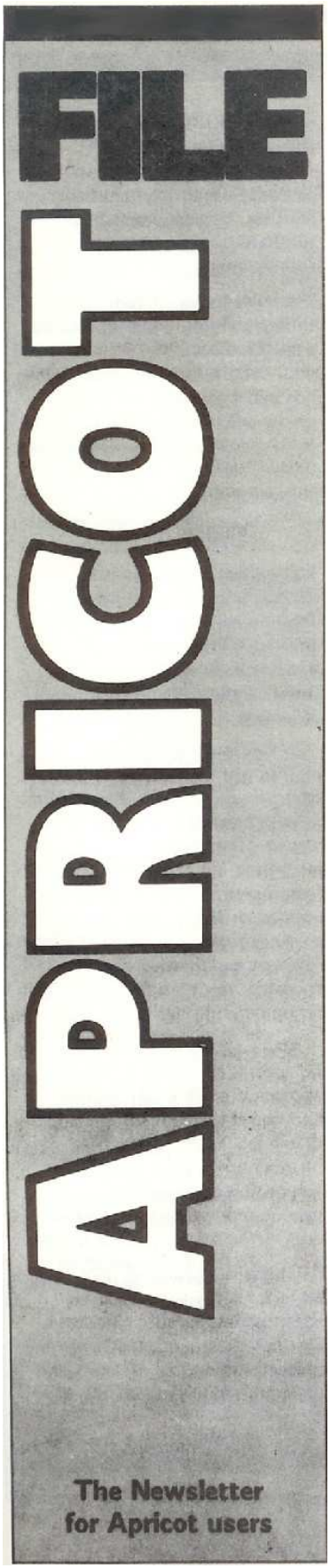
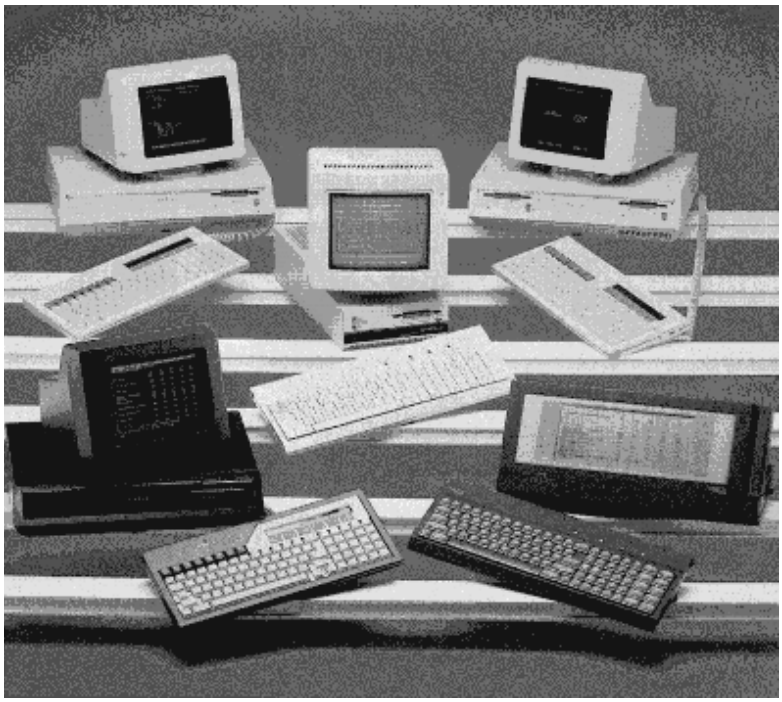


Apricot File 1_12



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Release 1.12

FILE

APRICOT

The Newsletter for Apricot users

September 1986

Apricot-compatibility for the Xen-i

Two new models, two price cuts

By Simon Potter

Less than three months after announcing the Xen-i, Apricot has tweaked the product line to make it a good deal more attractive:

- prices have been dropped on the two existing models
- two new low-end machines have been announced
- ... and they can have Apricot-style microfloppies
- a return-to-factory upgrade scheme has been announced.

The price cuts certainly make the top-end models a bit more competitive. The Xen-i XD, which has a 40MB hard disk, drops 14 per cent to £3,849; the 20MB Xen-i XD loses 18 per cent to come in at £2,849. Add the cheapest monitor (a new monochrome green-on-black 720x350 display priced separately at £149) and the base ready-to-use prices are **£3,998** and **£2,998** respectively.

The new machines are probably more important in terms of Apricot's image. Externally there's no difference — they both use the same casing and will take the same amount of space on your desk, both get the MicroScreen, both utilise Hercules-style graphics and both can take all the existing Xen-i cards.

But there is some reduction to the Xen-i spec: a slightly slower clock speed for the microprocessor (8MHz rather than 10MHz), base memory of 512KB (against 1MB on the HD and 2MB for the XD), no external expansion box, no 'above memory' (that's what Apricot calls its bank-switching equivalent to the 'extended memory specification' produced by Lotus and Intel to increase the memory addressing range on the IBM PCs), and no support for Xenix (presumably because Apricot thinks 512KB isn't enough memory for it).

One new arrival is the Xen-Xi 20, which otherwise looks much like the existing 20MB machine. That will cost **£2,499** including the monochrome green monitor. The new starter level is a Xen-Xi 10 which gets a 10MB internal hard disk and no expansion slots (though you can pay extra to have three slots as on the other Xen-i configurations). This is **£1,999** with the monitor.

But the key attribute of these two is the availability of Apricot-compatible microfloppies — you can specify that your disk drive is the IBM PC/AT-style 1.2MB 5.25in floppy as on the existing Xen-i models, or you can ask for a high-capacity 3.5in drive. This will

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Apricot-compatibility for the Xen-i

read data from any other Apricot, though in fact it's a quad-density drive capable of formatting and writing 1.44MB on to the floppy; these have been around for a while now, but we think that Apricot is the first major manufacturer to use them.

Apricot says that even with the down-rated clock speed, the two new Xens will outperform the fastest IBM PC/AT. So this looks a reasonable upgrade path for existing Apricot owners: £1,999 may sound a lot for a 10MB AT-type system (£1,500 would be nearer the mark if Apricot wanted to compete with the clones) but anyone with a current investment in PCs or Xis — or in the original Xens, for that matter — might find the Xen-Xi 10 the best bet. You'll have to add something for an external 5.25in drive if you want to buy and load IBM-type software, though.

The upgrade plan also makes sense if Apricot wants to build and keep a customer base. From the manufacturer's point of view, there's more money in selling the punters a complete new system when they outgrow their first one; but for now it's probably more important for corporate image and product status to take less money and offer more value.

The jump from an Xi 10 to the Xi 20, which presumably is little more than a disk swap, costs £799; indeed, that's not far off the going rate for 10MB of hard disk. Going from an Xi 20 to the HD model involves motherboard changes and a new power supply (the existing Xen-i models get 135 watts, the two new ones 65W) but no new disk drive, and that's £799 as well. The extra 20 megabytes of disk and a couple of motherboard mods involved in upgrading to a Xen-i HD costs £1,299.

All this is being supported by a £1 million advertising campaign in the Autumn. The theme — "the Xen range is capable of meeting all requirements from £2,000 standalones to £40,000 corporate networks ... total expandability, upgradeability and the ability to communicate ..."

At the same time there's some attention being given to the Xen Mainframes, now regarded exclusively as network-driving file servers. These have the original Xen spec of 7.5MHz processor, 720KB Apricot-compatible microfloppies, and IBM-compatibility only to a limited degree and only via add-ons. The multi-user angle is being beefed up by the promise of MS-DOS 4.0 from November; that's the multi-tasking version of MS-DOS, and it will enable the machines to run both Lan-Link (networked Xens) and X.25 gateways (packet-switched connections to multi-user systems worldwide).

Also promised for the longer term are an IBM Token Ring network connection for Lan-Link and a 3270 SNA emulator. And as a teaser for the future (or possibly just as a boost to the current share price) Apricot has said that it will ship a 386-based Xen-i product next year — "the 286-based machines will remain the mainstay of our business for a long time to come" but "during the late 1980s and early 1990s the 386 processor will play an increasingly significant role in everyday business computing", so "we can now guarantee a further upgrade path". ◆

Xen-i models — the principal differences

Model	Xen-Xi 10	Xen-Xi 20	Xen-i HD	Xen-i XD
clock speed	8MHz	8MHz	10MHz	10MHz
standard memory	512KB	512KB	1MB	2MB
memory maximum	6.5MB	6.5MB	8MB	8MB
hard disk	10MB	20MB	20MB	40MB
floppy disk	5.25in or 3.5in	5.25in or 3.5in	5.25in	5.25in
expansion slots	three optional	three	three	three
expansion box	no	no	optional	optional
Xenix	no	no	optional	optional
AM mapper on board	no	no	yes	yes
Apricot-compatible	no	no	optional	no
Price	£1,998	£2,498	£2,998	£3,998
	[for base system — includes monochrome green-on-black monitor]			
Upgrade	£799	£799	£1,299	none available
	[to next model in sequence]			

Common features:

processor	Intel 80286
footprint	2.48 sq ft
serial port	standard
parallel port	standard
Hercules graphics	standard
MicroScreen	standard
real-time clock	standard
MS-DOS 3.1	standard
Windows	standard
external 5.25in floppy	optional
external tape backup	optional
mouse	optional
Xen-Tel	optional

The Disinformation Column

On well-thumbed texts

By David Langford

"Tell me what you eat and I will tell you what you are," that great foodie Brillat-Savarin once wrote. Trying this on my programmer friends, I worked out that most of them were composed of equal portions of real ale, tandoori chicken, and those strange cowpat things sold at Macdonalds. More instructive, I reckon, is to take a look at what they read.

Of the books on my own office shelf, a dozen have reached that state of vile thumbed seediness which indicates either a truly useful reference or a girlie magazine. Four of these are computer books. Surprise, surprise, not one is an Apricot manual.

(I'll skip the literary reference works, but can't resist noting that a comment very familiar to me as a writer of hardback books has finally achieved popularity in the microcomputer world — thanks largely to the efforts of Apricot plc. The remark is: "I won't buy it now, I'll wait till it's remaindered.")

Tantalising Turbo

In no particular order ... One of the four is Borland International's *Turbo Pascal Reference Manual*, which should need no introduction.

Cocking a snook at Wirth's austere Pascal standard (which loftily ignores such artsy-fartsy frills as reading and writing files), Turbo is full of cunning tricks. A favourite is the 'Absolute' variable, with even more scope for ingenuity and wickedness than the Fortran Real Programmer's EQUIVALENCE. For example:

```
Var
SectorBuffer: Array[1..512] of Byte;
CharBuffer: Array[1..512] of Char absolute
SectorBuffer;
DirBuffer: Array[1..16] of DirEntry absolute
SectorBuffer;
```

The 'absolute' commands force the arrays CharBuffer and DirBuffer to occupy the same memory as SectorBuffer.

Suppose you set up the MS-DOS registers for a disk read. This is a doddle in Turbo: drive number in AL, Ofs(SectorBuffer) in BX, 1 in CX, your chosen sector number in DX, and call Intr($25,Regs);. You've now got the contents of a disk sector in SectorBuffer.

You can examine it as a sequence of *bytes* by using SectorBuffer; as a sequence of *text characters* with CharBuffer; or, if the sector is from the disk directory area, as an array of 16 *directory entries*. (The DirEntry used in setting up DirBuffer is a 32-byte record beginning with 11 text characters of filename, three of extension, one byte for the file attribute, and so on.)

If you're a real smartarse, you can write self-modifying programs by specifying absolute variables in the code segment itself. For example, in Turbo 3.00:

```
OpenModeByte: Byte absolute Cseg:$2182;
```

Manipulation of this byte lets you change Turbo's file access mode from the normal 2 to 0, allowing you to read read-only files (but not, for the duration, to write to any files at all). More of this in TURBOKEY.DOC on the DEALS FOR READERS disk AP003.

Finally, plunging into the inmost heart of the BIOS:

```
ApricotModel: Byte absolute 0:$401;
```

...which lets your program detect what sort of Apricot it's crashing on. When the program runs, ApricotModel magically takes on the value 0 for a PC/Xi, 1 for a Portable, 2 for the F series and 3 for the Xen (but on the Xen-i, all bets are off).

MS-DOS marvels

My next two vital references are here because one can't write in Turbo all the time. Though deeply triffic, it's not the best approach to small utilities, on the sledgehammer-and-nut principle. Who wants to wait for Turbo's 10K run-time package to load, if virtually none of the goodies will be used? It's assembler time....

For this you need The Bible, profanely known to the laity as the *MS-DOS Programmer's Reference Guide*. It contains everything you need to know about MS-DOS function calls — which registers to load, which will return data, how errors are reported, when popping the stack will prevent nuclear holocaust, etc.

Using it is like learning about sex from *Gray's Anatomy*: it gives morbidly detailed descriptions of the parts but is frustratingly silent about how you put them together. Fortunately the naughty bits are lavishly illustrated in other books, of which my choice is *IBM PC Macro Assembler Programming* by Dan Rollins.

Admittedly Rollins has the bad taste to be an IBM person, but 90 per cent of his stuff transfers easily. From simple routines which write 'Sod Roger Foster' on your screen, to installable background programs and device drivers, he gives lots of copyable examples of how assembler instructions are put together into functioning units. (Like learning a language — any fool can swot up the words, the real trouble lies in the idioms.)

Time out for a minuscule assembler program which you can create with DEBUG (as related in APRICOT FILE Release 1.5):

```
XOR  AX,AX     ;  neatest way to clear a
                  register
MOV  ES,AX     ;  set ES segment register to
                  zero
MOV  BX,401    ;  address in zero segment of
                  Apricot model byte
ES:            ;  do next operation in
                  segment addressed by ES
MOV  AL,[BX]   ;  get byte at 0:401h
ADD  AL,30     ;  convert to ASCII digit (0 =
                  ASCII 30h)
INT  F1        ;  write the character in AL
                  to the screen
INT  20        ;  goodnight, sweet prince
```

Yes, you too can learn which Apricot model you own, from 0 to 3 as above. Xen users will have problems, since DEBUG calls MS-DOS 2.11 functions which aren't documented in the sacred texts and cannot therefore be relied on in MS-DOS 3: in other words, the current DEBUG hangs up the Xen.

One correspondent gets round the problem by booting his Xen with MS-DOS 2.11 BIOS 2.7 from an Xi; otherwise you'll have to go back to reading the name printed on the computer.

Speaking of undocumented functions, you may have noticed a useful aspect of the ESC E clear-screen escape sequence: if the cursor is down on the status line, the status line and not the screen is cleared. Unfortunately, to keep programmers from getting too uppity, this has been changed on the Xen. Even if you're on the status line, ESC E clears the Xen screen and leaves line 25 untouched. Roars of laughter at Apricot plc, as one's assault on the status line zaps a lovingly laid-out menu screen ... To be generic, stick to ESC l (that's a small L) when the status line needs a wash. For instance ...

```
ESC ; ESC l ; ESC H
```

Apricot purée

Apricot-specific information is the chief virtue of my last selection, *Advanced User's Guide to the Apricot* by Peter Rodwell. Much of the useful content duplicates those semi-informative .DOC files I mentioned last column, but a book's handier to thumb through while working than a long disk file or a ream of continuous printout. Memory maps, BIOS constants, escape sequences, Control Device calls, GSX: it's all there, and the author really has worked with Apricots (though the claim to cover the Xen is a bit dubious).

Rodwell is convenient, but often infuriating. There's no *law* against giving all examples in soggy Basic or unreadable C; but there's something odd about a 'Programming languages and aids' chapter which spends seven full pages on the PMATE text editor and two lukewarm paragraphs on Pascal (with no mention of top-selling Turbo).

There are also some wickedly-placed misprints: the F series bit-image memory starts at 2000 hex, not C000, and data sequences are cocked up throughout the Control Device chapter (if something involving a segment and an offset address doesn't work when programmed Rodwell's way, swapping them around is usually a good wheeze).

