXEC     NO, THEN EXIT.
95F6:A2 FF        91         LDX  #$FF       SET TO ATTEMPTED BREAK.
95F8:86 DE        92         STX  ERRCODE    SET 'ONERR' CODE.
95FA:4C 12 D4     93         JMP  ONERR      DO THE ERROR.
95FD:6C E5 95     94 NOEXEC  JMP  (EXIT)     ELSE DO NORMAL RESET.

*** SUCCESSFUL ASSEMBLY: NO ERRORS
```

Bisley

Dear Sirs,

I have a 48k Apple connected to an Epson MX80 FTII printer. A program I have developed requires that I dump page 2 graphics to the printer. The portion of the program used for this is as follows:

```
3850  Poke  -16302,0:Poke  -16299,0:Poke
-16297,0:Poke -16304,0
3860 print CHR$(4):PR£1:print CHR$(0)
3870 Poke 1912+1,2
3880 print CHR$(17)
3890 print CHR$(4):PR£0
```

However, when this is RUN I get a drawing whose scale is correct widthwise, but whose scale is incorrect in height. Some measurements and calculations reveal that the height is .83 X SCALE required, which is in fact 192 / 160. For some reason the printer or computer is squashing Page 2 information into a frame which represents Page 1 thereby giving this error in height i.e. turning circles into ellipses and squares into rectangles.
Please can anyone help with a solution? Could it have anything to do with the fact that this is an aerly FTII printer in which some of the ICs had to be changed to give graphics ability?

Yours faithfully,

Mrs. S.W.Hebburn

(Ed. The trouble lies in a gearing problem with an MX80. See Steven Brown's letter in Hard Core, October 1982 p.38. His solution is to get an MX82. In general remember: if in doubt, back numbers of Hard Core probably have the answer.)

MEETINGS AND COURSES

Since the last Hardcore appeared there have been a number of events.
First in November we had the workshop at Nottingham coupled with the EGM. Unfortunately, because of a hiccup in their admin, the college booked was not available when we arrived. Fortunately we were able to get some space in a local hostelry, just a few yards up the road. This was a mixed blessing, the 'refreshments' on hand contributing to the genial atmosphere, but the noise from the Public Bar making it difficult to concentrate on the serious talks.
To start, Mike Preston of LAUGHS, who had arranged the speakers for the day, gave a demonstration of the Bit-Stik. The Zoom feature on this device is really impressive. The Bit-Stik must be one of the most demonstrated peripherals on the Apple at the moment.
We next had a talk on Forth, the language of the moment. There is certainly a great enthusiasm for this language from those who use it. It also seems to be very speedy both in execution and program development time. A number of people have suggested that BASUG runs a weekend course on FORTH. Any volunteers to lecture in our midst?
After lunch and the EGM, it was back upstairs for a talk by Clive Henson on the UCSD p-system user group. He was able to give some interesting examples of the easy portability of the p-system. He also gave details of discounts available to BASUG members on membership of the group.
On the 11th of December we held a workshop in Central London, and despite my telling one of our demonstrators the wrong hotel name, we nevertheless got the show on the road.
The main topic was word processors, and we had Applewriters I and II, Letter Perfect, Zardax and Magic Window. 80 column cards were also in evidence. Thanks to Mass Micros for their help and loans of monitors, Apples etc. They also lent us one of the new X-BUB bubble memories. This looks to the Apple like a Disk Drive when booted from its own controller. There was some debate as to whether it was quicker than the latest Fast Dos's. Nevertheless, in harsh environments or where disk wear might be a problem this looks like a very interesting possibility (at only £500!)
We also had a short demonstration of the Mountain Hardware Super Talker. This allows you to digitize speech and reproduce it under program control. Although memory usage restricts the vocabulary without extensive disk access, it does allow speech with any accent (including foreign) and very lifelike speech.
Mike Siggins showed a Hi-Res drawing program which he has written. This was very impressive, and more will be heard of this program soon.

COURSES

At the time of writing the second of our Machine Code courses is coming to an end. The Pascal course in October and the first Machine Code course both went well.

Unfortunately the planned Beginners Basic course has had to be cancelled because of a severe lack of support. Perhaps the ready availability of Basic courses at local colleges means little need for BASUG to run one. If there are o lot of you who would have liked to go, but for whom the dates, place etc. were not convenient, let us know and we'll have another bash.
The File Handling course goes ahead at Milton Keynes, and I hope to see many of you at the workshop.
We are trying to arrange a one-day Visicalc course at Apple (U.K.)'s headquarters at Hemel Hempstead for a Saturday in March. You should find details elsewhere in Hardcore.
Other thoughts on courses are Graphics, advanced Assembler, and a follow on Pascal course. It has also been suggested that we have a course on the use of Assembler from Pascal. Please let me know if you are interested in this last topic, as it may be a little too specialist.
Please let me know if there are other courses you would like, or if you are able to help in any way.

EXHIBITIONS

The next exhibition that we will be involved with is the Fourth London Computer Fair on the 13-16th April. We will need help to man the stand over this period, and possibly to help as stewards. This Exhibition is being held at the Central Hall Westminster, having outgrown the North London Poly where it has been held in previous years. Volunteers please

WORKSHOPS

MARCH 12TH CHURCHILL COLLEGE CAMBRIDGE.

Subject - Communications. This is the workshop held over from February, since at the end of February there is a meeting of user groups at national level to discuss Micronet. As well as talks on Prestel, Micronet and bulletin boards, we intend to have Apples linked to other micros to demonstrate communication techniques. We also plan to have a talk on Networks.
The workshop will last from 9 to 5 approx. Please come and bring a machine if possible. Cost £2.50 for the day, haggle for a shorter time.

APRIL 10TH LONDON

This workshop to be held in London as a forerunner to the Computer Fair. The main topic will be Databases. See elsewhere for more details.

CHAIRMAN'S CORNER

by Norah Arnold

Looking back over the past year one cannot help thinking that BASUG continues to go from strength to strength. Firstly, and most importantly, we have taken steps to ensure that in the months ahead, it will become a company limited by guarantee. At this present time the members of the committee are studying the draft Memorandum and Articles of Association, with a view to making a final decision on these in the near future.
Since July, when Bob Raikes took over as Events Organiser, our meetings have taken place a little further afield. The September meeting was in Birmingham and shortly after this MIDAPPLE was born. October took us to Southall and in November we visited Nottingham. I shall not forget Nottingham in a hurry. On the way home, my fan belt broke about three miles south of Nottingham on the M1. After a two hour wait for the AA. on the hard shoulder, we were towed with the shortest rope imaginable at breakneck speed in a torrential rainstorm to the nearest service station. The December meeting at the Kenilworth Hotel in London followed, and although I only paid a short visit I thoroughly enjoyed making some new friends there.
Bob puts a great deal of time and energy into arranging these meetings, and I hope that all members of BASUG will support him and try to get along to any meeting that is held in their area.
Several successful courses have been held in the past year, and again we have to thank Bob for most of these. Trying to predict the response to the courses is extremely difficult, with some being over-subscribed and others hardly getting off the ground. We can only rely on members telling us what they want, so go to meetings and make your views known or write to us.
Having forgiven our editor for calling me 'Cover Girl' in the last issue of Hardcore, (by no flight of the imagination could I be called 'cover girl in the normal sense of the words), I feel I must correct one tiny error in his list of items sent to me by Apple (UK) in relation to their use of my graphics in the publicity material for the Young Programmer of the Year competition. In the last few days the number of Apple mugs has inexplicably risen to three.
Seriously though, I would like to thank Apple (UK) for putting things right by sending me Apple Logo. I will certainly make good use of this excellent program.
Anyone interested in the origins and use of the Logo language should watch out for a program called 'Talking Turtle' which is due to be shown by BBC television in the Horizon series sometime in February. Who knows, if you don't blink you might catch a glimpse of your chairman.

EDUCATION COLUMN

by Norah Arnold

During the last few months I have received several letters from teachers asking how they can obtain programs for use in their schools. When they enquire after the 'educational software library', sadly I am forced to admit that it does not exist. Everyone writes asking for programs while absolutely no-one donates educational software to the SIG. Perhaps teachers are such a modest lot that they think their programs are just not good enough to be seen by anyone else.
It is still not too late for anyone brave enough to send a disk to me through the P.O Box number. I will try to return their disk promptly and will publicize their material through this column.

The following letter has been received which might be of interest to educational software writers.

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Accordingly, I am writing to ask if the educational materials you produce can be distributed through ourselves at trade terms. Our customers currently are country wide, from I.L.E.A. to Aberdeen and including Northern Ireland, not to mention various overseas interests in the Far East and the Caribbean.

Yours faithfully,
Mary Nettlefold,
Director.

Before leaving the subject of software, I should like to add that I have a directory of commercially available educational software for the Apple II which was compiled by a teacher at Kentucky University so naturally covers mostly American material. I am willing to send a copy of this to any BASUG member who requests a copy via the P.O. Box and includes a stamped, addressed A4 envelope.
Why not start a directory of British educational software for the Apple II? I am willing to compile it, so come on everybody, write and let me know what you are offering.

The following information has been received in regard to the Annual Conference of the National Association for the Teaching of English, University of Surrey, April 10th-13th, 1983.

'The theme of this year's conference of this progressive body of English specialists in primary and secondary schools is 'Tomorrow's World'. As the co-ordinator of the Schools Council Micros and English group for the Computers-in-the-Curriculum Project, Daniel Chandler has been asked to run a commission on the subject and to introduce the whole conference of around 300 teachers and lecturers to the use of computers in the humanities in schools.
Almost all of these teachers will be complete strangers to micros and may be frightened and suspicious of them. Daniel Chandler is trying to arrange for them to have access to micros and some suitably imaginative software in order to allay some of their fears and to encourage an interest amongst people who are already pace-setters in educational innovation.
The conference is of considerable national importance and is always fully reported in THE GUARDIAN and the TIMES EDUCATIONAL SUPPLEMENT. It is also attended by all the major educational publishers, and we will be inviting firms involved with micros in education to have stands.'

Unfortunately, my Easter holiday ends on April 10th, and I am required to be back in school while the lucky 300 enjoy their conference. I am very keen to hear from any BASUG member who has already made arrangements to visit the conference, even if they are not staying the full four days. Please contact me as soon as possible.

'GO-BETWEEN' POSSIBILITIES

by Ray Harris

Those who use the 'Go-Between' program with Applewriter 1 and an Epson printer will be aware of the opportunity to input special printer instructions, by inserting into the file commands starting and finishing with a chosen sign, $, for example. The ideas which follow give suggestions for types of commands which may be useful.
No daisy-wheel contains more than a few fractions; using super- and sub-scripts any fraction can be created on the Epson: 2⅞ 12½
The instructions for the first fraction are
dn2$cn$$su2bs$$bn3cf$$df$$bf$
dn/df='double-printing on/off'
cn/cf='condensed on/off'
su ='superscript on'
bn/bf='subscript on/off'.
bs ='backspace'

To save the tedium of such a rigmarole, typing something like **dn2<2>3%** is neat, especially if several fractions are needed, to be changed at the end by using ctrl-S.

Epson's bit-image mode can be utilised for producing your own symbols:

mathematical/scientific

The formula for the sum of an infinite geometric progression is

$$\Sigma ar^n = \frac{a}{1-r} \quad \text{if } |r| < 1$$

$$\text{As } x \to \infty, \ \frac{1}{x} \to 0$$

$$x^2 = 1 \Leftrightarrow x = \pm 1$$

$$t = 2\pi\sqrt{\frac{l}{g}}$$

or Russian

здравствуйте, товарищ.

A command BX was included in the command table to send to the printer the codes for **Esc K '6' '0'**, signifying six bits in this mode. A separate command was produced for each symbol required (since 'commands' are only items to be sent to the printer but not to appear as typescript, a 'command' 6 characters long is just right). The code for each symbol was then preceded by BX, using ctrl-S for insertion of BX into the file. A string of bit-image symbols works the printer head mechanism hard, as it stops and starts after each symbol; alternative commands could be produced to send larger numbers of bits to the printer. On lines which include symbols margin adjustments may need to be made.

Of course, once started there is no limit to the number of symbols you might like to use in your text files, but 'Go-Between' limits you to 40, with a maximum of 255 bytes available, and 40 goes nowhere, especially when you also want enlarged and condensed characters, underlining, super- and sub-scripts..... Investigation of the programs produces the following information:
the file of user constants is created starting at $4000; pairs of command letters are stored at $4000 to $407F; the codes for the commands are stored from $4080 to $417F, with codes for EL and EF taking the space from $4080 to $408F. Following that each command's codes are consecutive, terminated by a $00 byte.

Even before wanting to enlarge the table this $00 was a slight problem as several of the commands used by the Epson require to be terminated with a 'null', but 'Go-Between' wouldn't send it. Fortunately my interface card, and most others, I imagine from the literature on them, doesn't send the msb to the printer, so if a byte $80 can be put into the user constants it will not be interpreted by 'Go-Between' as the end of a command but <u>will</u> be sent as a null to the printer. The following lines added to the 'CHANGE CONSTANTS' program deal with the problem and on the screen leave the $80 byte displayed as a ■:

```
8185 IF A$="." THEN
A$=CHR$(128):INVERSE:
?CHR$(32);:NORMAL:GOTO 8210
```

```
9095 IF X=128 THEN INVERSE:
?CHR$(32);:NORMAL:GOTO 9120
```

To enter the $80 byte the program now requires a "." to be input. Around the same area it may be necessary to remove line 8180, which changes a "-" to a "_", if a "-" is required, as on the type 3 printers for 'underline'.

Now to enlarge the table. I decided to stretch it from $4000 to $44FF, letting the symbols take space from $4000 to $417F and the codes from $4180 to $44FF. This may turn out eventually not to be long enough but it can be altered again. Monitor moves made this easy. The space in which the user constants were loaded by the 'PRINTER' program, from $1780 is only $180 bytes long (since text storage starts at $1900) so I decided to get the table loaded at $9080. It requires a few amendments to the 'TEDITOR' program, changing $95 to $8F at addresses $836, $83F, $848 and $11B1 as Ian Trackman pointed out for another purpose on page 14 of the April 1982 'Hardcore'. It also needs a few alterations to the 'PRINTER' program, listed at the end of this article. They are changes of address, and also a short section of code to make the program look through more than 255 bytes of command codes. Finally, how do you put more than 40 commands into the 'USER CONSTANTS' list, as the 'CHANGE CONSTANTS' program objects to more than that? I cheat and insert all mine directly on to the disk using a 'Zap' program, partly because that allows insertion of any code I want, which is not possible directly from the keyboard (though it should be possible to alter 'CHANGE CONSTANTS' to accept numerical input using a terminator after each number). It would however also need the ability to page through the command symbols, which I leave as a challenge to someone else!

The alterations needed to 'PRINTER' are:

change $17 to $90 at $108A, $111B
change $18 to $92 at $1130,
$1153, $1162
alter $1137-$1139 and $113F-$1141 to 20 E4 15 from C8 B1 77, and $1147-$1149 to 4C 3F 11 from C8 D0 F6
alter $12E8-$12E9 to B9 B0 from B1 B7 (digits of the loading address)

The following code should then be added:

```
15E4-  C0 EF     CPY  £$EF
15E6-  D0 0A     BNE  $15F2
15E8-  48        PHA
15E9-  A9 92     LDA  £$92
15EB-  C5 78     CMP  $78
15ED-  D0 02     BNE  $15F1
15EF-  A0 FF     LDY  £$FF
15F1-  68        PLA
15F2-  C0 FF     CPY  £$FF
15F4-  D0 0C     BNE  $1602
15F6-  E0 00     CPX  £$00
15F8-  F0 08     BEQ  $1602
15FA-  E6 78     INC  $78
15FC-  48        PHA
15FD-  A9 00     LDA  £$00
15FF-  85 77     STA  $77
1601-  68        PLA
1602-  C8        INY
1603-  B1 77     LDA  ($77),Y
1605-  60
```

This is what it does:
Normally if the Y-register reaches $FF a page boundary has been reached so the high byte is altered, but skip the change the first time round when the X-register is zero. Since the table is scanned from $9210 the first page boundary will be reached when the Y-register reaches $EF, so if the high byte holds $92, $EF is replaced by $FF. Obviously the changes made will allow any length and loading addresses of the 'USER CONSTANTS'. Starting the symbols at $..00 and the codes at $..80 will only require address changes at the places noted above; different choices of address will mean you have to look back about 4 bytes in each case to alter the low byte of the loading address.

pascal page

Here are two PASCAL offerings accompanied by a problem for you to solve.

NOTE: In Paul Norris' original copy the "s" in the CASE statement is followed by a 'copyright' sign. This should be an "up-arrow" (^) (control-n). "CIDER PRESS ", where this copy was found (Oct:a edn 1980) , often uses this copyright symbol but does not explain what it means. (Cymbal might be a better term since it can cause some clangers.)

The second program "Printset3" nearly works. As you can see from the 'printout run' at the end, the "elongated" seems to be running at the 'economy rate?'

The problem awaiting your eager solution is how can the "underline" command be invoked? A hint is provided in the Constants listing but if you think I have an answer ready for you next time then you are dissillusioned my friend. This is 'Heuristic Pascal', a home brewed deviant of U.C.S.D.

Finally, for those like myself who has sweated nitric acid to get Pascal to talk to my nice new printer, here are two little routines, again from Paul Norris, 1.To list a Pascal program and 2.To list a disk's directory.

1. From the F(iler type "T", Type in "VOL:NAME.TYPE,PRINTER:"

e.g."DISK1:PRINTSET.TEXT, PRINTER: "(OMIT QUOTES).

If everything is switched on and the correct number of disks are in the appropriate holes it should work. If you have your printer interface card in any other slot but £1 then it will NOT work. The command "Printer" is SLOT DEPENDENT. Remember this if you try to make the "Printset£" programs work.

2. From the F(iler type "E" in answer to the prompt type: "VOL:,PRINTER:"
VOL can either be the disk's name or the Pascal Drive £ e.g. "APPLE3:," or "£5:,"

I have been teaching myself Pascal for about a month. In that time four books have proved to be very helpful:-

Bowles K.(1977) "PROBLEM SOLVING USING PASCAL" Springer Verlag: n.y.

Lewis T.C.(1981) "PASCAL PROGRAMMING FOR THE APPLE" Reston: Virginia

Fox D. & Waite M. (1981) "PASCAL PRIMER" Howard Sams: Indianapolis. (Written with the Apple in mind. Waite is also the genius who wrote "COMPUTER GRAPHICS PRIMER." (1979) Same publisher.)

Luehrmann & Peckham (1981) "APPLE PASCAL" (Anne Arbor??) Anyway, an American publication (of course!).

There is another publication by Brown (1981) who is at the University of Kent I think. It is witty and instructive but I have mislaid the full details.

These books are to be recommended to anyone starting PASCAL and that includes real novices like me. You need not be put off by reviews that indicate high levels of difficulty in some of the texts. There is no guarrantee that you will fully understand everything but all instruction is so much grist to the mill when you are starting. Best to have them all on the desk and move from one to the other

when the going gets incomprehensible.

If anyone would wish to set up a dialogue on PASCAL programming, Assembly programming and the use of the Pascal Assembler, Library building and accessing, please do not hesitate to contact me.

Peter Davies. November 1982.
BASUG No. 8203379
31 Cowick Lane
EXETER
Devon EX2 9HN
Phone : (0392) 78266

```
(*=====================================*)
(*                                     *)
(*PROGRAM LANGUAGE :PASCAL (UCSD)     *)
(*PROGRAM TITLE    :PRINTSET1         *)
(*SUBTITLE :CENTRONICS 737/739        *)
(*                                     *)
(*                                     *)
(*AUTHOR   :PAUL NORRIS CIDER PRESS   *)
(* S.F.A.C. OCT 80  P.14               *)
(*                                     *)
(*PROG SUMMARY :THROWS SOFTWARE SWITCH*)
(* TO CHANGE TO ALTERNATE PRINTSETS   *)
(*                                     *)
(*ENCODED & ADAPTED BY P.DAVIES 10/82 *)
(*                                     *)
(*=====================================*)


PROGRAM PRINTSET1;

(*CHANGE CONSTS TO SUIT OTHER PRINTERS*)

CONST
  ESCAPE      = 27;(*ESC:INIT SWITCH*)
  NORMAL      = 19;
  PROPORTIONAL = 17;
  CONDENSED   = 20;
  CR          = 13; (* <RETURN> *)

VAR
  ANSWERS     : CHAR;(*A,B,C*)
  I(*INDEX*)  : INTEGER;(*LEN OF LINE*)
  LINE        : STRING;(*PRINT OUTPUT*)
  S(*SWITCHES*): FILE OF CHAR;

BEGIN (* MAIN PROG *)
  PAGE(OUTPUT);
  GOTOXY(0,8);
  WRITELN('SELECT PRINTSET:-');
  WRITELN;
  WRITELN('  A) NORMAL');
  WRITELN('  B) PROPORTIONAL');
  WRITELN('  C) CONDENSED');
  WRITELN;
  WRITELN('CHOOSE A,B OR C');
  WRITELN('(ANY OTHER KEY TO EXIT)');

  READ(KEYBOARD, ANSWERS);

  IF NOT (ANSWERS IN ['A', 'B', 'C'])
    THEN EXIT(PRINTSET1);

  REWRITE(S, 'PRINTER:');
  (*SENDS OUTPUT TO THE PRINTER.

    P.133 OF APPLE WHITE MANUAL SAYS
    THAT "RESET" WOULD ALSO WORK BUT
    NOT SO! A RUN-TIME ERROR RESULTS. *)

  CASE ANSWERS OF

    'A' : BEGIN
            S^:= CHR(ESCAPE);
                 PUT(S);
            S^:= CHR(NORMAL);
                 PUT(S);
          END; (*CASE 'A'*)

    'B' : BEGIN
            S^:= CHR(ESCAPE);
                 PUT(S);
            S^:= CHR(PROPORTIONAL);
                 PUT(S);
          END;(*CASE 'B'*)

    'C' : BEGIN
            S^:= CHR(ESCAPE);
                 PUT(S);
            S^:= CHR(CONDENSED);
                 PUT(S);
          END;(*CASE 'C'*)

  END; (* CASE OF ANSWERS *)


  LINE := 'THIS STYLE TO THE PRINTER.';

  FOR I := 1 TO LENGTH(LINE) DO

        BEGIN
          S^:= LINE[I];
               PUT(S);
        END;

          S^:= CHR(CR);
               PUT(S);(* <RETURN> *)

  CLOSE(S)

END. (*ALL PRINSET1*)
```

THIS STYLE TO THE PRINTER.
THIS STYLE TO THE PRINTER.
THIS STYLE TO THE PRINTER.

```
(*=======================================*)
(*                                       *)
(*PROGRAM LANGUAGE :PASCAL (UCSD)        *)
(*PROGRAM TITLE    :PRINTSET3            *)
(*SUBTITLE :CENTRONICS 737/739           *)
(*                                       *)
(*                                       *)
(*AUTHOR   :AFTER PAUL NORRIS "CIDER     *)
(* PRESS" S.F.A.C. OCT(A) 80  P.15       *)
(*                                       *)
(*PROG SUMMARY :OFFERS MAJORITY OF THE   *)
(* CENTRONICS PRINTER COMMANDS.          *)
(*                                       *)
(*ENCODED & ADAPTED BY P.DAVIES 10/82     *)
(*                                       *)
(*=======================================*)


PROGRAM PRINTSET3;

(*CHANGE CONSTS TO SUIT OTHER PRINTERS*)

(*DOES SAME AS PRINTSET1 BUT WRITES AN
  INTERACTIVE FILE TO THE PRINTER.     *)

CONST
  ESCAPE        = 27;(*ESC:INIT SWITCH*)

  ELONCON       = 14;(*UNDERLINE IF NO *)
  ELONGOFF      = 15;(*"ESC" IS USED   *)

  PROPORTIONAL = 17;(*NOT WITH 10 CPI*)
  NORMAL        = 19;(*10   CPI*)
  CONDENSED     = 20;(*16.7 CPI*)

  SUBSCRIPT     = 28;
  SUPERSCRIPT   = 30;

VAR
  ANSWER        : CHAR;
  I(*INDEX*)    : INTEGER;
  S(*SWITCHES*): INTERACTIVE;


BEGIN
  PAGE(OUTPUT);
  GOTOXY(0,5);
  WRITELN('SELECT PRINTSET:-');
  WRITELN;
  WRITELN(' A) ELONGATED ON');
  WRITELN(' B) ELONGATED OFF');
  WRITELN(' C) PROPORTIONAL');
  WRITELN('    (NOT WITH 10 CPI)');
  WRITELN(' D) NORMAL    (10   CPI)'),
  WRITELN(' E) CONDENSED (16.7 CPI)');
  WRITELN(' F) SUBSCRIPT');
  WRITELN(' G) SUPERSCRIPT');
  WRITELN;
  WRITELN('   CHOOSE : "A TO G"');
  WRITELN('(ANY OTHER KEY TO EXIT)');

  READ(KEYBOARD, ANSWER);

  IF NOT(ANSWER IN
  ['A','B','C','D','E','F','G'])
    THEN EXIT(PRINTSET3);

  RESET(S, 'PRINTER:');
  (*REWRITE ALSO WORKS HERE. UNLIKE IN
    PRINTSET1, RESET WORKS BCAUSE THIS
    PROGRAM IS "INTERACTIVE".