More? The keyboard interrupt, F9H, is recommended for interception: it's explained that by setting AX to zero you can suppress the keystroke, but Rodwell neglects to add that this doesn't work if your program is well-behaved and passes on control to the original interrupt address. (Only a naughty program which stops with IRET can suppress the key thus.) The 'Apricot type' byte is mentioned, but not its value for the Xen. The ANSI escape sequence list is reproduced straight-faced, without any mention of the need for ANSI.SYS — or the fact that no one seems ever to have encountered an Apricot ANSI.SYS. The ESC * sequence is given with no explanation that you need ESC *0 or ESC *1 plus other preparations. A character is put into the keyboard buffer by sending it after ESC \ and not ESC /. Et cetera, ad nauseam ...

Still, it's better than a poke in the eye with a sharp stick. Or with an Apricot plc manual. ◆

Booklist

- MS-DOS Programmer's Reference Guide: available for £45 direct from Microsoft at Excel House, 49 De Montfort Road, Reading, Berks RG1 8LP — tel 0734 500741
- IBM Macro Assembler Programming by Dan Rollins: published 1985 by Macmillan, price £15.95
- Advanced User's Guide to the Apricot by Peter Rodwell: published 1986 by Heinemann, price £14.95

Review

Clever charts:

Praxis MicroChart reviewed

By Paul Langley

MicroChart is a package for drawing graphs and charts from user-supplied data. This can be entered directly via the keyboard or can be read from data files created by other packages or programs. Charts are drawn on the screen and hard copy can be obtained from suitable printers and pen plotters.

There are two versions of the package available — Plus and Super. See the panel for a summary of the key differences; but basically, MicroChart Super is an enhanced version with more chart types, data points and control over appearance — it also costs more than half as much again. Charts created by Plus can be read by Super but not *vice versa*.

Overall structure

Two types of MicroChart file are needed to design a particular chart:

- MDF is a MicroChart Data File — it contains the data to be charted, in spreadsheet-style format
- CDF (Chart Definition File) holds details of the required chart and the source of the data (ie. the appropriate MDF).

There is some flexibility here: the same chart can be applied to several sets of data (such as monthly sales figures) by having a CDF associated with different MDFs. Conversely, the same data can be charted in different ways by having an MDF associated with different CDFs. A particular CDF allows up to eight charts to be superimposed on the screen or hard copy.

The package is menu-driven with formatted input for chart options — validation of your input is generally rigorous, with helpful error messages when mistakes are made. During file selection a directory is displayed on the screen, allowing the required file to be specified using the cursor keys. Function keys are used frequently to implement command selection and a note is displayed on the bottom of the screen to indicate which key to use.

Creating an MDF

Data is entered via the keyboard using a spreadsheet format screen. The commands are in Multiplan-type format (you use a single letter to select a command, like 'V' for Value). You have facilities to input, delete or amend values or text; insert rows or columns; and load and save MDFs from/to disk.

Data can also be transferred from packages such as Multiplan, SuperCalc, Lotus 1-2-3, Silicon Office and MicroModeller. You can also import any files in the DIF, SDF and SIF formats; and MicroChart can take ordinary sequential files, as created by a Basic program for example.

The data is transferred to an MDF which has a maximum size of 63 columns, 260 rows and 2060 cells. A large spreadsheet or data file would have to be reduced in size before the transfer is carried out.

CDF parameters

■ Horizontal axis:

calendar	nine automatic calendar axis modes
numeric	start number and increment
labelled	no automatic labelling is supplied; the axis can be labelled manually via additional text
derived	from a MDF row or column (for X-Y charts)
pie	no horizontal scale

■ Data Set Name:

Each CDF can store details of up to eight different charts, and each chart can be applied to different data sets chosen from within a MDF. Each data set can be given a name such as 'sales' or 'profit' for quick reference later

■ Type and mode of chart for Data Set:

Line	normal or stacked
Bar	normal, stacked or overlaid (overlaid bar is not available in MicroChart Plus)
Scatter	single points
Hi-Lo-Close	eg for share prices (not available in MicroChart Plus)
Keyed	two values supplied, straight line between them
Moving Average	number of data points can be specified
Trend	exponential smoothing
Best Fit	straight line using linear regression

■ From/To:

Row or column of MDF

■ Step:

Useful for data in non-adjacent cells

■ Vertical Axis:

One or two	for charting data on different scales)

■ Scale type:

Linear	
Logarithmic	
Automatic	between minimum and maximum data values
Fixed	user defines range of scale

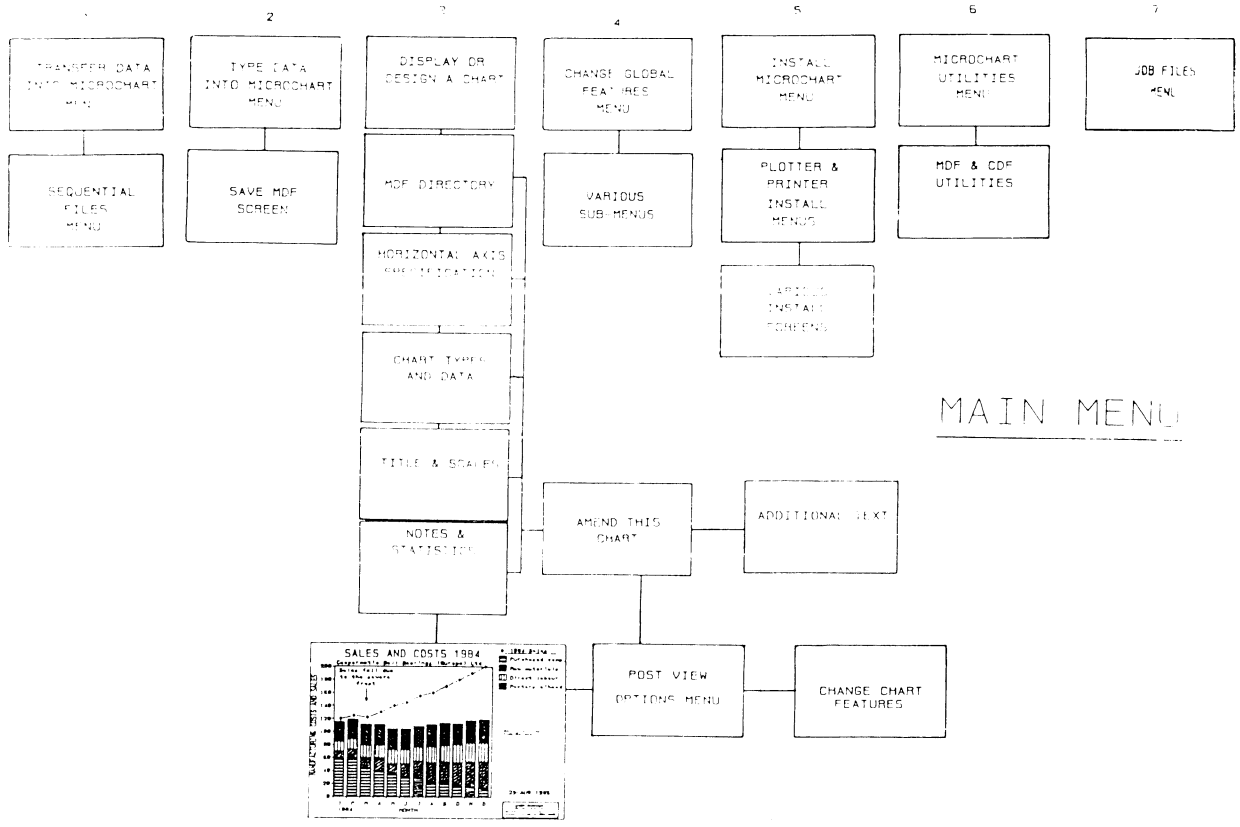
■ Statistics:

Eight different statistics can be produced on up to three data sets — minimum, maximum, mean, standard deviation, slope, intercept, coefficient of correlation, standard error

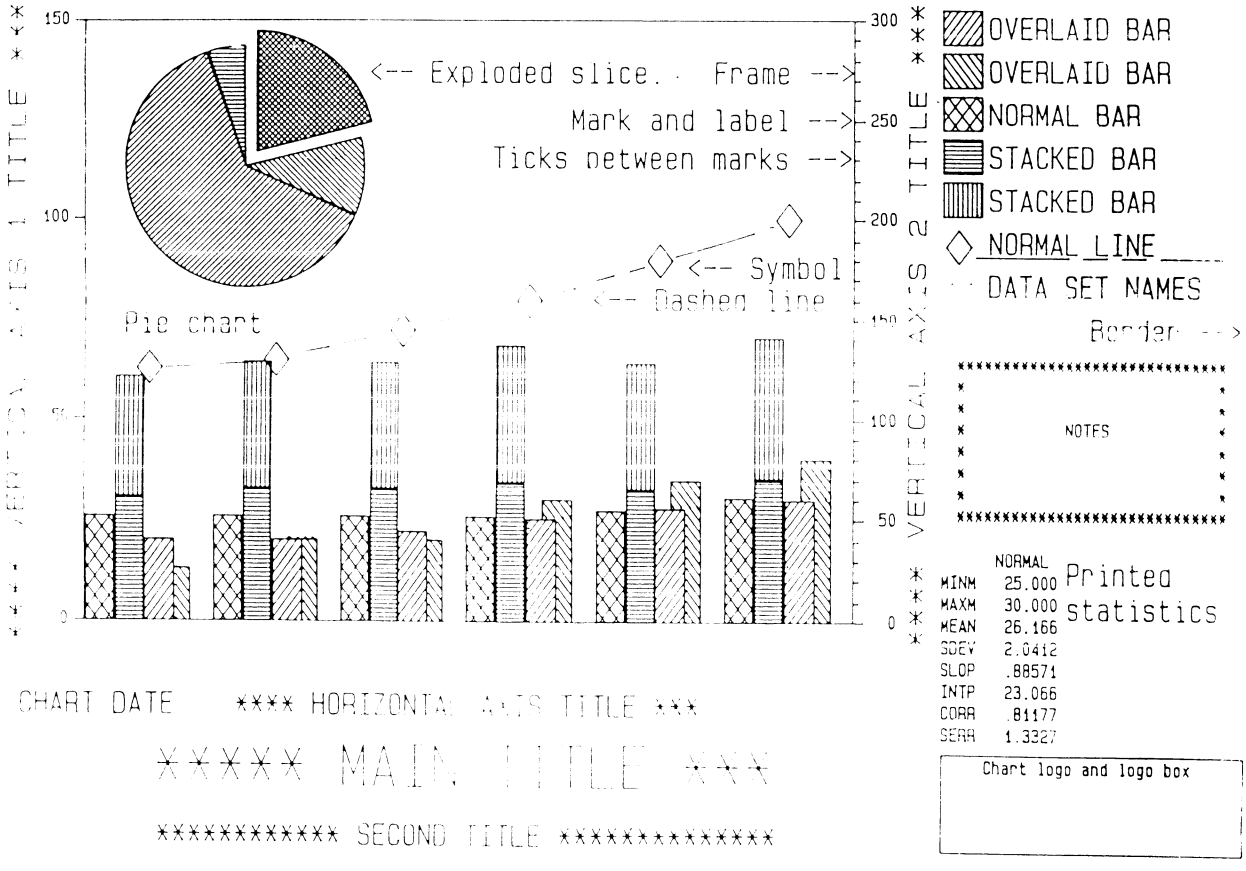
■ Other parameters:

Number of horizontal axis scale marks
Number of data points per scale mark
Main and secondary titles

MicroChart Main Menu options



Demonstration output



Designing and displaying charts

Options are available to create a new CDF, amend an existing one, base a new CDF on an existing one and display a directory of existing CDFs. A number of parameters can be set within a CDF to define a chart: a drawback here is that there is no Help screen available. If a mistake is made in selection of a parameter, the correct options are displayed; otherwise, you'll have to consult the manual or memorise the options.

Post-viewing options

The chart can then be viewed on the screen. The panel shows a typical display. After you've seen the chart, there are several options available to you:

- Amend chart — any of the parameters can be changed and the chart re-drawn
- Printing — on a monochrome dot-matrix printer with graphics capabilities. A good range of drivers is supplied with MicroChart (16 of them, in fact) and printing usually takes 60 to 90 seconds
- Plotting — on a pen plotter. Again a range of drivers is supplied (28); a chart takes approximately 120 to 600 seconds to plot. Up to nine different pens can be used; MicroChart prompts for pen changes even if only one physical pen is available
- Add text — up to 28 lines of 30 characters each can be added to the chart. The position, size, colour and orientation of the text can be specified

Installing and using the package

The manual has 70 A4 pages of text, highly structured into 16 Sections plus Appendices. The manual is very well written and easy to follow, with good cross-referencing between sections and a tutorial for first-time users.

Installing the package involves selecting options to set the date displayed on charts, change default drives and files and select printer, plotter and screen options.

A clutch of useful utilities is provided, including a cross reference listing of CDFs and MDFs, printing an MDF, and deleting an MDF or CDF.

'Job Files' can be set up (they're similar to XQT files in SuperWriter and SuperCalc) to carry out a set of commands automatically. The command language is simple to implement and allows transfer, view and print or plot operations to be performed by non-expert users — for instance, the command "MC2 B:MONTHEND" might be used at MS-DOS level to transfer, view and plot some end-of-month sales figures.

In conclusion

There are several good points to the MicroChart packages:

- the availability of a comprehensive range of charts
- sophisticated display features
- easy data entry and transfer from packages
- adequate printing and plotting
- the flexibility of MDF/CDF files
- superimposition of charts
- excellent documentation.

The question must be — do you need it? Probably only if the production of graphs and charts is an important part of your presentations and you require the sophisticated setting of parameters provided by MicroChart. If chart-drawing is a fairly low priority compared to presenting data using spreadsheets, your better choice might be something like Sorcim's SuperCalc 3, Lotus 1-2-3 or Psion Xchange — all packages with graphics capabilities. But if more sophisticated charts are required as well as a sophisticated spreadsheet, at least MicroChart provides the facility of inter-package data transfer as well as its superior graphics facilities.

Differences between Plus and Super

- Plus cannot produce Overlaid Bar or Hi-Lo-Close charts
- Plus cannot produce statistics
- Plus has fewer data points per data set — 52, compared to 260 in Super
- Plus has fewer options on chart features — line types, symbols on the line, grids and scales and display modes

As for the differences between Plus and Super, it all depends of course on whether you need the extras that MicroChart Super provides. The difference in cost is £200, although you can upgrade from Plus to Super for the price of the difference plus a small handling charge.

One final note: Praxis will supply an evaluation disk free of charge which allows both packages to be tested prior to purchase. This is a very useful facility and it is a pity that more software suppliers haven't yet followed suit. ◆

Praxis MicroChart

Description:	Graph- and chart-drawing on screen, printer or plotter from user-supplied data, entered directly via the keyboard or transferred from other packages. Version 2.2 reviewed
Supplier:	Praxis Business Systems
Address:	71 St Johns Road Tunbridge Wells Kent TN4 9TT
Telephone:	0892 42267
Price:	MicroChart Plus £295 MicroChart Super £495
Configuration:	any Apricot
Conclusion:	Comprehensive range of graphs and charts, sophisticated features for chart presentation, good data entry and transfer, fairly easy to use. Good value (MicroChart Plus in particular) for users requiring specialist graph or chart production.

Technote

SuperCalc:

Using English dates

By Tony Brooks

Having cured my Superwriter of its Americanism by laboriously following David Langford's instructions in APRICOT FILE Release 1.7 (without really understanding what I was doing), I longed to do the same for SuperCalc 3.