    FOR THE ABOVE LINE TO WORK THE
    PRINTER INTERFACE CARD MUST BE IN
    SLOT £1 ELSE THE "PRINTER" COMMAND
    IS NOT ENABLED.
    THE WHITE MANUAL PP.11 & 21 IS NOT
    TOO EXPLICIT ON THIS POINT.        *)

  WRITE(S, CHR(ESCAPE));

  CASE ANSWER OF

  (*THE VARIABLE ANSWER HAS BEEN
    DECLARED AS A "CHAR". THIS RTN
    CONVERTS AN ASCII NUMBER INTO ITS
    ACTUAL CHARACTER.

    E.G. IN THE CASE OF 'A' (NOTE:
    SINGLE CHARACTER BETWEEN THE
    APOSTROPHES), THE VALUE OF THE
    CONSTANT "ESCAPE" WHICH = 27, IS
    GIVEN TO VAR "S".  ASCII (27) ON
    THE APPLE = "ESCAPE".

    IN BASIC THE 'D' PRINTSET STYLE
    WOULD BE CALLED AS:-

    PRINT CHR$(27);CHR$(19)            *)


    'A' : WRITELN(S, CHR(ELONCON));
    'B' : WRITELN(S, CHR(ELONGOFF));
    'C' : WRITELN(S, CHR(PROPORTIONAL));
    'D' : WRITELN(S, CHR(NORMAL));
    'E' : WRITELN(S, CHR(CONDENSED));
    'F' : WRITELN(S, CHR(SUBSCRIPT));
    'G' : WRITELN(S, CHR(SUPERSCRIPT));
  END; (* CASE OF ANSWERS *)

  WRITELN(S, 'HERE''S THE CHOSEN
                              STYLE.');
  CLOSE(S);
  END. (*ALL PRINSET3*)
```

HERE'S THE CHOSEN STYLE.

HERE'S THE CHOSEN STYLE.

HERE'S THE CHOSEN STYLE.

Epson Pages

by Quentin Reidford

The last episode of 'Epson pages' dealt with Bit-image printing, the last issue of 'Hardcore' contained an article on Lo-res printing, this article will deal mainly with Hi-res printing.
It is a well known fact that the MX-80 will not dump a complete screen picture in the EXTENDED mode. For some inexplicable reason it would seem that Epson used a 'cut-down' version of the MX-100 print mechanism in the MX-80, although, as Steven Brown demonstrated in Issue No.5, the MX-82 gives perfect results.
This 'defect' has resulted in those interested in getting the maximum from their MX-80's to invest in interface cards like the 'GRAPPLER'. This card, and a few others, will give full screen dumps of the Hires page by printing the image at 90 degrees from the horizontal.
However, I don't have a 'Grappler' card and it did seem extravagant to buy one just for the luxury of extended graphics, but I do subscribe to 'NIBBLE', which has published a solution to the problem.

The following program will produce a 90 degree screen dump on an MX-80, Types II & III, with, or without the LCC Prom.

The program appears with the permission of MICRO-SPARC Inc., the publishers of NIBBLE, on the understanding that it will only be used by members of BASUG, and that it appears as an article and not as a program on disc.
The program was written by Robert M. Delany of 248D Glandore Drive, Manchester, MO 63011, U.S.A.

The program is in two parts, the first an Applesoft program which carries out some necessary initialisations and which calls the second program, in machine code.

If you have the EPSON D PROM then you could change lines 60 and 90 to read :
60 POKE 16567,80 :REM Assumes Slot 1
90 POKE 16567,40
This will prevent display to the screen although the standard program seems to work without change, however you will print '80N' on the paper as the PROM does not recognise CTRL I commands. LCC PROM users need make no changes.
The machine code dump is a little arduous, but worth it. To enter it CALL-151 to enter the MONITOR and type 6000:A9<space>FF<space>85<space> etc. for about five lines then RETURN. Continue entering the Address (say 6028) colon etc..
I have mentioned this, as it is unfair to assume that everyone 'pops' in machine code routines as a matter of course.
Having entered the complete coding, return to Basic with a CTRL C and BSAVE GRAPHICS DUMP,A$6000,L$10E.
Run the Applesoft program now, and you can print BIG pictures, perfectly. I think it's a superb program, and thank you NIBBLE for allowing it to be used.

PROGRAM: 90 DEGREE PRINT DUMP - FOR MX-80 PRINTERS.

```
5  TEXT : HOME
10  REM  HIRES DUMP AT 90 DEGREES ONTO
EPSON MX 80
12 REM By Robert M. Delany
13 REM Courtesy of NIBBLE Magazine : For
club use ONLY
14 REM Copyright Micro-Sparc Inc.1982
15 D$ =  CHR$ (4):I$ =  CHR$ (9): REM
CTRL 'D' & CTRL 'I'
20  PRINT D$;"BLOAD GRAPHICS DUMP": REM
A$6000,L$10E
21  HOME : VTAB 2: PRINT "WHAT IS THE
PICTURE NAME TO BE PRINTED:": INPUT F$
22  HOME : VTAB 2: PRINT "WHAT IS THE
DRIVE NUMBER :": INPUT DR
23  PRINT D$;"BLOAD ";F$;",D";DR
24  HOME : VTAB 2: PRINT "PRINTING :";F$:
POKE 34,5
25  HOME : VTAB 12: INPUT "TURN ON
PRINTER AND PRESS RETURN";A$
30  HOME : VTAB 12:HR = 32: INPUT "HIRES
PAGE 1 OR 2?";A$: IF A$ = "2" THEN HR =
64
35  HOME : VTAB 12:NI = 255: INPUT
"(N)ORMAL OR (I)NVERSE PRINT?";A$: IF A$
= "I" THEN NI = 0
40  HOME : VTAB 12:TB = 8: INPUT "TAB
(1-15)=? (DEFAULT=8 - CENTERED)";A$
45  IF A$ <  > "" THEN TB =  VAL (A$): IF
TB < 1 OR TB > 15 THEN 40
50  POKE 27,NI: POKE 23,HR
55  PRINT D$;"PR£1"
60  PRINT I$;"80N"
65  PRINT  CHR$ (27) CHR$ (61);: REM
CLEAR MSB
70  PRINT  CHR$ (27) CHR$ (68) CHR$ (TB)
CHR$ (0);: REM  SET TAB
75  PRINT  CHR$ (27) CHR$ (65) CHR$ (7);:
REM  7/72 LINE SPACING
80  CALL 24576: REM  CALL M/L PROG AT
$6000
85  PRINT  CHR$ (27) CHR$ (64);: REM
RESET PRINTER
```

```
90  PRINT I$;"O"
95  PRINT D$;"PR£0"
100  HOME : VTAB 12: INPUT "ANY MORE TO
PRINT (Y/N)?";A$
105  IF A$ < > "Y" THEN  END
110  POKE 34,0: GOTO 21
```

PROGRAM: GRAPHICS DUMP

6000.610D