There was no question of me delving into its bowels with DEBUG, since for that sort of caper I need clearly-written key-by-key instructions. But SuperCalc 3 itself is a pretty powerful tool, and it seemed to me that even without being able to tell a byte sequence from a bar of soap I ought to be able to cobble up a routine to do the job. So it proved, and I offer it not so much as a piece of useful information but more as encouragement to those like me who normally have to put up with such things as silly-looking dates in American programs until someone publishes advice about them. If you don't mind spending half a day devising a cack-handed way of tackling a very unimportant task, it is possible to do a few things on your own ...

To make it more interesting, I thought it would be nice to make the spreadsheet produce 'Thursday 19th May' instead of '5/19/94', rather than just get it to reverse the figures. After all, most spreadsheets have too many boring figures on them already.

So to begin with I made a spreadsheet like this:

The Look-up tables

	A	B	C	D
1	1	("January")		
2	2	("February")		
3	3	("March")		
4	4	("April")		
5	5	("May")		
6	6	("June")		
7	7	("July")		
8	8	("August")		
9	9	("September")		
10	10	("October")		
11	11	("November")		
12	12	("December")		
13	1	("Sunday")		
14	2	("Monday")		
15	3	("Tuesday")		
16	4	("Wednesday")		("st")
17	5	("Thursday")		("nd")
18	6	("Friday")		("rd")
19	7	("Saturday")		("th")

Columns A, B and D contain three look-up tables which return textual values; these can be referred to by calendar functions to translate SuperCalc 3's date into a nicer form. Four formulas will do this:

- In E1, the formula LOOKUP (WDAY(TODAY), A13:A19) takes the system date, works out what day of the week it is, expressed as the Julian number ('1' is Sunday and so on), and looks up the actual name of the day. (Though the formula here and in the next three references are shown with spaces for clarity, when typing them in SuperCalc the whole thing should be entered *without* spaces.)
- DAY(TODAY) in F1 returns the the day of the month
- G1 has the formula IF (OR (C1=1, C1=21), D17, IF (OR (C1=2, C1=22), D18, IF (OR (C1=3, C1=23), D19, (C1=31, D17, D20)))). This convoluted thing was the only way I could see to get the date to appear as '2nd' or '21st' rather than '2' or '21'; by means of nested IFs and ORs it simply chooses the right suffix from those listed (again as textual values) in D16 to D19
- LOOKUP (MONTH (TODAY), A1:A12) in H1 just looks up the name of the month from its number.

Putting the whole lot together produces a spreadsheet that computes a reformatted version of whatever today's date is (SuperCalc uses the current system date for its TODAY function).

I saved it all as DATES, zapped it and loaded a spreadsheet called PLODDO on which the date was to be included. This didn't use any columns after G, so the command /L DATES P H1 eased all the above into PLODDO without overwriting any of it. (Unfortunately I have a little .XQT file which uses SuperCalc 3's ESC key facility for saving under the existing filename without typing it in, so that the whole thing was saved as DATES (the last loaded file) instead of PLODDO as I intended; it was only after an hour's fiddling about that I tumbled to this and achieved what I really wanted — good old PLODDO just as it had always been, but with all the DATES stuff added out of the way in H1 to O19.)

So now the date in the form I wanted was in L1 to O1. It wasn't a good idea to show it in the working part of PLODDO because the columns probably wouldn't have been the right width (L to O should be the same widths as E to H in DATES — respectively 8, 3, 3 and 8 characters). But it was easy enough to write a little .XQT file to add it at the foot whenever PLODDO is printed, thus:

```
/odA1:L207
pk
/odL1:O1
pk
```

The first line sets up PLODDO to be printed (all 207 lines of it — it does go on a bit), the second prints it and gives a keypress to return to the spreadsheet. Line three sets up the date for printing and line four prints it after the last line of PLODDO.

As a piece of useful constructive work, I suppose all this is about on the same level as a game of Clobber the Zargs. It could be regarded, though, as a bit of practice in the use of some of SuperCalc 3's functions and therefore not a total waste of time. Anyway, it was a lot more fun than building up PLODDO, which doesn't do anything very useful either ... ◆

The Workshop

Health Care at Bandage & Plaster

Carefree backups

By Bob Smith

This article is all about something that happened to the Apricot I use at Bandage & Plaster Ltd — and what we did about it subsequently. It is, as they say, a cautionary tale; and if it convinces anyone that proper care of your computer is a Real Good Thing rather than a necessary evil, the message has got through.

Nobody knows just when the disaster occurred, but we think it was sometime on the morning of 21 April. We had installed a new memory board to bring the Apricot to its maximum of 896K. We ran the manufacturer's memory test on the new board for 15 minutes; everything seemed ok, so we then set up a RAM disk.

Next thing was to copy some files into the new drive C. We got some small files in, but anything larger would not go across and started to hang the machine. The results varied — sometimes the screen went blank then displayed the prompt, sometimes it went a fuzzy shade of green, sometimes nothing appeared to happen but the keyboard went dead.

Somehow I convinced myself that the memory-resident cache software which came with the board was interfering with the screen memory. The next few hours and some of the next day was spent checking the board's installation notes and the Apricot *Technical Reference* manual.

Meanwhile, the machine was being operated for its usual tasks (mainly spreadsheet work for the costing department): everything seemed normal. I came back to the Apricot thinking to re-install the board and the caching software, and to run memory dumps of the screen RAM if the same problems happened again.

The first horror

The real consequences then started to show up. Our machine has a 10MB hard disk and at that time about 34 subdirectories; when I ran DIR on the root directory, I found a collection of hieroglyphics in the middle of the listing! Several lines contained graphics characters of all sorts where the names and file sizes should be.

I ran the DIR again, this time outputting to the printer. The result was more readable — the file names were ok, but the sizes of six files in particular were incredible (over 8MB each and four of them were batch files).

After careful investigation, I had narrowed down the effects of the disaster:

- 16 contiguous entries in my root directory were affected
- these included two subdirectories that could no longer be accessed
- none of the files affected could be listed (most were ASCII text).

It appeared to me that the high bit of each byte of the file names had been turned on. In the standard font as supplied (ACT10X16.CHR), this would explain the graphics characters on the screen since these are positioned at 128 above the alphabetic set. (Turning on the high bit is equivalent to adding 128 to the ASCII value of the original character.)

Somehow the printer ignored these high bits and interpreted the characters correctly, at least for the file names. The false sizes though seemed real enough. TREEDIR (a public domain utility available from DEALS FOR READERS that lists allocation sizes) reported that my Apricot had 786 files and a total of 55,903,649 bytes. Not bad for a 10MB disk!

I figured it might be possible to recover the directory with DEBUG. It looked simple enough; the garbled filenames were obvious from the printout and I reckoned that the right sizes could be worked out without too much hassle. The main problem seemed to be knowing enough about the structure of directories and an example of what I wanted to do. I contacted everyone who might be some help, including my dealer, APRICOT FILE and the board supplier; all advised against my intended action — though that could have been more to do with the panic in my voice than the merits of such a course. But while re-reading everything I had on directories and DEBUG itself it suddenly occurred to me that I had not run a CHKDSK.

Up to then, this utility had not figured highly in my normal work as it really didn't seem to do anything very useful. Also, what the MS-DOS manual said about it just confused me — and I was not encouraged to use a facility about which the consequences of the error-correction option (/F) were unclear, particularly in the event of having to recover parts of files.

The second horror

But every piece of information about the state of my files was potentially useful so it seemed worth a fling with CHKDSK, using the /V (verify) parameter to see the files as they were being checked. The error messages came thick and fast. The errors were all over the place, not just in the one directory segment that I knew was corrupted. The full list included ...

- Allocation error, size adjusted (24 times)
- Invalid cluster, file truncated (47 times
- First cluster number is invalid, entry truncated (once)
- Tree past this point not processed (once)

The latter message was on one of my lost subdirectories (the other was listed out in full with all the contents apparently unharmed). The list ended with the message ...

```
113 lost clusters found in 59 chains.
Convert lost chains to files (Y/N)?
```

I answered 'N' and the next message told me that "462848 bytes disk space would be freed". There then followed about 60 warnings on cross-linked files, and finally came the usual summary of disk space, files and memory:

```
10043392 bytes total disk space
   77824 bytes in 5 hidden files
  135168 bytes in 34 directories
 7340032 bytes in 787 user files
   40960 bytes unavailable
 1945600 bytes available on disk

  917504 bytes total memory
  799152 bytes free
```

The cause

The idea of undeleting directories slowly dribbled away as I contemplated this new mess. All I could do now was what everyone had been urging — save what I could then reformat the hard disk. There was a lot of work ahead and it had to be done right away. We had no other Apricot and I could no longer afford to let anyone use the machine in this state for production work.

I started out by taking prints of every directory on the hard disk and ran every program that I had (from diskette) that could give any useful information — CHKDSK and TREEDIR, TREE, DU and SCAVEN (the latter checks for physical bad blocks on the disk and thankfully showed up none) and probably a few more that I cannot remember.

We had a backup system using the supplied BACKUP program that backed up each subdirectory as and when we updated or added new files. This was done by batch files run from a set of menus. It was all quite easy and straightforward, but with one major flaw — it took too long. Result — many of the backup disks were probably not up to date, and we couldn't easily tell which ones were current.

Meanwhile the board suppliers, to their credit, had contacted the writers of the cache software and told them about my problems. The latter rang me to discuss the probable cause. None could help with the current predicament, but they were genuinely sympathetic that their products had wrought such havoc.

Between us, we came to the conclusion that the software was probably not the problem and that the damage had been caused by faulty memory — despite the new board being passed by the test software. I had set things up so that almost all the new memory would be used for the RAM disk, and the directory corruption was almost certainly caused when trying to copy files from the hard disk to the RAM disk.

(In fact our own experience has been quite the reverse — that faulty memory is most unlikely to result in media errors, particularly when copying. We think the crucial bug does lie in the software, particularly the cache facility. We no longer sell Apricot RAM boards that include cache software — and, incidentally, Bandage & Plaster didn't buy its memory upgrade from us! Ed.)

Though I am normally very cautious when checking out new hardware, it never occurred to me that transferring files with a standard MS-DOS COPY command (A to C) would ever corrupt anything on the 'from' or *source* disk on drive A! Hindsight is so wonderful, don't you think? Had I known, I would of course have tested the RAM disk from a throw-away diskette in drive B. I immediately yanked the board out and sent it back. (A replacement came almost straight away, but it was three or four weeks before I had the courage to re-install it.)

Salvage

The more important task at the moment was to work out as fail-safe a plan as possible to recreate the former contents of the hard disk and get on with it. Before wiping the disk, I had to make sure that I had a copy of every file. Some files could not be copied (remarkably few actually) and I ended up using the public domain utility MOVE to copy files selectively in the root directory. It was a tedious job, but eventually completed.

I then had a set of diskettes that contained all the files which could be copied from the corrupted hard disk. These were my fall-back or last-hope files if it turned out that no other copies existed before the crash. Why last-hope? Well, corrupted files can be copied as easily as good files without any hint that you have just copied a load of garbage from one place and put it in another. The current hard disk files had therefore to be treated as unreliable and only to be used in the recovery if no alternatives existed. As it turned out, several of the files that had to be recovered from this set turned out to be quite useless, with errors not picked up by CHKDSK.

As expected, the 14 files in the corrupted segment of the root directory did not copy over. As

for the two subdirectories in that segment, we were very lucky. Both contained only software that had recently been set up from the original masters and they held no vital data files at all.

The point of no return

As well as 'official' backup disks, we had a number of individual work disks that contained copies of programs, data files, text, and the like. Some of these were certainly more up to date than the proper backups. Yet more directory listings were printed out of all these disks.

I now checked every other disk I might need in the recovery stage, such as original software disks, and I used CHKDSK extensively to ensure the integrity of all of these. The final preparation was to check that my original system disk was ok (CHKDSK again, then boot from it in drive B) and one last look at the instructions for FORMAT.

The next step was the big one — boot from my spare system disk in drive B and run FORMAT from it to do the business on the hard disk. The command FORMAT A:/S B: caused the hard disk (drive A) to be reformatted and the system files copied over. It behaved exactly as specified in the manual and a reborn hard disk emerged.

(At this point, I took the opportunity to do some experimenting with FORMAT and to get familiar with the options. There was no better time, of course, as any mishaps would cause the least damage. I am happy to say that the program works faultlessly — even to the point of formatting system diskettes in drive B from other diskettes (and not only from the newly-revived drive A). For instance, I was able to create and then update the system tracks of an F1E disk from another F1E system disk. I couldn't boot from these disks on my Xi, but there was no problem doing so with the new disk on an F1 or F1E.

I later tested FORMAT on F1s and found no problems either (you do need MS-DOS 2.11 and BIOS 2.7 though). You have to shuffle disks but after loading FORMAT, it gives you decent prompts for inserting first the source disk, then the target disk. System files from the source appear to be held in memory between reading and writing of disks. A nice improvement would be the ability to format more than one disk at a time from one loading of the FORMAT program.)

Recovery

I now had two main objectives — to get the Apricot back on its legs and to create a new backup system that would be fast but safe.

After all that had gone before, the first of these was the easier. First, all the required subdirectories were recreated. Then all original bought software was re-installed from original disks, or from master copies when there had been some customisation. Next, data files such as SuperCalc models were copied over from the disks most certain to be up-to-date. As far as possible, each subdirectory was reset to its original contents.

While doing this, I occasionally had to use files from the backup disks. As mentioned, these were created by the MS-DOS BACKUP program — which means that they are not exact copies, because BACKUP puts a header on each file. You then have to use the reverse utility RESTORE. Both programs are hindered dreadfully by the descriptions in an Apricot manual called *Disk Utilities*; this is very wordy, and vital blank spaces in command lines are omitted from the examples. The result for me was that I could not get RESTORE to do anything but restore a complete subdirectory at a time!

By the end of some 30 hours of painstaking work we had a functioning system with about 96 per cent of all files restored. Those irretrievably lost were mostly batch files that were recreated later. Each system was briefly tested to ensure that it worked as expected and the users at last given back the machine to get their backlog cleared.

Designing the new system

Meanwhile I worked out a completely new system for file backup and installed it as quickly as possible. I believe it to be far better than using BACKUP and RESTORE; it's quick, it's thorough, and anyone can do the same. It actually took several weeks to work out all the nuts and bolts described below, and though perfectly satisfactory, it can still be improved or modified to your own taste. In fact, there are a couple of minor weaknesses that annoy me: and if anyone has a solution I'd love to know about it.

Peter Norton (of Norton Utilities fame) gives three pieces of advice on organising the operation of your computer that are worth repeating, particularly since they are also the design criteria behind our new system.

First, computers are so usually reliable these days that we easily slip into the feeling that our data is quite secure. But of course, it isn't. There are two main dangers. No computer is 100 per cent free of failure (memo to self: especially when adding new components) and it's extremely easy to lose data by a mistaken DEL command. So, as he says, "make backup copies of your data. Again and again and again."

Quite so, but backups are non-productive and boring and take time. So how to encourage regular yet thorough backups that are also fast? The first part of the answer is to backup only what *has* to

be backed up — new or altered files. The second part is to get organised.

Taking the time to get organised is Norton's second piece of advice. It's well worth following when using a hard disk, particularly as regards the structure and contents of subdirectories. Also, a well-organised and robust backup system that is both foolproof and easy to operate will encourage habitual use.

Norton also makes the point that it is worth taking a regular look at your working procedures. If your work patterns change or you understand a better way to get organised, then reorganise your operations to suit.

For one-person use this is sound enough advice. But when a machine is used by a number of people of different levels of skill and familiarity, I must add that reorganisation must be tempered with consistency and thorough testing before releasing altered procedures to your 'customers'. On the other hand, there are times when only a complete change will do ...

Third, Norton tells us not to neglect batch files. I don't think people who have had a while to get to know MS-DOS do underestimate batch files any more, even though people used to more sophisticated operating systems have a wish-list as long as your arm for the improvement of MS-DOS batch commands.