```
6000- A9 FF 85 1C A9 00 85 16
6008- 20 F0 60 20 A7 60 A4 16
6010- B1 00 85 18 6A 26 19 66
6018- 18 26 19 6A 26 19 66 18
6020- 26 19 6A 26 19 66 18 26
6028- 19 6A 26 19 A5 19 45 1B
6030- 29 7F 85 18 20 D8 60 A5
6038- 1A F0 05 A5 18 20 D8 60
6040- A5 1A 38 E9 01 85 1A B0
6048- C2 20 E1 60 20 F0 60 20
6050- A7 60 A4 16 B1 00 85 18
6058- 6A 66 18 6A 66 18 6A 66
6060- 18 6A 66 18 26 19 6A 26
6068- 19 66 18 26 19 6A 26 19
6070- 66 18 26 19 6A 26 19 66
6078- 18 26 19 A5 19 45 1B 29
6080- 7F 85 18 20 D8 60 A5 1A
6088- F0 05 A5 18 20 D8 60 A5
6090- 1A 38 E9 01 85 1A B0 B7
6098- 20 E1 60 E6 16 A5 16 C9
60A0- 28 F0 03 4C 08 60 60 A5
60A8- 1A 85 01 2A 26 00 2A 26
60B0- 00 2A 26 01 26 00 2A 26
60B8- 01 26 00 2A 26 01 A5 01
60C0- 29 3F 85 01 A5 00 0A 0A
60C8- 0A 0A 18 66 01 6A 85 00
60D0- A5 01 18 65 17 85 01 60
60D8- 8D 90 C0 AD C1 C1 30 FB
60E0- 60 A9 0D 20 D8 60 A5 1C
60E8- F0 05 A9 0A 20 D8 60 60
60F0- A9 09 20 D8 60 A9 1B 20
60F8- D8 60 A9 4B 20 D8 60 A9
6100- 7F 20 D8 60 A9 01 20 D8
6108- 60 A9 BF 85 1A 60
```

BSAVE GRAPHICS DUMP, A$6000, L$10E

For some time now I have been in correspondence with EPSON UK, and have been successful in drawing some response from them about 'shortcomings' in their product. Principal areas have been located, I believe, in their various EPROMS on the interface card, evidenced by the many 'unofficial' Epson cards on the market. Epson is less than eager to admit that there is anything untoward about their card. Nevertheless they seem genuinely interested in constructive feedback from users and are very keen to know just what problems you have experienced. They have promised to take note of difficulties, and try to answer them. If you have problems write to me, noting the number of the PROM on your card, and I will forward your question or viewpoint to Epson.

Epson, in return, are about to issue a KIT to upgrade the TYPE II to a TYPE III. This will be in the form of three PROMS to replace the existing PROMS inside the printer and, hopefully, a new instruction manual. I can report that the PROMS work perfectly and the changeover is simple. The changeover will make SUPERSCRIPTING and SUBSCRIPTING available along with simple DOUBLE STRIKE MODE, UNDERLINING and a FOREIGN CHARACTER SET. This last item replaces the slanting character set available on the American GRAFTRAX PROMS, but may change, depending on company policy. The price, unfortunately, had not been set when I last spoke to Epson, but hopefully your local dealer will be getting some of these kits soon.

Finally, for users of CP/M, fed up with fixing DDT for Epson use. The following PERMANENT fix comes from Mike Glover (again!) and requires a disc editor such as BAG OF TRICKS or THE INSPECTOR. On track 2 change BYTE 2F FROM 3E TO 31, write the change back to disc, and no more worries.

Harbour Development Group Ltd
8/10 Half Moon Court
Bartholemew Close
London EC1A 7HE
Tel. 01 606 6526

Dear Sirs,

We have an Apple II and an Apple /// installed in our office together with an NDKS 7000 printer. At the moment we are experiencing difficulty in getting the printer to print out small print face and the only concluison that we have arrived at is that the software we have is not configured for this.

We are therefore writing to you to ask if you could put us in touch with somebody who has knowledge of the Apple Software and the NDKS 7000 printer in order that we can use this facility on the printer. We would, of course, be prepared to pay for this service.

Yours faithfully

Miss S.M.Barker

LOCAL GROUPS

C.A.U.G.
Croydon Apple User Group

November saw our ninth meeting and it being our first AGM we elected a committee of six. We see ourselves as serious Apple users, mostly owners as well, and our numbers are around 25.
Meetings are monthly on the second Mondays at 7.00 for 7.30 p.m. and the programme which the committee has now planned for the next 14 months, alternates between set pieces and Apple "surgeries". Individual members' experience ranges from Pascal and Machine Language wallahs to those still struggling with the early chapters of Applesoft Basic. Surprisingly this wide range is seen as one of our strengths.
Alternating between these meetings are committees and with each committee member earmarked to be responsible for at least two of the planned meetings ahead, these are proving to be very lively occasions.
New members will always nbe welcome, especially as we'll soon be moving into a more permanent meeting venue. Subscriptions are £1.00 per year and application forms are available from myself at [illegible] Kent.

Paul Vernon

SOUTH LONDON BASUG GROUP

by Neil Stephenson

As secretary of the South London group I would like to inform Hard Core of our activities. People interested in coming to our meetings are reminded that we meet on the second Thursday of the month between 7.30 and 10. Although the topic is set in advance the meetings are not too formally structured and usually comprise a general talk/discussion on the set theme for the evening, followed by a general session where members can put questions to the presenter(s) or just chat with other members on Apple related problems and solutions.
A large portion of the BASUG software library is also available for purchase (or just to look at if time permits) and blank disks may also be bought at standard BASUG prices. The software library was in fact the topic of the June meeting, and members could try out programs before deciding on a purchase.
In July we looked at printers - a Paper Tiger, Seikosha, Oki Microline, Facit 4520 and an Epson MX80. Members were able to compare their various features - noise levels, weight and size, different styles of type face, and (in some people's minds most important of all) the speeds of printing.
The group did not meet in August but in September Jim Brannin talked about "Micros in Education". He brought along a copy of the Apple logo system and demonstrated how well structured the language is, and how easily it could be learned. Jim had only had the disk a few days but was able to give a very fluent demonstration of its capabilities.

The October meeting, "Communications and Networking" was presented by Vernon Quaintance, and covered Prestel and Linked Micros. The Prestel demonstrations were conducted with a micro-Tantel Prestel interface which displayed Prestel frames that had previously bee captured and recorded on Apple disks through the tape socket on the adaptor. The Micro-Tantel has a ROM which allows the Apple (and various other micros) to control the Tantel from the computer keyboard. Also on show was ROS, a remote operating system, kindly lent by Pete and Pam computers. The ROS system comprises interface cards, cables and software to allow the linking up of two Apples. Further interface cards may be purchased to allow other Apples to be linked in. One of the Apples is deemed the controlling Apple, and the others slaves, which are allowed to have their own disks. The master Apple can be configured to act purely as the disk/printer server with its RAM being used as a large disk buffer to speed disk accesses, or may be used as though it was just another slave.
The November meeting, loosely titled "What do I do with my slots?" covered the area of peripheral expansion. The talk by Michael Leeming (our Chairman) and Vernon Quaintance covered among other things memory expansion (extra RAM cards), serial and parallel interface cards, real time clock devices, multi-function cards, extra processor cards, sound card, graphics and plotting devices and colour cards. Pete and Pam Computers had kindly made available a Verswriter (a graphics interface board) and a Timeclock (a real-time clock that interfaced with the Apple through the games port. These were demonstrated, together with Vernon's own ZApple Sound Card.

The December meeting was given over to Games. On show were Bandits, one of the latest and most sophisticated of the arcade 'shoot 'em up" variety, Choplifter and Threshold, another Aliens style games.

The agenda for 1983 is:
13 Jan Basic Compilers
10 Feb Apple UCSD Pascal
10 Mar CP/M
14 April Visicalc (and AGM)
12 May External interfacing with process control
9 June Graphics

Our address is:
BASUG SOUTH LONDON GROUP
Raynes Park Methodist Church
Worple Road
Entrance Second door up Tolverne Road
Raynes Park

Hants and Berks

Frances Teo thanks all those who have telephoned in past weeks about establishing a local BASUG group on the kind of Reading/Farnborough axis. In the next weeks, when she surfaces from various pressures, she will be getting back to you. In the meantime for any others interested please call Frances on [illegible]

Apple 83 is on

The people in Stockport are, it would seem, gluttons for punishment and are about to repeat the "friendliest computer show of all" - Apple 83. Thursday to Saturday, June 2-4, will see Windfall's annual show once more at the Fulcrum Centre, Slough. Apple (UK) at time of going to press are still humming and hawing about their participation, but whether they do or don't it still looks set for success. Advertising man John Ridley tells me that attendance last year was pushing 8000 and this year it is estimated that visitors could reach 10000. Mercifully Windfall are not into the number crunching game which could mean that the crowded excesses of some of the other shows will not be repeated. Apple 83 is taking over two whole floors of the Thames Theatre complex, which among things will mean that you will have to go one further flight of stairs up before the action starts. No charge for entrance, you will be glad to hear, but if you want Windfall to arrange accommodation, contact David Hirst on 061 456 8383. There is plenty of parking available. As last year a convention will be held off-exhibition.

STORYBOARD
A READING SKILLS PROGRAM
CLOZEMASTER
A READING SKILLS PROGRAM
BY CHRISTOPHER JONES
QUESTIONMASTER
BY TONY WILLIAMS GRAHAM DAVIES
Write your own CAL routines
Wida Software
Specialists in Educational Software for Schools
ENGLISH FRENCH AND GERMAN
Send 9 x 6 s.a.e. for catalogue
2 Nicholas Gardens · London W5 5HY
Tel. (01) 567 6941

VISICALC

by Frances Teo

Although you keep all your files safely saved on your disks, there are many times when it is easier (and faster) to look something up that has been printed out and filed in the traditional manner. Many printers offer a number of character sets and column widths which are defined by using the 'ESC' and 'CTRL' keys but Visicalc cannot accept the direct command of pressing those particular keys when setting printer parameters. So you have to use a series of other key strokes to simulate the keys in question. The following commands are aimed with the Centronics 737/739 printer and the Apple Centronics card in mind as this is my particular combination, but for those of you with an Epson (or other) printer refer to your manual for the ESC and CTRL characters used. If the ESC and CTRL keys are not used in setting character sets you are faced with the tedious task of writing a short boot-up BASIC program to set the printer before you boot Visicalc. I shall be happy to answer individual queries if you write to me. Visicalc uses '↑E' for ESC and '↑C' for CTRL.

The first step to printing your file is to place the cursor at the top left hand corner of the section you want to print.
Next type /P RETURN.
Visicalc then asks for the slot no. of the card. The default is 1 so if your card is in slot 1 just press RETURN. Otherwise type the number of the slot and press RETURN.
You are then prompted to set up the printer. Visicalc issues an automatic line feed at each carriage return, so does the Centronics; so to avoid the double spacing type '-' which disables Visicalc's line feed. DO NOT PRESS RETURN AT THIS STAGE! To set the printer to condensed characters with 132 column width you now type '↑E↑CT' then press RETURN; this has set the condensed characters (for the Centronics being 'ESC CTRL T'). Now type '↑CI132N' and press RETURN; this has set the column width (ie 'CTRL I 132N').
Now you are ready to position the cursor on the bottom right hand co-ordinate of the section to be printed, press RETURN and let the printer do its bit.

If, at this stage, you find it is not appearing as you want it to, type 'CTRL C' and the printer will stop and return control to you. Do not RESET as this will cause Visicalc to hang and you will have to switch off and reboot losing whatever may have been in memory.

As the Centronics defaults to the Standard Character set when it is switched on all you have to tell Visicalc is the column width. ie '↑CI80N', RETURN. If you have been using Condensed Characters and then want to use Standard Characters, it is easier merely to switch the printer off, then on again rather than defining them in the printer set up.

I do not advise using the Proportional Character set as it will not align the columns directly under one another. The only benefit is if you are using Visicalc as a simple word processor (as many people do!).

In December's Visicalc Corner I mentioned that we should be discussing how to plan and construct a model. Unfortunately I have had to put that off until the April issue of Hardcore as so many people have been enquiring about the set up of printers.

Remember, if you have a problem (it doesn't matter how minor you may feel it to be) write to me c/o Hardcore and I shall answer it in the next edition.

SOFTWARE

Wordstar disk/Manual	£125
Easywriter disk/Manual	25
Conflict 2500 Avalon	10
Flight simulator	12
Informer II D/B Manager Disk/ Manual	100

BOOKS ALL AT £5 EACH:
Dejong "Prog and INTFGC 6502
Leventhal "6502 Assembly"
Zaks "Prog. the 6502"
Zaks "6502 Games"
Zaks "6502 Applications"
McIntire "A/Z computer Games"
Lien "BASIC Handbook"
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THE ZAPPLE SOUND EFFECTS & MUSIC BOARD.

A Review by Mike Siggins.

The Zapple board has been available for some time now but I have only recently had the opportunity to use one and this article reflects my findings.