Our new backup system gets its simplicity of use from a combination of batch files and menus. In fact, all our regularly-used software is now driven by menu options; they are actually the names of batch files that, if necessary, change subdirectories and install custom features such as graphics, fonts, and keyboards before they run the desired program. Afterwards they de-install the program, reset the defaults, and return to the menu you started from.

The backup system

In summary, the new backup system has these features:

- Each subdirectory on the hard disk has two backup diskettes (COPY 1 and COPY 2) which rotate
- Each subdirectory must not contain more than 720K of files (to fit on to one diskette only)
- All backups are done via menu options that select batch files
- Each batch file either copies *all* files on to a backup diskette that is wiped clean first: or it copies only *new* files and those that have changed since the last backup (this is the fast and default option)
- Further sophistication allows the batch files to be run altogether or in three groups that are split — Most Used Subs, Supercalc Subs, Miscellaneous Subs. Individual subdirectories in these groups can be skipped if you want to. Apart from individual as-required backups, we try to run the 'all subdirectories' backup (for new/updated files) once a week at a regular time late on Friday. Other regular housekeeping is done on our main computer then and it is an accepted 'keep your hands off' time
- Finally, there are a number of utility commands on the main Backup Menu that assist in good housekeeping, including RF — a batch file that restores files to the required subdirectory

From the Main Menu displayed on startup, there is an option B that transfers to a subdirectory called \BAK and displays the Backup Menu.

The main Backup Menu

```
                  **********************
                  * BANDAGE & PLASTER *
                  *     BACKUP MENU    *
                  **********************

B1........  BACKUP Menu 1     (Most Used Subs)
B2........  BACKUP Menu 2     (SC3 Subs)
B3........  BACKUP Menu 3     (All other Subs)

KALL......  Backup all Subs
KB1.......  Backup all subs on Menu 1
KB2.......  Backup all subs on Menu 2
KB3.......  Backup all subs on Menu 3

H.........  Instructions for using Backups
            (H P to print)

TA........  Total Allocation
            (TA P to print)

RF p1 p2..  Restore Files from diskette
            (RF for HELP)

DA p1.....  Directory Allocation
            (DA for HELP)

SD p1.....  Sort Directory
            (SD for HELP)

M.........  MAIN Menu
```

By insisting that no-one has another file called B.BAT or B.COM or B.EXE anywhere on the hard disk and ensuring that a PATH=A:\ command is set to search the root always, this batch file becomes accessible from all subdirectories. Getting here is therefore easy and fast — you just type 'B' followed by Return wherever you are.

In case you wonder why there is a full menu devoted to SC3 (SuperCalc 3) subdirectories, let me explain that we use Caxton's SMARTPATH utility as reviewed in APRICOT FILE Release 1.9. This allows us to put the SuperCalc programs in one

subdirectory and the data models in others. We have eight entries on the SC3 backup menu — one subdirectory to hold SC3 and seven data subdirectories for different applications. This arrangement therefore allows speedier backup (data subdirectories only) and, under the scheme outlined above, more room in the data subdirectories (up to 720K) by virtue of not needing the SuperCalc programs themselves in each of those subdirectories.

Options B1, B2 and B3 display further menus similar to that for B1:

Backup Menu B1

```
                **********************
                * BANDAGE & PLASTER *
                *   Backup Menu 1   *
                **********************

KR........\ROOT directory
KB........\BAK
KCB.......\CBOX    (CARDBOX)
KCH.......\CH      (CHITCHAT)
KCP.......\CP      (BASIC COMPILER)
KDE.......\DEV     (Development work)
KF........\FUN     (Games directory)
KMB.......\MB      (MEGABASIC)
KP........\PAS     (Turbo Pascal)
KSP.......\SP      (Sales Performance)

B.........MAIN BACKUP Menu

M.........MAIN Menu
```

The subdirectory \BAK contains all the batch commands, menus and programs used in the operation of the backup system.

The Backup commands

There are at present some 25 subdirectories and they each have their own batch file for backup. Any new subdirectory would require a new entry on one of these menus and a new batch file (easily copied and modified from an existing file).

Each backup command is exactly like another on these three menus, except of course for the subdirectory involved. KDE (the command for backup of subdirectory \DEV, the general development directory) is shown here as an example. (The line numbers on the left are not part of the batch file — they are there purely to assist in the explanation below.)

If you glance down the commands, you will find a number of non-standard utilities. These are all public domain programs available from APRICOT FILE (see the DEALS FOR READERS pages) or from myself.

KDE.BAT

```
 1:  ECHO OFF
 2:  ECHO KDE.BAT — RIS — 28/4/86
 3:  IF "%1"=="A" ECHO Backup \DEV directory
     using.........**COPY**
 4:  IF NOT "%1"=="A" ECHO Backup \DEV
     directory using.........**KNEW**
 5:  ECHO Insert \DEV BACKUP Disk in drive B
 6:  PAUSE
 7:  CD\DEV
 8:  VDEL *.BAK
 9:  ECHO
10:  SDIR/P/B
11:  ECHO                    !!!!!!!!!!!!!!!!
12:  ECHO
13:  ECHO If Total Blocks shown above is
     more than 180, it may NOT fit
14:  ECHO the BACKUP diskette. If this is
     the case, press CONTROL-C to abort
15:  ECHO this backup and re-organise the
     directory (possibly by transferring
16:  ECHO some files to another directory).
17:  ECHO
18:  IF NOT "%1"=="A" GOTO AFTER
19:  ECHO  NOTE — All current files on the
           BACKUP disk will be first deleted
20:  ECHO  using the Clear option of FORMAT.
           Just follow instructions.
21:  ECHO
22:  :AFTER
23:  PAUSE
24:  IF "%1"=="A" FORMAT B:/C
25:  IF "%1"=="A" ECHO *** Copying files
     now..... ***
26:  IF "%1"=="A" COPY A:*.* B:
27:  IF NOT "%1"=="A" KNEW A:*.* B:/P
28:  SORTDISK B:
29:  CHKDSK B:
30:  PAUSE
31:  CD\BAK
32:  CLS
33:  TYPE B1.MNU
```

A sample run

As mentioned, these backups either copy all files or just those updated and new files since the last backup. For the 'new' copy, the command is entered as it stands; to get the full copy, the command is used with an 'A' parameter. So 'KDE' alone will copy updated and new files; 'KDE A' copies all files.

Entering 'KDE' by itself will start the following display:

```
A:\BAK>Select option.....ECHO OFF
KDE.BAT — RIS — 28/4/86
Backup \DEV directory using.........**KNEW**
Insert \DEV BACKUP Disk in drive B
Strike a key when ready . . .
```

Lines 3 or 4 of the KDE command simply echo the chosen option and line 5 prompts for the appropriate backup disk. Line 6 pauses the action to let you find the right disk. Line 7 changes to the appropriate directory and line 8 uses VDEL, the

first of the public domain utilities involved (VDEL is just like DEL in that you can use wildcards, but it also requires confirmation for each file it finds to delete).

```
Press Y to delete, N to skip, ESC to stop.
  Delete SEND    .BAK? Yes
  Delete SENDBACK.BAK? Yes
No more matching files.
```

If you have other files that are not wanted on the backup disk, such as temporary work files produced during operation of a system but not required afterwards, this is a good place to do the housekeeping with as many VDELs as you need.

Line 10 uses the public domain program SDIR to produce a directory listing in two columns:

```
White Crane Systems v2.50 SDIR /PECHBXSDN
Volume (no label) 6/17/86 12.44
Directory of A:\DEV

FILENAME.EXT BLOCKS ATR -LAST CHANGED-
<DIR>      4/23/86 15:31
..            <DIR>      4/23/86 15:31
ASK      .COM      1      1/30/85 17:54
LM12     .HEX      1      4/25/86 15:44
LM6      .HEX      1      4/25/86 15:54


FILENAME.EXT BLOCKS ATR -LAST CHANGED-
LMXX     .BAT      1      4/28/86 13:46
LMXX     .HEX      1      4/28/86 13:44
LS10     .BAT      1      4/17/86 22:34
VOLUME   .BAS      1      4/19/85 21.33
VOLUME   .DOC      1      2/19/86 19.22


62 Files   63 Total Blocks
           !!!!!!!!!!!!!!!!
```

If the 'Total Blocks' shown here is more than 180, it may not fit on to the BACKUP diskette. If this is the case, you should press CONTROL-C to abort this backup and reorganise the directory (possibly by transferring some files to another directory).

There are several parameters to the SDIR utility; the ones used here — SDIR/P/B — produce a continuous (rather than paged) display sorted by file name, with the sizes shown in blocks. This feature allows a quick check of the contents of the directory that is to be backed up (use the STOP key to halt the display if needed). More important, it shows the total size of the directory.

For these backups to be quick and easy, it is necessary to keep the directory contents to a total size less than the capacity of the backup disks — otherwise the KNEW program (see below) will not operate effectively. This is equivalent to 180 blocks on the hard disk, hence the emphasis provided by the row of exclamation marks.

The warning could have been put differently — if the total number of blocks is less than 180, the copy will fit on to the backup diskette. This is always true, but the reverse is not because of the different block sizes used on hard disks and diskettes. The minimum size of a file is the block size, also known as the cluster size. Hard disks use a 4K block; the block size for diskettes is 1K for double-sided, 512 bytes for a single-sided disk.

Since files always take up multiples of 4K on the hard disk, it is almost certain that they will take up less space when copied to a diskette. This is especially true of small batch files. My own root directory totals 252 blocks (1008K) on the hard disk, but 627 blocks (627K) on diskette.

The message is — below 180, go ahead: above 180, don't proceed unless you know for sure that all will be well. If uncertain, cancel the command with CONTROL-C and backup with a simple COPY *.* on to a scratch disk. If everything fits ok on to one disk, you can redo the backup with no fears.

```
Apricot Disk/Tape Format VR 1.3
Formatting Double Sided Floppy Disk
Confirm format Floppy press 'F'
Insert DESTINATION disk in drive B: and
press 'RETURN'
Format complete
*** Copying files now..... ***
A:HEXFILE.BAS
A:HEXFILE.DOC
A:LISTD.BAT
        60 File(s) copied
```

If the 'A' parameter were given, KDE would also display the warning message from lines 19 and 20. This is simply a reminder that previous files on the backup diskette will be lost by use of the FORMAT program. With the /C parameter, FORMAT simply clears all files from the disk (very quickly indeed).

The COPY program with the *.* then copies every file from the subdirectory \DEV on drive A to the backup diskette in B (completely refreshing the parts wiped clean by FORMAT).

```
KOPYNEW — Copies new or updated files only
Version 2.00 Copyright Glen Siegel, 1984
Default is from drive C to drive A

A:HEXFILE.BAS Not Copied
A:HEXFILE.DOC Not Copied
A:SPOOL.INS Created and Copied
A:SEND.BAT Copied
A:LISTD.BAT Not Copied
No More Files — KOPYNEW Finished
   2 File(s) Copied
  58 File(s) Not Copied
  60 File(s) Total
```

Line 27 is actioned when not an 'ALL' backup and runs the public domain program called KNEW. This works by comparing file date/time stamps. If the date/time of the hard disk files on A are later then those on the diskette files in B, the files get copied (as with SEND.BAT above). If the hard disk file is completely new, as with SPOOL.INS above, it gets copied too.

Being selective about copies is where the speed gain really comes from. Comparing directory entries takes no time at all. The above example resulted in only two out of a total of 60 files actually being copied; therefore the whole process only took a few seconds or a fraction of the time it would have taken the dumb COPY program.

The parameter /P in line 27 is simply to avoid the request for disk insertion that is normally made by KNEW.

```
Sort Disk ver. 1.10
Copyright 1984, White Crane Systems

Disk directory sorted.

   728064 bytes total disk space
    80896 bytes in 60 user files
   647168 bytes available on disk

   917504 bytes total memory
   259408 bytes free
```

The next line in KDE sorts the directory of the backup disk (using the public domain program SORTDISK) for no other reason than tidyness. It would be nice to do this on the subdirectory as well, but unfortunately this utility only works on the root.

Line 29 then makes sure the disk itself is ok by using CHKDSK. The latter also provides two important pieces of information. Firstly, the space taken up on disk is shown (and what's left) and secondly just how many files there are too.

A quick look back up the screen to KNEW's 'Total Files' figure will show whether the number in the hard disk subdirectory and the diskette agree. If they don't, the only possible difference will be more files on diskette than in the sub, which itself means that files have been deleted since the last backup. If you want to find them, the simple answer is to run KNEW in reverse (from diskette to subdirectory in A). This will cause the deleted files to be copied back as 'new' files. You know how many there will be — just look out for the 'Created and Copied' messages.

The final three lines change the current subdirectory back to \BAK, clear the screen and re-display the starter menu B1.

When and how

The first time you use the method described here, you must obviously use the 'A' parameter on each backup. Thereafter, for everyday use, run the backups without a parameter to copy new and updated files only.

As mentioned in the summary, it is probably a good thing to set aside a regular time when you backup every directory regardless of changes. You need only do a new/updated backup for this complete sweep and it will still take only a few minutes.

You should have at least two sets of diskettes. Ideally, the most up-to-date disks should be in a safe and secure abode, with the other at hand for the next backup. The one just used then replaces the one in the safe place and vice versa. (Some people use a system of three rotating diskettes, but we use two and it is probably sufficient.)

The main weakness of the system is definitely the danger of putting in the wrong backup disk. On a KNEW backup this will cause many 'new' files to be copied — possibly filling the disk to the brim. One answer might be to have a volume label that is the same as the subdirectory's name (if that's possible) and a program that can check that both are the same.

A second danger is misspelling the name of the intended subdirectory in the backup command. If that happens, the current subdirectory will remain as BAK: but the CD command will also display the message 'Invalid directory'. Note also that after the first pause, if you cancel the backup, you are left in the subdirectory it was backing up.

A feature of these backups that can become annoying is the SDIR listing. Frankly, after a while, I felt that this was unnecessary; but to get rid of the directory listing would mean losing the total line as well and this is my only safeguard on the size of the subdirectory. As explained above, even this check is not very good as it is in 4K blocks when the diskette files are in 1K blocks.

A better utility is TREEDIR which can display the total size in both 4K and 1K — perfect, except for one thing. If the subdirectory is not at the lowest level and it has dependent subdirectories, their size is included in TREEDIR's total!

A TREEDIR that does not include dependents is therefore needed. Even better might be a program that not only works out the total size in 1K blocks but also checks it is under 720K, only displaying the result if not.

Multiple backup

To assist in multiple backups, the individual commands have been strung together in batch files called KB1, KB2, and KB3 — one each for all subdirectories on each backup menu. These three

commands themselves are then strung together as KALL.

KB1.BAT

```
ECHO OFF
ECHO KB1.BAT — RIS — 28/4/86
ECHO
ECHO Backup ALL subdirectories on Menu 1
ECHO ==================================
ECHO
PAUSE
COMMAND/C KR %1
COMMAND/C KB %1
COMMAND/C KCB %1
COMMAND/C KCH %1
COMMAND/C KCP %1
COMMAND/C KDB %1
COMMAND/C KDE %1
COMMAND/C KF %1
COMMAND/C KMB %1
COMMAND/C KP %1
B
```

KALL.BAT

```
ECHO OFF
ECHO KALL.BAT — RIS — 28/4/86
ECHO
ECHO Backup ALL subdirectories
ECHO ==========================
ECHO
PAUSE
COMMAND/C KB1 %1
COMMAND/C KB2 %1
COMMAND/C KB3 %1
B
```

Normally, you cannot run one batch file from within another. The essential feature of these batch commands is the ability to do just that: you simply include its name after a COMMAND/C. This instruction loads into memory another copy of COMMAND.COM (takes about 3K) and passes a control string to it — in this case, the batch file name. When this batch file completes its processing, control reverts to the next line in the calling batch file.

KB1 therefore calls each individual backup in turn. If you decide to cancel a backup with CONTROL-C, you cancel only the batch file you are in. So if you cancel while KR is running, KB1 continues with KB. In the same way, within KALL you can skip either a complete menu of backups by cancelling KB1, KB2 or KB3: or you can cancel individual backups within each of them.

The result is a very flexible system which contributes considerably to the original objectives of speed and simplicity. ◆

Other menu options

The extra options on the main menu assist in the administration of the whole system. In brief:

TA — displays the allocation sizes for all the subdirectories on the hard disk. Note that true sizes and allocations are only given for subdirectories that have no lower-level subdirectories themselves. Those that do have such 'dependant' subdirectories include these subdirectories' files in the allocation sizes calculated for the parent directory. Therefore, the root directory (last line of sizes shown in list) includes *all* files on the hard disk. Used without a parameter, TA lists the total allocation on the screen. Used with 'P' as TA P it lists the allocation on the printer.

RF — will restore files from a diskette in drive B to the designated subdirectory. RF requires as parameters the files to restore (eg *.*, COSTS.CAL, *.XQT, etc) and the target subdirectory on the hard disk. For example, RF *.* \DEV will restore all files on diskette in drive B to subdirectory \DEV on the hard disk.

DA — will display the allocation size taken up by a subdirectory. Note that any dependant subdirectories will be displayed as well and their total allocation added to the subdirectory you entered.

SD — will copy the contents of a specified subdirectory to a formatted disk in drive B whose directory will then be sorted. The contents of the hard disk subdirectory will then be deleted (subject to your confirmation) and the sorted original contents copied back from the diskette in drive B. This command is *not* allowed on the \BAK directory.

The Easy Way

I am happy to furnish anyone with a copy on disk of this backup system with menus, batch files, help files and all the public domain programs needed along with descriptions of their use. Since FORMAT does not appear to be uniformly available, I'll put that in too. Just send a self-addressed, stamped disk mailer with a blank formatted diskette to R I Smith, 13 South View, Chaddiford Lane, Barnstaple, North Devon, EX31 1RD.

Doodles by David

Tips and tricks

From the working day

By David St.John-Wallis

One thing about running a computer company which shouldn't be surprising (but is) — the number of people who still rely on Apricot manuals. And, as we all did once, getting thoroughly lost. A chap the other day didn't know what an AUTOEXEC was. So for new readers, here's what it is; and how to write one for yourself.

An AUTOEXEC.BAT file is among those the computer looks for when it is switched on or Reset. On an Apricot this file tells the computer what the time is and then loads something. What it loads depends on you.

This one we put on our ScannerS disk (reviewed elsewhere in this issue): the line numbers are there just so we can talk about them.

```
1    VERIFY ON
2    QUIK
3    FONT IT
4    ECHO OFF
5    HELLO You're going to love this ...
6    PROMPT OMR ComputerS $h $d$H$H$H$H$H $p $e
7    CLS
8    QT
9    TYPE #
10   PAUSE
11   DISPLAY ##
12   ###
```

You don't of course *need* all this. But line 6, with or without the OmrC bit, is very useful — and on a hard disk practically essential. It tells you the date and time and which directory you are in. The $h codes are just to tell the prompt that there are bits of date you don't need, like the year. (If you've forgotten, it's 1986). If you need to be reminded by your computer leave out some $hs.

Let's just take one other line out of sequence — 9. I think this is very useful as well, because the # can be a text file of your own menu. Mine looks like this:

```
MASTER MENU
BRAINSTORM.....BR
OMRC.....OM
SCANNERS.....SCA
SMART.....SM
SUPERCALC3.....SC
TRANSEND.....TRA
```

This is very easily made by a word processor and saves you having to mess about with ACTIVITY, GEM, MANAGER or any of the other silly front ends.

Of course, the Menu only works if you have made batch files for each item. So on a hard disk machine you might have files like ...

```
REM TRA.BAT
CD\TRANSEND
TRANSEND
```

... to change directories and load the program TRANSEND. On a floppy machine the same file might read:

```
REM TRA.BAT
PAUSE Insert TRANSEND disk
TRANSEND
```

Helpful? There's more. You can leave out all the other lines if you like, but each actually *does* something. Line 1 turns on the copy verifier (some argue this is unnecessary). Line 2 turns on the OmrC screen accelerator. Line 3 loads a prettier character set. Line 5 is just a friendly utility of our own.

The rest is just cosmetic. Like line 8 which tells you if your lipstick is crooked. You know the kind of thing. Jolly clever things, these puteys. Well, that's what my daughter calls them anyway. Only 25 and learning to work a putey at her library.

(We have Simon Potter beavering away on an everything-you-always-wanted-to-know series on batch files, including some more clever ideas for AUTOEXEC.BAT *— Ed.)*

Back of a lorry dept

Never slouches in the brain-picking department, we hurtled down the corridor to spectacular Tony Weyman clutching 100 disks to be formatted. "Fear no more", quoth Tone; "Here's how you do it".

Make a batch file *comme ci* (he can only speak bad French before his first two or three packets of Gauloises in the morning):

```
REM FORMATER.BAT
PAUSE This puts a system on B: OK?
FORMAT B:OMRCdisk /SA:
PAUSE Another or CNTRL-C?
FORMATER
```

Put FORMAT.EXE on the same disk or directory as FORMATER.BAT, massage your right elbow, and off you jolly well go.

If you don't want to put a system on, you leave out the /SA:. If you are formatting a single-sided disk with no system, go ...

FORMAT B:OMRCdisk /M0

If you are formatting a single-sided disk and you want a system on it, go ...

FORMAT B:OMRCdisk /SA: /M0

If this doesn't work with your computer, you have the wrong Boot ROMs. Send money to us for the upgrade kit.

Be an expert

Here's how to start learning textual values in SuperCalc. In cell Z1 put a textual value. Like ("Coming"). In Z2, you can put another one ("Oh God") etc.

Now you put your equation in C1. It goes IF(B1=1,Z1,Z2). Replicate this down the column until you've covered enough people who could come to dinner. Say 35 if you live in a bed-sit in Kangaroo Valley and are under 18; three or four will do, if you ever met me.

Here's the fun. Make a list in column A of people coming to dinner on Saturday night. When you've got a good audience, you enter '1' or anything against each potential guest. This is what the thing looks like before you work your magic:

```
Tarquin
Georgina
Rupert
Sammy-Jo
```

Here's what it looks like afterwards — or could do, if you've got a bit more imagination:

```
Tarquin    1  Coming
Georgina   0  Oh God
Rupert     2  Help!!!
Sammy-Jo   5  Drinks two bottles
```

All this can be the first step in an expert system which is all your very own (and can be as rude as you like). Now, who's going to tell us how to come up with a sentence in textual values?

Cheap diary

In cell A1 of SuperCalc (SC3 only, I'm afraid), put 'TODAY'. In A2 put A1+1. Replicate this down the column.

Fans

Apricot put the cooling fan in lots of PCs such that all the muck in the atmosphere gets dragged right across the guts of the machine and out of the back. With no filter.

If you ever take the lid off, you may be in for a nasty surprise. Great big spiders electrocuted across chips. Huge fried centipedes. Fossilised caterpillars. And above all, *dust* — lots of it.

Solution: undo the three screws at the back and lift the heavy back out carefully — about half an inch. Grab the top moulding, slide it out and up a bit, and then off entirely. Aghast? You will be.

At this stage you can actually get quite brutal with the scrubbing brush on the fan. Thick with caterpillars etc, it doesn't fan so well.

A better check

We've invented, or re-invented, a better checksum for our VATMAN.CAL spreadsheet — see the good Kantorowich article last month, and our even earlier one (Release 1.8).

You add up the horizontal totals with something like SUM(AJ5:BJ5), then you sum the principal vertical total with SUM(E7:E200) say. In another bit of the spreadsheet, say BK1, you type ("OK") and in the cell below it ("Errors!!"). Beneath that, in BK3, you enter BK1-BK2. And last, in BK4 you put IF(BK3=0,BK1,BK2).

So you can see the result without hunting all over the spreadsheet, at about cell A2 you can put 'BK4'.

After recalculating, if you see the dreaded 'Errors!!' message, the chances are you failed to enter a posting code.

Done any work today?

Try a batch file that looks like this:

```
echo off
del today.pre
ren today.dir today.pre
cls
echo  RUNNING CHECKDISK ... press Y and
      Return if it's taking too long!
chkdsk *.*/v/f>today.dir
cls
type today.dir
cls
echo on
dir today.*
```

Endlessly satisfying. All honorariums to the author.

The Programming Rules

Something I read somewhere the other day. No doubt elliptical readers (and invisible writers) can dream up a few more:

1. If a program works, improve it.
2. All given programs are obsolete.
3. If a program is useless, document it.
4. The value of a program is proportional to the weight of paper it produces.
5. Program complexity expands until it exceeds the capability of the programmer.

And six complementary syllogisms of my own:

- If it's public domain, it probably won't work.
- If it's an IBM utility, it almost certainly won't work.
- If it's an Apricot utility, buy something else.
- If a program is marvelous, get an Apricot programmer to document it.
- No sooner do you write a good program than you find out that someone else did a better one first.
- Public statements from Roger Foster are programmed by IBM.

Puzzle Corner

This month's is for tinies — since not even Aunt Sybil got the one about the 12 balls. Decipher this:

```
ABCD Apricots
LMNO Apricots
OSAR Apricots
ICBD LEDs
```

Clue: try inserting commas between the caps and saying it in a *Fiddler on the Roof* voice. ◆

Deals For Readers

Public Domain software, utilities, hardware bargains

This is our mail-order section, exclusively for readers of APRICOT FILE. **In the** DEALS FOR READERS **lists you'll find ...**

- Public Domain Software, mostly games and utilities that aren't easy to obtain elsewhere — and many of these are unique to APRICOT FILE
- deals on Apricot hardware and software, typically useful items that aren't widely available
- anything else we think would be of value to readers, such as relevant books.

Each issue has new entries and (occasionally) price changes. So keep looking! And we're always open to suggestions for additional items — if there's something you'd like to see in DEALS FOR READERS, **or if you've come across a handy utility or a good deal on hardware add-ins, let us know.**

How to order

Simple: just send us a note or a purchase order with the item's name and the reference number as quoted in the list. We will normally be able to process orders within two working days.

Note that for orders totalling less than £50 we can only accept prepayments. There are two ways to pay: a Sterling cheque or money order (made out to "TP GROUP") *can* accompany your order, or use a Girobank transfer — our National Girobank account number is **59 028 1909**.

We can accept purchase orders *only* from companies and other organisations, and *only* if you want goods totalling more than £50. But if it's at all possible we would prefer cash with order — we just aren't big enough to provide the effort of chasing invoices and to cover the shortfall between despatch and delivery.

Sorry, but we cannot accept telephone orders.

The prices quoted include VAT where applicable and despatch. Your order will arrive with a VAT invoice/receipt.

Overseas orders

Orders from outside the British Isles are at the same price. Anything we send abroad is free of the VAT sales tax, and since that 15 per cent levy just about approximates to the extra cost of overseas postage we thought we might as well simplify things.

This may however mean that bulky items or long-distance despatch will go by the postage rate that most closely fits the 15 per cent allowance — and sea mail can be interminable. So if you want to ensure swift despatch, or if there's any doubt, ask us to quote ...

Contribute!

We're always looking for contributions to further £15 disks. So if you've written something — a game, a utility, a helpful batch file — why not share it with other readers? And if the ideas and techniques therein would make a useful mini-article for the newsletter, we'd certainly be interested in printing it.

Public Domain Disks

These disks contain public domain programs and text files which we have sorted, selected and tested. In many cases we have debugged, amended and documented the material too.

Public Domain Library

Order no:	AP000
Price:	£5

In response to popular demand — all the contents files for all our Public Domain disks for a fiver.

Apricot Disk No. 1

Order no:	AP001
Price:	£15

Over 40 files. Highlights now include:
AUTOEXEC with an improved prompt
SDIR and FDIR sorted-directory utilities
VDEL and DELQ selective DELetes
WAIT and ASK two batch file commands, more useful than PAUSE
GRAFCHAR define your own characters
ESCAPES list of Escape codes for Sirius and Apricot
OTHELLO good version of the board game
LEADTRAK and ACCTRACK two sales lead management systems.

Apricot Disk No. 2

Order no:	AP002
Price:	£15

Includes 79 files. Highlights:
ALTER and CHMOD change file attributes
BASICKEYS single-key entry of Basic commands
DEBUG the Apricot version
EPSON sets alternative print modes
KNEW copies only new files
MENU easy batch-file menu system
MOVE moves files from one subdirectory to another
RENDIR rename subdirectories
SORTDISK sorts directories
TREEDIR displays a DIRectory of all files on a disk — in their subdirectories
WHEREIS searches disk subdirectories for named file(s).

Apricot Disk No. 3

Order no:	AP003
Price:	£15

A bumper bundle. Highlights:
SWEEP all-purpose file housekeeper
SCAVEN finds and locks out bad sectors
MEMDUMP browse through memory
TURBOKEY key redefinition for aficionados of Turbo Pascal
SUPERWRITER XQT FILES a useful clutch of macros.

Apricot Disk No. 4

Order no:	AP007
Price:	£15

More indispensable tools and utilities. Highlights:
ASMGEN dissassembler
132-column screen configurator
Memory speed test benchmarks
Improved version of SETUP
DIARY year-planner
LABEL address label printer
BANNER prints fancy letterheads on daisywheel printer.

Apricot Disk No 5

Order no:	AP009
Price:	£15

A total of 38 files plus full documentation — includes John Lyth's imaginative MS-DOS menu front end, a suite of dBASE II programs to control your bank account, CHECKER to verify inputting in MSBASIC, DEBUG.PAS, a clutch of Spellbinder utilities, IBMBASIC (BASICA to MSBASIC converter) ... and much, much more!

GSX User's Disk

Order no:	AP005
Price:	£15

The complete GSX tutorial from Lindsay Doyle — includes a library of ready-to-use Basic subroutines that drive GSX, a set of five printable Workshops in text form, many graphics demo programs, and Lindsay's improved HEXPAWN game IMPHEX. Now with an amended screen driver capable of supporting the Epson FX-80.

Games No. 1

Order no:	AP004
Price:	£15

Includes the very tough flight simulator 747SIM (fly your own Jumbo) plus old favourites like AWARI, TOWERS OF HANOI, and many more besides. A very full disk.

Games No. 2

Order no:	AP006
Price:	£15

Includes CLEWDO (solve the mystery), TRUCKER (get a cargo across the States on time), and some games for the younger Apricot user (SPELL and HANGMAN). Plus for the first time a GWBASIC version of STARTREK (noises and all) and BACKGAMMON. Some of these are unsuitable for F Series and Portables.

Games No. 3

Order no:	AP008
Price:	£15

Only two games on this disk, but both excellent and quite realistic entertainments. GREAT BRITAIN LTD is a political-economic simulation — be Prime Minister, balance the books, win the election if you can. And INHERITANCE is an interesting investment/gambling game; you could get hooked on both!

GWBASIC Games

Order no:	AP010
Price:	£15

A miscellany of graphics-based games, some old and some new (some borrowed and some blue) — including some special sound effects and graphics demos. Highlights: OPERATOR (try running a large mainframe computer system), hunt for oil with WILDCAT, depress yourself with NUKE-LA and ALIEN.

Chess

Order no:	AP016
Price:	£15

Only three games — but what games! For the first time on an Apricot, a challenging public domain chess game with superb hi-res graphics — even supports an 8087 if you have one. As an hors d'oeuvre we include a version of PACMAN, for dessert a golf game. A self-booting disk with a free bonus: the latest version of MS-DOS with BIOS 3.1. Now comes with a special chess character set for the Portable and F Series.