Compared to other computers, especially the more modern ones, the Apple's sound capacity is somewhat limited and one soon realises that the diminutive speaker can only issue a small range of beeps, even with the help of machine-code drivers. A particular failing, in my opinion, is the inability to produce effective white-noise. Now, with the Zapple, it is possible to produce as many sounds as anyone could possibly find a use for, with virtually limitless combinations.

The Zapple is based on the widely used AY3-8910 Programmable Sound Generator (PSG) and derives its versatility from this chip which has three channels, offering either noise or musical tones. This, in combination with the envelopes also available provides the range of sounds. The board comes with one PSG, enabling the use of three voice compositions but is expandable, for the cost of the chips, up to three PSG's and consequently nine-voice music.

On the hardware side, the board appears well made and comes ready for installation in the recommended Slot 2. The board is compatible with both Apple and ITT 2020's. The ITT, however, will require Applesoft resident for the programs to function correctly. Installation is very easy with ample instructions. It is attached to the Apple speaker lead and the speaker terminal under the keyboard to the right. Other leads pass out through the rear slots to the volume controller which can vary the noise level from zero to somewhat louder than normal (this is available separately). It is possible to connect the Zapple to an external speaker to further improve sound quality but I personally have not tried this.

It might be said that hardware can be let down from the user's point of view by incomplete or inefficient software. The Zapple, however, comes out very well in this area. On booting the supplied disk, one is greeted by an impressive demo which uses hi-res graphics to show off the sound capability of the board. It is rounded off by an excellent rendition of 'The Entertainer' which confirms the Zapple's quality, even with the one sound chip. The hi-res demo indicates one of the board's major assets - it is possible to produce sounds constantly without interfering with the 6502's processing. Therefore, the graphic or other routines are not at all slowed by the effects generated.

It is easy to be impressed by demos for software but the proof of a program's worth is evident when you sit down and try the same yourself. This I did, and literally within minutes had reproduced the sounds from the demo and turned out a passable helicopter sound effect! The programs come on a single, unprotected, DOS 3.3 disk and even include the source code for the routines. This is the only way to provide the user with the best software support and the manufacturer is to be congratulated. I personally cannot understand why all firms selling mixed hardware/software packages do not adopt this policy.

The workhorse of the software is the program to generate and edit 'Sound Tables'. These are similar in concept to graphics Shape Tables and are produced, edited and saved to disk or tape in a very user-friendly and bug free environment. One is constantly offered default options together with prompts for the correct input. Generation of the tables couldn't be easier but I found that performance was significantly improved by compiling the Applesoft program which should, if done, be organised above page 1 of the hi-res screen as this is used for display. The program is good in that it completely removes any problems of directly programming the PSG's for the inexperienced user by showing, for instance, the envelope types graphically. The advanced user is also catered for by several assembly-code routines including one for implementation of more than one chip. There are fully commented listings in the manual.

The documentation provides all the information needed - I found the tutorial comprehensive and well written but in my opinion did not offer enough in terms of inspiration for more complex effects. I would have liked to have seen, say, the development of 'The Entertainer', laid

out in full. The above said, I must admit to being rather weak on the musical side and someone who knows a Middle-C from Motorhead will get along fine. The program disk has a sample program, in Applesoft, showing how to drive the board from BASIC. This is simplicity itself, similar in usage to DOS commands except that 'CTRL-E' replaces 'CTRL-D' in print statements. A definition of E$ as CTRL-E, a couple of pokes to indicate the sound table's location and a PR£2 are all the requirements for BASIC. Assembly language instructions are equally convenient.

To sum up, The Zapple, at the asking price of £65 must be considered good value . I would suggest that it compares well to the higher priced systems in the price-performance stakes. Indeed, for anyone interested in computer generated sound/music effects, you could do no better without going to the expense of Alf cards and the like. It must be pointed out that, like many peripheral cards, once you start writing programs to use The Zapple, they will become unique to Zapple-equipped machines. If you can live with this, which is no problem if you have no intention of selling your work to anyone but fellow Zapplers, the Zapple is a must.

The Zapple has been kindly made available by Meekrose Ltd, 85 Waterdell, Leighton Buzzard, Beds.

Meekrose comments:
A couple of points in Mike Siggins' review of the Zapple may need some clarification.

The compiling of the Applesoft program to create sound tables may be possible, but all the code, including any 'Runtime' routines must be above HGR1, as the space below is used for Assembler routines and data storage. Note that programs written to use the Zapple can be compiled and run without changing the sounds previously defined.

At present programs with Zapple sound features will hang if used on a machine with no Zapple card installed. A small routine is printed in the Zapple manual which enables programs to find the Zapple in any slot - it works in any. Future copies of the manual will include a small Basic routine to find a Zapple, if one is present. This is similar to the Clock cards which are used by some programs if they are found, ignored if not.

IMPORTANT MESSAGE TO OUR MEMBERS!

by John Sharp

1. Before sending off for the Software Library please note which disks are DOS 3.3 and which DOS 3.2.1. Extensive instructions are on the front of the software library catalogue. If you cannot follow them, we are sorry, but we cannot make an exception: we CANNOT provide 3.3 versions of earlier disks. So please, do not write in and say either that they do not work or requesting 3.3. versions. This puts an extra strain on our already overloaded staff.

2. Disks 11 and 57 are causing trouble. Disk 45 Stockmarket is corrupt on the original master. Disk 51 has a number of programs corrupt on the original and so has been withdrawn for the time being. Please do not order these for the present.

3. Eamon disks cause continual copying problems. If you can't get them to work (allowing for corrupt or blank sectors) look at the August 1982 Hard Core article by John Martin.

4. We do have a literature library but it has not been functioning. Will all members with complaints about lack of replies please write to the Secretary.

5. Excuse the delays in replying to your many letters. The pile is indeed going down, but with renewals and other problems (i.e. a much needed Christmas stand-down and our valiant membership secretary in hospital), time has run out. Can someone write a program to insert an extra day in the week, preferably between Friday and Saturday?

6. Answering queries is very time consuming, and no reply will be sent if an SAE is not enclosed. Even then a personal reply cannot be guaranteed. Letters without an S.A.E. will be sent on to Hard Core and others which are outside my sphere of knowledge will be passed on to someone else who might know. The chances of a letter going astray in this intricate system are naturally quite high, so we must ask you to bear with us.

Incomplete Records

by Terry Crouch

(Editor: I commissioned Terry Crouch to write this short introduction to some of the problems of accounting not only because his package caught my eye but also because I feel it is of vital concern to many members and an area in which we are at our weakest. I believe it should be made the first of a series. But what do you think?)

Mention the phrase "Incomplete Records" to an accountant and (depending on the sort of day he is having) he will immediately have visions of a client standing in the doorway carrying one or more shoe boxes full of cheque stubs, some of which have been completed, bank statements that may or may not correspond, and possibly the odd purchase invoice. This client invariably has a need for his accounts to have been prepared yesterday. In fact, incomplete records is used as the description of any set of books that do not form an integrated accounting system i.e. one which has been designed to produce the financial information, including statutory figures, required by the business.

Most businesses do keep adequate records - certainly a cash book, which will be regularly reconciled to the bank statement, and balanced sales and purchase ledgers. These records, as we have established, are still "incomplete" - it is not possible to produce accounts directly from them.

In the early days of computers, bureaux sprang up offering various ingenious ways of preparing accounts from these types of records. Perhaps the most popular system required the input of the individual coded amounts via an adding machine that printed OCR characters. The adding machine roll was then sent to the bureau where the roll was read and draft accounts produced - these accounts would almost always require amendment - the amendments being handled in the same way. The problems were two-fold: 1, the turnover time, start to finish and 2, the lack of flexibility in the final accounts format.

The word "coded" was underlined in the preceding paragraph. The key to any system of this nature is the coding structure. The easiest way to picture the code is to think of an analysis sheet, such as would be used in a cash book. In the first column, the total of the amount banked is entered. In a headed column or columns, to the right of the bank column, is entered the analysis. There might, for example, be columns headed rent, or electricity, and payments for these then would be entered in these columns. It is a short step then to number the columns - and in simple terms, that is what codes are - column numbers. In a book, the individual columns would be totalled and then cross-cast to the bank figure, to verify the accuracy of the analysis. In a computerised system, this cross-casting is of course unnecessary, and an amount entered with a code can be analysed without fear of error.

With the advent of the micro-computer, which need not be a lot bigger than the adding machine, the whole concept changed. Not only was the computing power manageable, but advanced software, such as Visicalc, became available at a cheap price. From a trial balance, Visicalc can produce a complete set of accounts -a technique I used as financial director of a group of companies in the Channel Islands. The trial balance, however, was the result of a combination of various systems entered manually into a ledger. What is needed is a way to produce the trial balance quickly - and directly from the original entries.

The ideal solution, therefore, is a programme to accept and manipulate the coded entries. If the entries are stored in a random file, any one can be retrieved for amendment. This is important, as early incomplete record systems written for micros suffered from

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a speed problem - the operator could often input the information faster than the printer could print it. The answer is to file entries to disc for later printing - which also allows the amendment of any entry.

Information can now be collated. However, this information has to be passed to the Visicalc model. This can be done by means of DIF files, which are also used to store year-on-year comparatives. A feature of the Visicalc model is that amendments are allowed to the trial balance contained in the DIF file - which calculates a new set of accounts immediately. The other advantage of using Visicalc is that the account's format can quickly be tailored for each individual client or business.

Videx Videoterm

Videx have transmitted a message to the world on the "Hard Disk Fix." This takes care of the "flickering" of the screen when memory locations ($CC00,$CDFF) are addressed. This problem is generally but not exclusively encountered by hard disk users. The following modification may only be made to Videoterms which have a small green "B" on the back side of the PCB located near the words "Serial No" on the board itself, not on the white label. If you do the modification, VIDEX will excommunicate you, but it is their recommendation:
Refer to Page A-4 in the manual for the following locations:
1) Place a jumper between Pin 11 of U6 to the banded end (top lead) of diode CR1.
11) Cut the trace (back side of the Videoterm) which runs from pin 5 of U9 to the banded end of diode CR1 NEAR THE DIODE. You are removing only the diode from this part of the circuit.
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Beginners' page

MORE DEBUGGING TIPS

by John Sharp

Some debugging hints were given in the last Beginners Page. However, since a number of things that can go wrong we will carry on trying to sort out further problems.

Even though you took note of the tips in the last article, your program may still not work because of errors of logic of some sort. These are harder to debug, because the computer doesn't tell you directly where the program is going wrong.

Consider the case of a misdirected line number.

```
10 FOR N = 1 to 10
20 M = N * N
30 IF M-N > 30 THEN GOTO 60
40 NEXT N
50 PRINT "NONE FOUND"
60 END
600 PRINT "IF N = ";N ; "THEN M-N IS
GREATER THAN 30"
```

What we intend to happen is that if the difference between M and N is greater than 30 we print the value of N (which as shown below should happen when N reaches 7). Because of mistyping in line 30 the program is directed to line 60 instead of the correct 600. By looking at the listing this is fairly obvious. However, this listing is short and because of this it is easy to pick the mistake up. This is often not the case, especially if line 600 does not come up on the screen at the same time as the offending line. Let us look at a procedure for finding out what the problem is. Running the program produces the prompt back.

You know it should produce a printed result, so your immediate reaction is to say "IMPOSSIBLE!! STUPID * £ % !! COMPUTER" - whereas it is your fault in fact.

The first thing to do is print the values of N and M. Once you are out of the program in immediate mode then the variables are still stored within memory. So just typing:-

```
? N,M
```

produces the answer:-

```
 7              49
```

A quick calculation with pencil and paper says this is correct. If N = 7 then M = 7 * 7 and if N were 6 then M would be 36, M - N would be 30 and so the value of M-N would not be 30 and so the value we expected to cause it to go out of the loop with at line 30.
By printing these values directly you know that that part of the program is working correctly. Why then is it not going where you want it to? Where is it going? In this case looking at line 30 tells you that the mistake is that it is going to line 60. In more complicated cases it may not be as easy. It would be of great help if the computer told you where the program was jumping to.

Fortunately the APPLE has just such a means of letting you know what is going on. The special command is TRACE. If you set the trace on and type RUN as follows the screen should look like:-

```
TRACE
RUN
#10 #20 #30 #40 #20 #30 #40 #20 #30 #40
#20 #30 #40 #20 #30 #40 #20 #30 #40 #20
#30 #60
```

Every time the computer goes through the line it prints the line number with a #' in front of it.

You can look at the listing and follow it through working out logically what should be happening. This is called "dry running", and would be useful to do this in case.

Line 10 first sets N = 1

Line 20 find the square of N and sets the variable M equal to it.

Line 30 checks the value of M-N with the number 30, if M is less than 30 then it ignores the rest of the line. Since M-N = 0 then the program moves onto line 40.

Line 40 sends the program round the loop, i.e. back to 20.

Line 20 says N is increased by 1 to 2. It is not yet equal to the limit of 10 so

carry on to line 30 again and do the check once more.

It continues going round and round until, when N = 7, M-N is greater than 30 and the statement being true allows the GOTO 60 to be executed. The last line number printed out by the tracing routine is '£60'. If you have noticed this then the error is picked out.

In this case it is possible to put the listing and the trace on the screen. Normally great lines of accessed line numbers are generated and the your eyes will go funny trying to keep up with what is happening. One way of overcoming this is to use the same facility as for slowing listings down, the CTRL-S. Put the second finger of your left hand on the CTRL key and keep it there. Put your index fingers over the 'S' key. By pressing the 'S' key alternately as an on and off key, it is possible to have very fine control over the scrolling.

Correct the error in line 30 by making it 600 instead of 60 and RUN the program again. What happened? All the line numbers appeared again with something on the end:-