The dBASE II Disk

Order no:	AP017
Price:	£15

Full of dBASE II program suites. Includes programs to control membership records, a dBASE routine library, a label printing program, the ubiquitous mailing list program, a product tracking system, a form letter generator and sundry dBASE utilities. Essentially for keen dBASE programmers.

Programmer's Disk 1

Order no:	AP011
Price:	£15

Our first disk for programming fans. Star attraction is a public domain implementation of LISP called XLISP; plus fifteen Turbo Pascal routines and utilities, a C cross referencer, an MS-BASIC programmers' toolbox, a program line indenter and useful batch file utilities.

Programmer's Disk 2

Order no:	AP012
Price:	£15

Features BSU, a program to unprotect protected MSBASIC programs; plus Ron Cain's Small C compiler, a trio of cross-referencers for Basic and C, an ASCII-to-Hex converter, a GWBASIC core dumper, the appendix that Microsoft omitted from the MACRO-86 manual, and a C source code checker.

Lotus 1-2-3 Disk No 1

Order no:	AP013
Price:	£15

No less than 25 WKS templates for 1-2-3, including the Asterix suite of business worksheets, and the macro library MACLIB.WKS.

Lotus 1-2-3 Disk No 2

Order no:	AP014
Price:	£15

A heap of technical notes and external utilities for 1-2-3 plus seven WKS files including an address label macro and PRNTMENU.WKS to manipulate your Epson printer.

PC File III

Order no:	AP015
Price:	£15

Our first 'shareware' program — an Apricot version of the well-known general-purpose database/filing package. Menu-driven, great documentation (over 100K of it on the disk), superb power and speed, very easy to use; handles everything from mailing labels to multi-page reports. Exchange data with 1-2-3, MailMerge, many other WP and spreadsheet programs. Indexing on all fields, searches includes 'soundex', multiple selection criteria ... Complete with the latest IBM emulator (which is required). For BIOS 3.1 only.

Special software

These are not public domain items, and they are not discount deals on the kind of software your dealer will sell you. Instead we have gathered a few titles that (a) we feel will be useful to the average Apricot user and (b) you won't find easily — or at all! — anywhere else.

FAST

Order no:	**AS001**
Price:	**£25**

FAST is an accelerator for the Apricot screen: it bypasses certain screen interrupts. Simply running it in an AUTOEXEC.BAT will cause your Apricot to handle screen text up to twice as quickly. FAST doesn't affect CPU clock speeds and so it does not accelerate your graphics or supercharge your program execution times. But its effect on screen performance is pretty impressive.

FAST is very compact, less than 650 bytes; and it's modest price reflects that. For the money you won't find any better way of speeding up an Apricot with a single-line AUTOEXEC command. Not available for Apricots with BIOS 3.1, the F Series, or Portables.

Polyprint

Order no:	**AS003**
Price:	**£30**

Pretty printing from your Apricot on any matrix printer — POLYPRINT lets you produce near-letter-quality printing (almost typesetting quality, in fact) on ordinary dot-matrix printers that are capable of printing graphics (which these days means just about any low-cost matrix printer). Menu-driven, uses only nine keys. Comes with 12 selectable typefaces, some of them very fancy. Accepts ready-to-print output from any word processor; will also work directly from WordStar files without your having to save them on disk first. You must specify which printer you have when ordering — POLYPRINT comes customised for particular printers.

Polyprint Plus

Order no:	**AS021**
Price:	**£20**

For existing POLYPRINT users only: 13 new typefaces and additional facilities including the new capability of mixing typefaces in the middle of a document.

The Apricot Catalogue

Order no:	**AS004** [ASCII]
Order no:	**AS005** [Cardbox]
Price:	**£50**

A list of all the software and hardware we know of for the Apricot with prices, addresses, description (with our comments when we have experience of the package), contact names and numbers (including Telex numbers) where we know them. Regularly updated by us; currently well over a megabyte of information on six disks. The ASCII format can be read by most word processors or simply TYPEd, the Cardbox format can be read by Cardbox Plus and comes with a .FRM format (but not with the file manager program itself).

A.S.D. 1

Order no:	**AS006**
Price:	**£57.50**

Formerly known as P.A.S.D.: this is the latest (and much improved) version of the first (and only?) independently-produced package of upgrades to and tools for SuperWriter. A packed disk, and a good piece of work. Highlights:

- two-column formatting and print
- expansion, improvements, corrections for the dictionary
- full documentation of SW.DEF plus a collection of useful formats
- improved (and more legible) display font
- keyboard configuration presets to speed up keying
- many XQT files to accelerate and simplify your routine work
- several batch files for disk housekeeping.

A.S.D. 2

Order no:	**AS006**
Price:	**£57.50**

A second bumper bundle of SuperWriter goodies from Ansible, essential for SuperWriting but full of generally helpful Apricot extras. Includes DOCTOR (easy-to-use file recovery), MAILER mail-list program, a whole bunch of useful .XQT and BATch files, a disk labeller ... some 90 files in all. Enthusaistically reviewed by Lindsay Doyle in Release 1.11.

AnsibleIndex

Order no:	**AS022**
Price:	**£86.50**

Sophisticated SuperWriter indexing utility, even permits indexing of subjects and themes. Can handle documents chained across more than one disk, too. Only requires two marks per index item.

AnsiblePatch

Order no:	**AS023**
Price:	**£15**

Patches SuperWriter to improve the legibility of displayed text on F series Apricots and Portables.

IANKEY Crash Course

Order no:	**AS007**
Price:	**£48**

The very best keyboard tutor we've seen for newcomers — beats TOUCH 'N' GO into a cocked hat. Sensible design based on serious research; clear on-screen instructions; takes only three or four hours to teach the basics of touch-typing. Our review concluded "I strongly recommend it as excellent value for money" — especially from DEALS FOR READERS, because the normal RRP with VAT and P&P is £58.65.

IANKEY Two-Fingers to Touch-Typing

Order no:	**AS008**
Price:	**£48**

An alternative keyboard tutor — converts a two-fingered 'hunt and peck' typist into a fast user; and it does so without wasting your time, forcing you to relearn the keyboard, or boring you stiff. Included in the enthusiastic review conclusions, and again available from us at a price £10 below RRP.

FORTRAN Utilities

Order no:	**AS009**
Price:	**£50**

A collection of assembler utilities for MS-FORTRAN applications, complete with test programs and link instructions. Now features direct access to system calls and an interfaces to GSX. Also includes:

- set date and time
- current date and time
- get/change default drive
- delete/rename disk file
- read/get character from keyboard buffer
- print characters on printer.

SSDISK

Order no:	**AS024**
Price:	**£15**

Fed up with the inadequate RAMdisk software that came with your Apricot? S&S has produced a RAMdisk which is configurable up to a full 896KB with 128 directory entries per 'drive'.

DO-TO-ALL

Order no:	AS010
Price:	£15

Handy for hard disk users and anyone with multiple subdirectories: DO-TO-ALL lets you issue just one command that is to be applied to all directories — to delete all BAK files in your subdirectories, for instance.

TRAN-SEND

Order no:	AS025
Price:	£86.25

Replaces The FTU in our lists because it's cheaper and better. A superior file transfer package enabling you to transfer data between Sirius, Apricot and/or IBM via the RS232 serial port with speed and ease — and Viewdata, too. Handles subdirectories and features remote operation with the option of transferring files using XMODEM protocols. Price is for three disks covering those three formats.

■■■ REDUCED ■■■

The File Protect Pack

Order no:	AS018
Price:	£50

SECRET makes files invisible (or visible again) to DIRectory searches, READONLY sets the attribute bit so that they can't be deleted or overwritten, ENCRYPT encrypts and decrypts files according to your password, ZAP deletes them so thoroughly they can't be 'undeleted' at all.

UNDELETE

Order no:	AS020
Price:	£20

The essential brow-soother — will attempt to recover files that have accidentally been DELeted, and does so with gratifying frequency.

SPLIT Disk Partitioner

Order no:	AS021
Price:	£56

Infosoft's clever disk partitioning utility for Xi hard disk Apricots — lets you 'partition' the hard disk so that it looks like up to 24 separate disks, each with a drive identifier and each with a size you specify. Thereafter the 'drives' can be treated as if they were real ones for reading, writing, copying, renaming, deleting files etc.

MXDUMP

Order no:	AS012
Price:	£75

Another classy little number from the programming pen of Friedman — produces exact screen dumps from your Apricot display on a standard Epson MX dot-matrix printer. Once loaded it sits quietly in MS-DOS waiting for you to call it (with a single keystroke). Lots of options: specify text or high-resolution graphics, normal or bold, standard- or double-width: and more ...

■■■ REDUCED ■■■

The Lotus Pack

Order no:	AS013
Price:	£57.50

Useful utilities from S&S Enterprises for Lotus users:

- THEPOUND lets you use all the displayable Apricot characters in worksheets — including the pound sign
- SOLID123 consolidates several 1-2-3 or Symphony worksheets into a total
- TRANSPOS transposes rows and columns
- 123RANGE lists worksheet ranges.

The Printer Pack

Order no:	AS015
Price:	£40

Mainly for Epson-compatibles, mainly for spreadsheets:

- SIDELINE prints worksheets sideways so that wide spreadsheets fit on to the paper
- FXPOUND prints the pound sign on FX-type printers
- SETFXPR provides a set-up menu for printer functions.

■■■ REDUCED ■■■

The WP Pack

Order no:	AS016
Price:	£50

Four handy S&S utilities for word processing:

- WSASCII converts WordStar files to ASCII format so that they can be read by other word processors
- WORDNO word counter
- READAGE calculates the reading age (ie the comprehensibility) of text
- SEARCH searches text for a given phrase.

The First-Aid Kit

Order no:	AS017
Price:	£25

Just what you need to make your computer more palatable to novice uses — the DOSMENU front-end option-choice menu and the HELP dial-an-explanation facility.

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Order no:	AS019
Price:	£25

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Other extras

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Order no:	AB001
Price:	£3.00

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Review

Talk to a BBC B

B-TRAN and BEEBLINK reviewed

By Robert Falconer-Taylor

For one reason or another, serious users will sooner or later upgrade their equipment. The advantages of being able to transfer files from the old to the new machine are obvious.

Most computer users are aware that their machines are capable of communicating with other computers. Classically, this involves suitable software; an RS232 cable; and a modem connected to a remote computer that the user is essentially unaware of.

On the software side, Apricot provides ASYNC; it does work, but is not very user-friendly. Anyhow, Basic programs are notoriously machine-specific and the transfer of programs is usually a rewriting exercise. A file transfer package which handles the conversion from one variety of Basic to another would therefore seem pretty attractive.

Among home micros, Acorn's BBC Model B is arguably the most popular choice for serious applications and as an introduction to business computing — not least for its implementation of Basic, which is the current Educational standard.

B-Tran is a package marketed by Apricot that allows conversion of BBC Basic programs to GW-Basic under MS-DOS. According to press reports, B-Tran is aimed at the educational establishment in an attempt to make Apricot machines an attractive 16-bit alternative to the now aged eight-bit BBC B. More recently, B-Tran was also included as part of the software that Dixons supplied with the Portable.

BeebLink is a file transfer package that does no conversion; it is produced by Oxford Logic Systems and marketed by C T Maddison Ltd. The package requires that you have a copy of the program specifically for each micro you're going to use; each copy is accordingly configured for you.

Presentation

BeebLink is nine pages of photostat manual and a disk each for host and slave computer — it will not run with only one part of the package. Files may be sent in either direction — including BBC CP/M files.

The manual is brief and to the point, but does contain enough information for the novice to set his/her system up quickly. There is a short resumé of how the system handles binary and ASCII files. The documentation points out that 'even BBC BASIC programs can be transfered', but doesn't mention the problems involved in converting the Basics.

B-Tran is supplied as a manual, a single-sided disk and one metre of cable with a standard 25-way RS232 D-plug on one end and a BBC-type RS423 connector on the other. The manual is a spiral-bound book of 98 A5 pages with the compulsory 'intentional blank pages' hidden amongst the leaves. The five introductory chapters include installation details and then give a gentle synopsis of how BBC Basic and GW-Basic compare with regard to conversion and pitfalls that may arise. Two chapters give details of how to use the software, with clear and concise instructions that make the package easy to operate (take note, ASYNC).

The remaining chapter takes up more than half the manual and consists of an alphabetically-arranged reference section detailing syntactical differences between the two Basics. Lines of code are also given as illustrations to reinforce the text.

(A word of caution: a one-line statement at the end of chapter four states that a separate version of B-Tran is required for interpreter and compiled versions of GW-Basic. If you are sufficiently rich or fortunate enough to own a copy of the latter, ensure that you obtain the correct version of B-Tran.)

The software on disk is presented as two separate and independant programs; B-Comm and the B-Tran suite. B-Tran actually converts a BBC Basic to a GW-Basic file.

B-Tran is itself a compiled Basic program and the source code is also present. Several example BBC programs are supplied.

In use

For BeebLink, both computers are booted with their respective programs. The whole process is run from a single menu on the host computer (the Apricot); the first option is a test to establish that the computers are linked and booted correctly.

The remaining two options allow files to be received from or sent to the BBC. A file name is prompted for, then the transfer starts. A record of the number of blocks being transfered is displayed at the bottom of the screen.

The baud rate is set by the system and is not alterable.

To run B-Tran, B-Comm is invoked and optional arguments may be included to set the baud rate on the Apricot — the default being 9600. The BBC's serial port and baud rate (*FX5 and *FX8) are then selected and the Basic program loaded. Transmission takes place as the program on the BBC is LISTed with the printer enabled (CTRL-B). The program scrolls messily across the Apricot's screen and is stored to disk after adding a .BBC suffix. B-Comm is invoked afresh for each transfer.

With the BBC programs safely on the Apricot disk it's time for B-Tran, which is invoked from the MS-DOS prompt. The user is asked for the .BBC file name and an alternative for the GW-Basic file; the suffix .BAS is added automatically by the software. When you hit Return, a window at the bottom of the VDU displays the current Basic line as conversion takes place. Conversion of a 6K Basic file takes about 100 seconds.

On completion, you can list the Basic program line numbers where a problem was encountered. A brief explanation of the problem is also given for each line. For instance, BBC *Fx calls that are not translated produce '*Fx not translatable'; and the BBC's byte indirection operator produces 'Check memory location'.

One infuriating omission is that this list cannot be dumped to a printer. Further, once it has scrolled of the screen, the *entire* BBC Basic program has to be converted again in order to view the problems list a second time!

Statements that B-Tran fails to translate are trapped and a REM statement is added at the beginning of the line. These include ADVAL, BPUT, CALL, COUNT, ENVELOPE, EVAL, HIMEM, *KEY, LISTO, LOMEM, OPT, PAGE, PTR#, TOP, USR and BBC-specific VDU and *Fx calls.

A wide variety of BBC programs were converted successfully by B-Tran. The system was not foolproof, however. A problem was encountered with the line ...

```
HIMEM = 256 * ?&8B - 1900
```

This was left in the BBC code; B-Tran appeared to convert the whole program successfully, but attempts to list it under GW-Basic gave a syntax error at this point and subsequent lines were unlistable as the program would not load properly from disk. The program could be loaded in a better condition under MS-Basic to show that the problematical BBC code had been converted to REM PEEK(&01576. It appears that the code is not neutralised sufficiently in all cases.

In order to take full advantage of the Apricot's GSX graphics capabilities, converted files will need modification. X and Y co-ordinates are passed over unchanged and need to be altered manually to suit the Apricot. PLOT and DRAW are common to both Basics, however.

In conclusion

BeebLink was very simple to use and successfully transfered a wide variety of files in both directions. The advantage it has over ASYNC is that carriage returns and line feeds are automatically swapped and NULL characters are converted into CONTROL-Z to conform to MS-DOS. I was unhappy at the prospect of having to buy a separate program for each of the four different computers that I use. ASYNC works with the lot for simple file transfers — and furthermore, it was free.