```
 RUN
#10 #20 #30 #40 #20 #30 #40 #20 #30 #40
#20 #30 #40 #20 #30 #40 #20 #30 #40 #20
#30 #600 IF N = 7 THEN M - N IS GREATER
THAN 30
```

The trace facility was still on and when it came to line 600 it carried out the print action straight after printing out the '£600". This is very useful if you wish to find out at which line number a particular statement is being output or where an input is expected.

The trace facility would be a nuisance hereafter so switch it off by typing:-

```
NOTRACE
```

Seedlings

Yet another famous name bites the dust. Country Computers Ltd (the country in this case being around Redditch) has been compelled to withdraw the name "Acclaim" for its Apple-compatible computer. The trouble came not from Apple Inc but from a whole host of other Acclaim-name users, who got in with it first. But this is by no means the end of the product, and indeed it rises renamed already as the series C1000. The baby of this series is the C1005 - with 5 megabytes, followed by the C1010 with ten, etc. The C1200 with 12 megabytes incorporates the 'Ultimate' Winchester for the Apple II. Paul Dearlove of Country Computers says that many people imagine that off-the-peg Apple software cannot be stored on Winchester, but his company has countered these objections with a pre-boot disk which among other things now has a V for Visicalc option in its start-up menu. The trick with this machine is not that it runs Apple type software but that it has an integral tape for back-up, and the disk store is simultaneously configured for DOS, CP/M and Pascal. The system with 5 Mgb sells for around £2750, the 10 Megabyte version for £2950 and the C1200 for approaching £4000 so while changing its name Acclaim has moved into the big time.

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GRAPHICS BOOKS

by John Sharp

When BASUG started there was nothing like the present output for the APPLE, and this was especially marked in the supply of books. Although this is only two years ago, one can look back even over this short period with nostalgia. The basic fundamentals of the mathematics of graphics either had to be worked out for yourself, or searched for in computing journals (not magazines). I worked from two books at that time. "Mathematical Elements for Computer Graphics" by David Rogers and Alan Adams is published by McGraw-Hill but appears to be out of print. This general introduction to the mathematics is very clear, has a number of well documented BASIC programs which are fairly easy to convert to APPLESOFT. Our bible then was the famous Newman and Sproull, "Principles of Interactive Computer Graphics", again published by McGraw-Hill which when it went into a second edition was even better. The 550 pages are closely packed with algorithms on all the then current methods needed. From the algorithms for line drawing (APPLESOFT uses a very poor algorithm), through curves, splines, transformations in two and three dimensions to hidden line removing and shading and antialiasing routines - it is all there. Listings are given as PASCAL procedures, but there is much for you to do. It contains a number of sections on hardware also. It is really a reference book, way above the simple little APPLE. At £7.55 (I think) in paperback, still a bargin.

Now, if a new micro appears every week now a new book comes out every day, and it is becoming a nightmare to follow it all. ADDISON-WESLEY have come up with two new books to really make the choice even more difficult.

The first of these, "Fundamentals of Interactive Computer Graphics" by J.D.Foley and A.Van Dam comes in the same league as Newman and Sproull. It compliments it in many ways. There is little on hidden line and shading - mentions rather than useful details. The first third on generation of images is in the standard textbook format - it tells you the basic principles, but does not help you much in the practicalities of building a working system. The central portion on the mathematics is well done. It is in the 'it can be shown that' mould, i.e. you have to sit down and work through the equations if you want to follow it completely or just use the results. Like Newman and Sproull, there are procedures given in PASCAL, but not as many. At a price of £15.95 for a 650 page hardback, it is good value if you are a serious student of graphics, but as a book for the average programmer who is a good mathematician, I would go back to Newman and Sproull as better value for money in useful programming content.

In terms of practical down to earth usefulness for the APPLE in particular, the second book wins hands down. Roy Myers' "Microcomputer Graphics" is 280 pages and costs £8.95. It is full of listings, some only 10-20 lines long, but most covering a number of pages. They are supported by with a well written mathematical background. This goes right back to fundamentals, even explaining sines and cosines, although this comes a third of the way through the book when they have been used in numerous ways until then. The initial introduction jumps in with listings which are not explained; they are more of an illustration. The next section not only deals with the APPLE as a graphics computer but contains useful ideas such as using memory moves to obtain four pages of graphics. There is a comprehensive 'text on graphics' section.

The mathematics is then developed for the latter two thirds of the book. Apart from the two dimensional analytical geometry and transformations there is a good general section covering clipping etc. Three dimensions are covered very well and the 50 pages on hidden line removal is the most comprehensive and easy to understand exposition I have seen. The sections on animation and uses of shape tables are small. The book is really about the mathematics of computer graphics, and the final section on matrices and vectors enhances the rest of the book.
The book is totally in BASIC and even if your mathematics is rusty you should be able to use the listings in conjunction with the descriptions to enhance your own programming.

Spleeling (whoops) Speling (whoops) Smelling

by Tony Williams

The inside back cover of the Master Diagnostics disk by Nikrom (an otherwise excellent program which gets to places other diagnostics disks cannot reach), generously acknowledges: documentation written entirely using Apple Writer, a NEC Spinwriter and * spelling correction: Goodspell. This was an unkind touch, since a cursory glance through the booklet reveals: "intermittant", "a silicon meterial", "these plastic meterials", "an intermittant problem may be do to this oxide layer...", "no specific analyitical...", "an increment will occour depending...", "evan though there is no...", "the outside parimeters", "you may chose to test", "no other computer manufactuer", etc. etc. Go to the back of the room of all you who spotted no mistakes above!

Programmers, as we know from experience, are desperately poor at spelling and need all the help they can get when writing documentation. For the uninitiated, let me explain that spelling checkers are a kind of floppy dictionary: you write your piece, using one of several compatible word processing packages, then have them checked against the 'dictionary'. Correction can be automatic or manual. Most spelling checkers are US but some include the facility for adding your own stock of British spellings. They usually work. Godspell, sorry Godspiel, pardon Goodspick, apologies Grodspel - or whatever - seems either to have been typed in by a programmer, an awesome thought, or, the kindest interpretation, was not used at all for the Master Diagnostics documentation.
(Would BASUG members kindly write in about their experience with this and other spelling packages.)

MULTIPLE KEYWORD SEARCH FOR VISIDEX

by Bernard Weller

Visidex appealed to me as a convenient file card type system for the storage and retrieval of information from scientific and technical journals. For those unfamiliar with the system, Visidex allows information "on screen" to be stored as "file cards" and indexed via keywords created by the user as appropriate to the information to be stored and retrieved. Storage and retrieval is performed primarily on the basis of keywords but searches can also be carried out via the ampersand command, for any string or strings present in the file.
Especially convenient for scientific and technical literature work is the template facility which allows a suitable layout, with headings such as Title, Author and Journal, to be set up on screen by a single key stroke. However, in contrast to this and other elegant features, searches can only be carried out using a single keyword and hence multiple keyword searches are impossible. I know that is a word one should never use especially in the world of microcomputers so let me say that having spent sometime in attempts to implement a multiple keyword search I never found a method. This problem can be offset to some extent by the use of the ampersand to search text but, unfortunately, it does not follow that all appropriate keywords will be present as such in the text. Furthermore, it would impose a severe limitation on the system to match keywords to text or vice versa.
Fortunately the solution is a simple one. I use KEYWORDS as a heading in the template and list all KEYWORDS under this heading at the same time as they are created. Since I know that each KEYWORD must be present as a string in the text I can perform what is effectively a multi KEYWORD search by using the format KEYWORD & KEYWORD & KEYWORD etc. Since the first KEYWORD search in this combination is the fastest it pays to make it the most common KEYWORD.

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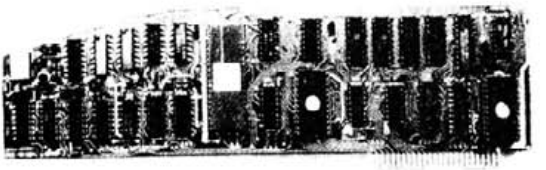

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