On the whole I liked B-Tran. As intended, its primary attraction would be to schools as their BBCs start to hit the dust. As a freebie with the portable, though, it is rather wasted. What school would buy a portable?

I would guess that few business users of BBC Bs use homemade software or, for that matter, any software written in Basic. I have to confess that I defected to Assembler and Pascal on my BBC and use Pascal and C on my Apricot. My interest in Basic, however was recently rekindled enough by Lindsay Doyle's GSX series in APRICOT FILE to see what GW-Basic had to offer. Perhaps now is the time to dust off some of those old 5.25in floppies for the BBC and see what the Apricot makes of them? ◆

B-Tran

Description:	File transfer and conversion utility for porting Basic programs between BBC Model B and Apricots
Supplier:	Apricot UK Ltd [via dealers]
Price:	free with some systems, or £30
Configuration:	any Apricot
Conclusion:	B-Tran and B-Comm can be used independently, and B-Comm is easier to use than ASYNC for simple file transfers between any computer with an RS232 port. B-Tran does take much of the work out of rewriting Basic programs.

BeebLink

Description:	File transfer utility for porting Basic programs between BBC Model B and Apricots
Supplier:	C T Maddison Ltd
Address:	104 London Road Headington Oxford OX3 9AJ
Telephone:	0908 662759
Price:	£60
Configuration:	any Apricot
Conclusion:	Very simple to use, but separate programs required for each computer: no facility to alter baud rate etc: and does not handle any Basic conversion.

Review

Word processing on a budget

ProText reviewed

By Edward N. Bromhead

MLH Technology has a simple little word processing program call ProText. With a spelling checker included in the £125 price tag, it must be one of the bargains of the century — especially now that SuperWriter isn't bundled with Apricots any more. I tried out the demonstration version of this recently, and came away quite impressed.

The package has four main parts and an optional fifth module. Your money buys the word processor, the spelling checker, a 'WordStar to ProText' conversion utility and the system configurator: an optional Mailmerge facility is the add-on extra-cost element at £36.

WP facilities

Most word processing packages can be relied on to do block moves, search and replace, document saves in ASCII format, and so on. ProText is fully featured in this respect.

It does differ from many other packages in showing bold and underlined text as they will finally appear on-screen (you can't have bold face and underlining on the same text). This cuts out the need for a check that you have matched pairs of 'bold-on' and 'bold-off' controls — you can see it as you prepare the text.

The options in the program are selected by function keys or single letter keys pressed in conjunction with CONTROL — the latter are reasonably mnemonic, more like those in WordStar 2000 than its predecessor.

Some embedded printer controls are selected via CONTROL functions, others by commands preceded by an exclamation mark (those act like WordStar dot commands; one of them allows Escape sequences to be put in the text).

Function keys include some functions intelligently mapped to SCROLL, HOME, CLEAR and the cursor keys; there's extensive use of the Apricot top row and MicroScreen function keys too. The special keys are organised so that although HELP and FINISH always have the same function, the intervening keys are context-sensitive. In addition, the six MicroScreen keys always do the same operation as the six middle function keys, and are dynamically labelled. If that isn't enough, line 25 on the screen shows the key labels for the eight function keys in inverse video — a trick I first saw (and was impressed by) on a Sirius.

ProText is a short program: it isn't overlaid, so that there are no disk accesses once it has been loaded, and the text it is editing is held completely in memory. This gives rise to problems if the power goes off, but ProText does an 'auto-save' every now and again (you can decide how often this happens).

Because the program is in memory all the time, moving around a document is very quick — but there is a limit of 55K bytes on document size (at least that's better than SuperWriter's 34KB restriction).This allows some 10K for block moves, though this is configurable if you want to edit smaller files and move bigger blocks.

Another useful facility is to be able to have two files in memory simultaneously, which for instance allows you to cut from one to paste into the other. The two concurrent text files can be 55KB each, so I'm told.

The edit screen

If you are used to WordStar, you will find the ProText screen remarkably uncluttered. It looks like a WordStar screen with the menus switched off: there's some inverse-video information on the top line, a ruler with tab settings, and the function key labels on line 25.

Page breaks are shown by the last line of a page appearing in inverse video: there is a configurable delay on the appearance of this, which appears to speed up the screen scrolling. Apart from that, the display shows broadly what you will eventually get on the printed page; as with SuperWriter, though, justified text isn't shown justified on the screen.

One thing that might disconcert a novice is the disappearance of the text when you press the HELP key, or select a menu: this is where the reassurance of the auto-save comes in.

Configuration

The configurator is the best I have ever come across. Although it is mainly aimed at setting up daisywheel printers for straight word processing uses, it is possible to configure lots of options on a dot-matrix printer.

To all intents and purposes the first three choices of the menu install completely the main characteristics of C Itoh, Qume and Diablo-compatible daisywheel printers; for any which do not fall into those categories, a custom installation is possible. There is a complete installation menu for other printers, allowing up to five-byte escape sequences for each of the main options like bold on/off, underline on/off, sub- and superscript on/off and so on.

This is the first WP configurator I've used which allows me to install sub- and superscripts on my

ACTwriter 10 (the four-byte sequences of WordStar cannot cope, and SuperWriter's system doesn't handle this C Itoh printer).

One last feature of the installation technique rates highly — you can enter sequences of up to eight bytes for each ASCII code. Suppose you were writing in French, and needed an accented 'e' like 'é'. This could be set up as ASCII code 130, for instance, and the screen font modified accordingly. Then, using KEYEDIT, ASCII 130 could be put somewhere handy on the keyboard. Using the configurator, ASCII 130 would be set to the sequence 'e' 'backspace' '. So a single keystroke could put é (or something like it) on to the screen, and it would print correctly too. ASCII codes up to 175 are configurable in this way.

To make the best of this, it's essential to be *au fait* with KEYEDIT and FONTEDIT (or ACTIVITY). Incidentally, for keyboard and font editing, the ACTIVITY routines come into their own when you have a mouse.

The spelling checker

The spelling checker module, called Textchecker, is a fine piece of work — and it's fast too by comparison with SuperWriter's.

Once the analysis of the document is complete, you have several options. One shows a histogram of word lengths: I seem to have a bias towards three-lettered words ... There's also the option to review the words one at a time — they are displayed in alphabetic order — marking them for later editing, dictionary updating or (unusually) selection for indexing. That last one is a facility I liked very much. (Just wait till you've indexed a book. The proofs start to come just when you're heartily sick of proofreading and you think you have seen the last of the text for a while.)

The dictionary seemed fairly well put together: it's in English, and doesn't have the nonsense of SW.DIC. All the same, it is a bit short on plurals, and a few runs through will soon show how many of your favourite words have been missed out. Textchecker doesn't seem to have quite the dictionary maintenance facilities of SuperWriter, either, so I'm not sure what you do when rubbish creeps in to your dictionary — it is however possible to create a temporary extra dictionary for addition to or deletion from the main lexicon.

Other good features

ProText features an 'instant' or 'typewriter' mode, a slick and well implemented facility for form-filling or envelope addressing. The program is also available in versions for Sirius and IBM PC, as well as for the Apricot families with and without MicroScreens. To all intents and purposes the key sequences for these are identical; anybody who regularly swaps between machines of these types would find the investment in the two or three copies of ProText a cheap way of getting inter-machine compatibility.

The manual runs to about 50 pages, and is supplied on disk. It's quite enough to explain all the features of the package, which only goes to show just how easy it is to use. A real novice might need some help with printer installation, but only to do really fancy things.

There's a demo disk available; it does everything except save files.

The snags

There have to be *some* snags, and they affect me more than most because of my particular needs. I particularly wanted to use ASCII codes up to 255 (ProText doesn't) and to configure some of them with bit-image graphics data (needs about 16 to 20 bytes per character) — not that I could do this with any other package, but I just want to!

Something else I'd like to do is to use multiple fonts (you can't). And ProText is also one of the few packages I have tried which won't run under PC mode in Concurrent CP/M-86. I have been looking for a nice small non-overlaid full-screen editor to work with Concurrent for some time; ProText isn't it, unfortunately.

In conclusion

ProText is ideal as a simple, low-cost word processing program for the small business (and especially for the small business's secretary). It would also meet the needs of most authors, and it even works well as a program editor. In many ways it is superior to more expensive software. Anyone who has an Apricot without a WP package should consider this one ... And the ProText demo disk is worth every penny if for the spelling checker alone. ◆

ProText

Description:	Word processor with spelling checker
Supplier:	MLH Technology
Address:	14 Burgamot Lane Comberbach Cheshire CW9 6PB
Telephone:	0606 45420
Price:	£125 (plus £36 for MailMerge)
Configuration:	any Apricot
Conclusion:	Well worth the budget price.

Readers' Writes

Subscribers have their say ...

DATAGEN revisited

I was interested to see my article on DATAGEN in Release 1.9, particularly as I haven't finished writing it yet ... I must correct a couple of misconceptions in the piece, which is based on the file DATAGEN.DOC on a forthcoming DEALS FOR READERS disk.

DATAGEN will not work for .COM or .EXE files in general — and not really for .EXE at all, unless they have been converted to .COM format by using DEBUG.

Files processed by DATAGEN should be in the format used by .COM files; but either they must be ORGed to the address at which Basic will load them, or they must be totally relocatable in that they're able to locate for themselves any data space used relative to their starting address.

I still intend to complete (and rewrite) the article; it is primarily concerned with the programming philosophy of DATAGEN — why it does what it does, how it does it.

Steve Thompson, Wellingborough

SuperWriter and Juki

Brian Read's problems with SuperWriter and the Juki 6100 (Release 1.10) have a simple explanation, but a neat solution is liable to be expensive. I use the same combination with an Apricot PC; and I find that with the supplied Courier 10 printwheel the Juki performs exactly as specified in the handbook. A Triumph Adler Mercury PS printwheel produces a slightly different character set that does not always agree with the screen display.

Brian's problems arise because both SuperWriter and the Juki believe that all printable characters come from the seven-bit ASCII set. To access the remaining six spokes of the printwheel, Escape codes are used to provide six characters from the extended (*eight*-bit) ASCII set. Which six is determined by the printwheel.

You should be able to print the hidden characters with ...

```
\OUT27,72,27,73,27,74,
27,75,27,89,27,90\
```

Or use Ansible's SPRN.COM.

The most elegant solution is to use a laser printer and a WP package capable of handling the full extended character set — WordPerfect plus an HP Laserjet, for example. But that will set you back about £3,000; a decent NLQ matrix printer might halve that figure if the print quality is adequate.

Mike Florey, Croydon

SuperCalc — and more

A quick note relevant to SuperCalc accounts spreadsheet templates such as have appeared in APRICOT FILE recently: when you add up columns of figures as on a balance sheet, the method of arriving at the same answer by two separate routes (as in the Checksums in recent articles) is a useful check. No accounts program that doesn't do this can be relied upon. Hand methods need a check on arithmetic too, hence the 'balances', but we ought to be able to rely on SuperCalc to get that right — it is just data entry that needs checking.

The commonest data entry error is to transpose two digits inadvertently, especially in a long number — instead of '135234.24', for instance, you type '132534.24'. This shows up when the balances don't match as a difference of 2700.00 between for example 'income' and 'expenditure'.

You can find out whether this is a transposition error by seeing if the difference divides exactly by 9 — if it does, a transposition error is most likely.

On another matter, it was good to see Robert Smith's response to my review of Caxton's SmartPath — I hope he didn't buy SmartPath on my recommendation; some of the 'against' points were lost when the footnotes were moved.

Incidentally, I tried the package with WordStar, SuperCalc 1 and Superwriter, on a PC and a Portable.

Divide overflow on SuperCalc 3, as reported by Mr Smith, is often associated with its GSX interface. Perhaps he needed PATH settings in his ASSIGN.SYS — I don't know the answer to that. He's right about dBASE II too: sorry.

A nice bit from Quentin King on Turbo Pascal screen dumps in the same issue (Release 1.11) — though Pascal is a closed book to me. Why doesn't he just use hard-copy GSX device drivers? He must work for a low hourly rate if it was cheaper to write his screen dumper than to buy a £10 disk (GSX drivers — on a Black Hole disk) or a £75 one (MXDUMP from DEALS FOR READERS).

When using the GSX Epson driver he could get the full dot resolution of his printer with 960 dots across the page and 1368 down the page rather than 800 x 400 respectively.

Epson users will see that he has gone for 'single-speed double-density' dots to get 800 *across* the page, but his dots are 'single-density' *down* the page. (You can't get 'double-density' down the page unless you line-feed a fraction of a dot spacing and then overprint. More on that later). Double-speed and double-density *across* the page isn't allowed on an Epson if horizontally-adjacent dots are used, and they might be here.

His screen dump occupies half a printout sheet. If he printed

the screen dump 'landscape' rather than 'portrait' (that is, starting at the top righthand corner of the screen and doing downward sweeps in a pattern which works from right to left) and puts this on to the paper in normal left-to-right sweeps, some wonderful things happen.

First, with only 400 dots across the page he can use single-density dots — which is much faster. Second, the MSB (most significant bit) is at the 'top'; so no bit manipulations are needed, and bytes can be sent to the printer as read from memory. Also, the algorithm for getting the right byte at any time is simplified to two or three nested loops. Thirdly, the plot gets bigger, and the aspect ratio is more nearly correct with no overprinting of the bottom of one line with the top of the next.

But the overall 'blackness' goes down (same number of dots but in a bigger area). This can be corrected by using standard image-enhancement techniques. For example, do double-density across the page and a double pass across each line with a half-dot line-feed between each pass. Whether or not to print dots in the intermediate positions does of course require reversion to bit manipulation (ANDing and ORing to the wise — which doesn't include me in this context!).

Dot-matrix printer graphics dumps are slow because so much data has to be transmitted and printed. An 800-byte graphics line (plus the 'lead-in' sequence) is the data transmission equivalent of 10 full character lines and five (roughly) in print time. At 100 bytes per second, as on the Epson RX80, it is eight seconds per line minimum.

Particularly if there are large areas of no image, it pays to build the graphics byte string in a temporary array, and to eliminate strings of 00h bytes by replacing every six of them by a 20h 'space' character (in non-graphics mode). But given the byte strings to cancel and reset bit image graphics, and the processor overhead, this becomes economic only for sequences of about 50 to 80 00h graphics bytes.

Some printers allow programs to 'go to a dot position in absolute terms' or 'go to a dot position so many on from the last one' and 'repeat this pattern so many times' (the ACT Writer 10 is one). This can give further savings.

Finally, it is always advisable to use uni-directional printing — otherwise straight lines down the page become very wavy.

Eddie Bromhead, London

Hacking games

I suppose many APRICOT FILE readers like playing games on the Apricot; and if they are like me, they may be interested in some comments on 'hacking' into games to adapt them — for example, to get an indefinite number of 'lives', remove limits on playing time, set a different start level, and so on.

First thing to find out: where the relevant parameter is stored. This is usually a trial-and-error situation using DEBUG, but the piece of code you're looking for is as follows:

```
MOV W,[xxyy],nnnn
```

... where nnnn is the number of lives (or whatever) and xxyy is the address where they are kept. Now just search for occurrences of the address xxyy with ...

```
S 0 FFFF A1 yy xx
```

... and look for the following code:

```
MOV AX,[xxyy]
DEC AX
MOV [xxyy],AX
```

The first MOV gets the number of lives, the DEC decrements it, the second MOV writes the new number back. To give yourself an indefinite number of lives, just replace the DEC AX with NOP.

Paul Miller, Hednesford, Staffs

MicroScreen mod

In a letter to APRICOT FILE last year I mentioned that several of my MicroScreen keys no longer functioned. I was forced to investigate the MicroScreen; for others similarly afflicted, here are the results.

The keyboard case is fastened by seven screws, one of which is hiding in the battery compartment. The MicroScreen, its touch-pads and its LEDs are an integral part of the upper half of the case; it is connected to the keyboard by a small seven-pin multi-way connector and a short length of cheap and nasty plastic tape, with the seven connections loosely printed on to the plastic and covered by what seemed to be translucent sticky tape. The plastic ribbon had perished, cracking right across the printed circuitry. It was not possible to get at the moulded-in end of the ribbon, so I cut it out with scissors and retained only the multi-connector.

I soldered seven thin wires to the multi-connector; and, by cautiously touching the wires together, I found that the MicroScreen still worked (including the LEDs) and worked out which wires did what. Looking down on the multi-connector, and starting at the end nearest the Reset button, these are as follows:

```
■1  ... Common
■2  ... MicroScreen KEY 5
■3  ... MicroScreen KEY 6
■4  ... MicroScreen KEY 4
■5  ... MicroScreen KEY 3
■6  ... MicroScreen KEY 1
■7  ... MicroScreen KEY 2
```

(The MicroScreen pads are numbered here from left to right.)

The next step was to make a small switch box with six momentary-contact switches (from Tandy), put some sleeving over my seven wires, and connect box to keyboard via a seven-pin DIN connector.

Happily it all works perfectly and doesn't look too unsightly. The box sits immediately behind and slightly above the keyboard; and, with the switches at the same spacing as the old touch pads, I find it quicker and easier to use than the original — if only because they have a much softer and more positive action.

Jack Blencowe, Oxford

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Jobs

■■■ STAFF WRITER (EDITOR-DESIGNATE) REQUIRED FOR TP GROUP to work across a range of newsletters and eventually to edit this one. News- and feature-writing, planning and research, commissioning and subbing: knowledge of the computers is more important than journalistic experience, though lucid writing is a prerequisite. Anyone interested in a full-time job (modest salary plus profit-sharing and a lot of fun) should write to Dennis Jarrett at our address.

■■■ TRAINEE WRITER/DOGSBODY REQUIRED FOR TP GROUP — interest in MS-DOS computers and/or publishing (or a willingness to learn about either) is essential. Suit school- or college-leaver; lots of variety, on-the-job training, and good prospects. Write to Dennis Jarrett at our address.

Sales

■■■ F1 INFRA-RED MOUSE with light pipe and software. Low mileage, well-behaved£50 ono. Contact 0734 732512.

■■■ PSION ORGANISER — original program and datapacks, RS232 link-up, documentation. Boxed. £40 ono. Contact Mike Nash on 01-671 8644 (home) or 01-584 5000 x 3545 (office).

■■■ APRICOT PORTABLE with Starter Pack, MS-DOS, ACTIVITY, 640KB memory: £650 ono. PALANTIR word processor and Speller: £80 ono. Also EPSON HX20, no software, suit salesman: £150 ono. Contact T Dawson on 0292 79800.

■■■ DBASE II version 3.43 for Apricot PC/Xi with about £100 worth of manuals (Advanced User Guide etc) — all at the ridiculous price of £150. Contact Robert Taylor on 0903 34866.

■■■ SPARE 9in monitor for Xi for sale — green screen, black casing. Price £99, or will consider an exchange for interesting software. Also OPEN ACCESS for sale: £99 or exchange (now using KMan/2). Contact Charles Stirton on 01-940 1171 (day) or 01-940 8428 (evenings).

■■■ APRICOT F2 with 12in green monitor. Brand new — last available example! Cased, unused condition. 512KB RAM, 12 months factory warranty, infra-red mouse, improved keyboard, GEM software, MS-DOS 2.11, ASYNC etc — with manuals and carrying case. Contact Mr Lund on 0603 630326 in working hours.

■■■ XEN HD with 20MB hard disk, 1MB RAM, paper-white monitor; plus SuperCalc and SuperWriter. Hardly used. Cost £3,500 plus VAT, will accept £2,500 plus VAT. Also available: WordStar 2000 and Epson LQ1500. Contact Mark Wardle on Gloucester 504294 (day) or 411402 (evenings).

■■■ 9in MONITOR for sale — green screen, black casing. Good condition. Price £50. Contact 06512 2667.

■■■ APRICOT Xi20S with 1MB RAM, 20MB hard disk, 12in monitor, Mouse, Internal Modem, Juki 6200 printer. Nine months old, hardly used. Price new was £7,000 — will accept £2,800. Also available: external 20MB hard disk and tons of software if required (not included in price quoted). Messages on 0772 719325.

■■■ SIRIUS TO APRICOT file transfer package. Official ACT version: cost £109, bargain at £45. Contact 061-428 5975.

■■■ APRICOT Xi, as new and boxed. 10MB hard disk, 720KB double-sided floppy, 9in monitor; SuperCalc, SuperWriter, SuperPlanner. Cost £3,444 — will accept £1,495. Dust covers and Securicor delivery included! Phone 061-428 5975.

■■■ XEN multi-user system with two 256KB Apricot PCs and Oki Microline 193 printer plus Delta 4 (networked), SuperWriter, SuperCalc. Cost £9,000 in March, will accept £5,750 now. A first-class system, but unfortunately the business did not materialise ... Details from 031-445 2218.

■■■ 9in APRICOT MONITOR green screen, black case, includes carrying case. As new, used only on Sundays, etc. Price £100. Contact Paul Lavin on 01-451 1951.

■■■ CARDBOX electronic card index system: no longer required, £75. Also once-used Apricot single-sided disks: boxed in 10s, £17.50 per box. Phone 041-332 2505.

Wants

■■■ PC or XI wanted — must be cheap! Contact T Dawson on 0292 79800.

■■■ PORTABLE PROBLEMS — I have Portable without monitor interface and version 1.6 boot ROMs. Can anyone in South London offer advice on modifying/rectifying these? Could swap software for help ... Contact Mike Nash on 01-671 8644 (home) or 01-584 5000 x 3545 (office).

■■■ SERIAL MOUSE wanted. Contact Charles Stirton on 01-940 1171 (day) or 01-940 8428 (evenings).

■■■ CHEAP TURBO PASCAL WANTED by student, to help with studies. Write to Martin Norman at 14 Spurr Court, Foxwood, York.

■■■ LOAN OF PORTABLE DISKS WANTED — Dixons muddled up the disks I should have received, say there's two months delay on replacement, and have certainly omitted at least the Voice disk. Can anyone help? Contact Paul Anderson, 01-868 4499 ext 263 (office hours) or 02518 3470 (evenings).

■■■ DR LOGO — can anyone alter DR LOGO for the F1/F1e to run on the F2? I have tried Apricot dealers without success and the long-promised £30 DR pack still hasn't materialised. Contact David Stirling at 28 Ingleston Avenue, Dunipace, Denny, Scotland.

■■■ MOUSE WANTED for Apricot F1. Serial mouse preferred, but willing to consider infra-red Apricot mouse if cheap. Contact Dr Cartwright, tel 045 383 4576.

■■■ DATABASE/FILING PACKAGE (Palantir or Cardbox preferred) and A.S.D. Superwriter disk. Exchange IANKEY touch-typing tutor, GRAMMATIK grammar checker, PROOFREADER spelling checker (full working copies with documentation) — cash difference either way. Phone 095 786 261.

Help

■■■ HELP FOR F1/F2/FP USERS: Gateway Users Group exists solely for users of these machines. Details from Tony Hill at 85 Edna Road, Raynes Park, London SW20 8BS.

■■■ SWITZERLAND: Apricot user would like to contact others, preferably in the Zurich area, to exchange experiences and help each other with problems. Contact John Solomir, Stockenstrasse 67, 8802 Kilchberg — phone 01/715 10 94.

■■■ HELP GROUP: Apricot users within striking distance of Reading, Berkshire, and interested in forming a friendly group to give and receive help on programming, communications, software packages and anything else legal are invited to contact David Holland on Reading (0734) 68860 — evenings only.

Contribute!

■■■ HELP WANTED BY APRICOT FILE — we have some good Sirius comms programs that need a little tweaking before they'll run on the Apricots (serial port addresses etc) ... Contact Roger Gann on 01-833 3501. ◆

Round-up

News of the Apricot world

Cheap multi-machine network?

Alpha Disk isn't having it all its own way in the add-on disk drive business — **Plus 5 Engineering**, well known as a purveyor of externally-connected hard disks for the Apricot, Sirius and IBM-type machines, has announced a collection of media-conversion drives for these machines. Prices look competitive, too — they range between £250 and £450.

Connects to:	Reads disks from:
Apricot PC, Xi, F Series	Apricot, Xen (3½in)
Apricot PC, Xi, F Series	IBM PC (5¼in)
Xen	IBM PC (5¼in)
Xen-i	Apricot, Xen (3½in)
Xen/Xen-i Workstation	IBM PC (5¼in)
Xen/Xen-i Workstation	Apricot, Xen (3½in)
IBM PC	Apricot, Xen (3½in)
Sirius	Apricot, Xen (3½in)

The first of those would add a second disk to your Portable or F1 for **£250**, the second would provide a data exchange capability with an IBM PC for **£450**. For the latter Plus 5 has another option; its simple network, PLUSNET, will allow several users to share one Plus 5 disk. PLUSNET is now available for Plus 5's add-in hard disk card that slots into the IBM PC; if your office has a mix of machines including an IBM, this could be a cheapish way of linking them — the hard disk card with PLUSNET isn't too expensive at **£995**, connections to other machines are **£350** each.

And that's not all from this company: there's a fast 20MB hard disk to install inside your Apricot PC (replaces one floppy) or Xi (replaces a 5 or 10MB drive). You can partition these disks, too, to have up to 26 separately-identified 'volumes'. Installation is said to be easy enough, but Plus 5 can do that too. Prices are **£795** for the Apricot PC version, **£595** for the Xi upgrade.

Plus 5 is on **08926 63211**.

Zap static

Seems someone at **Southampton University** has found that a charge of only 250 volts can damage your computer — chips corrode, d'you see. And walking across a carpet can generate as much as 35,000 volts of static (it says here). A company called **Integrity Solutions** reckons it can sell you the answer for 5p less than **£50** — **Static Buster** is a small box clamped to screen and keyboard that soaks up static and dissipates it through an earth lead. Sounds a bit like those droopy static leads you see on Cortinas with go-faster stripes and furry dice, but at that price it might be worth the investment just to stop dust clinging to the screen. More from **0706 345835**.

Son of BUSBOX

White Orchard Technology makes the BUSBOX we mentioned a couple of issues ago: it's a box that connects to one Apricot slot and provides the capability to run IBM PC cards. At over a thousand quid it's a bit pricey, but now there's a **BUSBOX II** which cuts down on the spec and the price — when one is finally settled it will be **"well under £400"**. You get just one IBM-type slot in the box, and it's I/O addressable only — BUSBOX I was memory-addressable as well and could take five cards. The difference means that BUSBOX II can run graphics and simple network cards, but not the memory extensions, accelerator boards or multifunction cards that BUSBOX I claims to handle.

We've just received one for test and should be able to report in the next issue: meanwhile you can get more details from **0438 315415**.

Basket balls

The Xen is to be the "official microcomputer" (*sic*) of the **National Basketball League** for the coming season, producing up-to-date statistics for the media and player performance analyses. Said Group Marketing Director **John Leftwich**: "the game's players are tuned to a high level of performance, which makes Apricot's micros very compatible with the sport". Ho ho.

Talk to System 36

Millhouse Designs, which has long been in the business of building comms hardware add-ins to emulate other terminals, has come up with a board that allows the Xen to emulate **IBM 525x** devices. So with the **FPX-88** a Xen can talk directly to IBM Systems 34, 36 and 38; at **£550**, it's not a bad price either. You will need Apricot's Xen expansion box. Millhouse is on **0420 58651**.

Learn all about it

The South Bank Poly in London has a **Microcomputer Advisory Centre** which has just started an 'Open Computing School' with courses on programming (Basic and Pascal), on micros in administration (some Basic, databases, spreadsheets over 12 hours in total) and Word Processing (10 hours). The courses mix schoolwork — choose your own time — with homework, promise a high level of practicality (you can use your own problems in the sessions), and feature Apricots among other machines (they subscribe to APRICOT FILE, as it happens). The word processing course includes **SuperWriter** among its choices. Fees are modest — **£70** for the word processing course, for instance — and you can request more info from a 24-hour answerphone on **01-928 0482**.

DIY disk drive testing

Dysan has a new diagnostic tool for Apricots that comes as a test diskette plus software under the name **Interrogator** — "it takes testing away from the engineer and puts it into the hands of the end user". Tests include index timing (when the disk head starts reading), head positioning, spindle speed, and alignment. ◆

Add to dBASE III

Cardbex is a new company with an interesting clutch of **dBASE III enhancements** at an all-in price of **£125**. Under the name **Management Suite**, there are four utilities — a 'Data Windows Manager' to simplify and speed up access to DBF data, a menu maker, a parcel of screen-handling routines, and a simple colour selector. Cardbex says the target audience comprises developers working with Clipper or dBIII Compiler, but Management Suite sounds to us like a more generally useful collection: Cardbex is on **0908 560606**.

Prophylaxis

By far the greatest number of double-sided disk drives returned to service depots for fixing are found to have damaged heads: very few ever suffer from head wear. The cause of this problem is quite simple — it is operator error. When the little red light goes out it is then safe to remove the disk. So you press the disk eject button and out it pops. You then extract the disk. But if you are a trifle impatient and pull the disk out immediately it starts to eject, you will remove the upper head as well as the disk: the head won't have had time to retract fully. Moral: Take it easy!

Secondhand rows

Luxuriating in the wealth of corporate procurement budgets, you may be woefully unaware of the teeming netherworld of pre-owned computers. Every issue of *Personal Computer World* (and *Exchange & Mart*, for that matter) contains a list of secondhand machines for sales ... including Apricots. And there are a few shops that now specialise in nothing else.

One such emporium is **Morgan Camera/Computer Company**, part of the Tecno camera shop chain, in London's Tottenham Court Road. In Investigative Browsing mode, Roger recently spotted there a 256KB single-sided Apricot PC crisply priced at £865; MCC was obviously oblivious to the cruel blow dealt to the secondhand Apricot market by Mr Foster and friends but a few brief days earlier. Perceiving that the price was a tad OTT, Roger accosted the hovering salesman: "That's a rather bold price for an Apricot PC, isn't it? After all, can't you buy a brand new Apricot PC for less than £700 these days with 512KB *and* double-sided drives".

This fazed the salesman not one jot. "They'll soon sell out and the price will rise again" he sagely opined. Perhaps they know something we don't ...

OSI outlined

Open Systems Interconnection is an ISO-sponsored set of standards for connecting different computers; and while it's early days yet, in general the computer industry seems to be falling into line with OSI. It's a bit esoteric (and a bit previous) for the average user, but anyone interested can get a big summary wallchart of OSI from consultants **CAP** — which has done a lot of work on the subject — by calling the press office on **01-379 4711**.

Protecting the Registrar

At the PCW Show earlier this month we found the **Data Protection Register** (in incomplete form on microfiche) plus some of the Registrar's acolytes who helpfully filled us in on current progress.

It seems there are still sacks of registration forms to be input into the register ("they're filling the corridors") but the work is proceeding apace ("all the envelopes have been opened and the registration cheques cashed"). The Registrar is still trying to get a change-of-use permit for the offices in salubrious Wilmslow ("we'll be forced to move the office otherwise"). And there have already been several attempts to purchase the Register; it's not for sale (but it will be in public libraries this November, and we suspect that much time will be spent by people inputting the information from microfiche to a more marketable format).

Gold up, Prestel down

Prestel has just lost one of its longest-standing Information Providers in a well-publicised exit. Meanwhile **Telecom Gold** at last appears to be realising some of its potential: latest figure for UK users is 53,000, and the Dialcom software on which Gold is based has only a total of 200,000 users in 17 countries.

There's yet another way to get on to Telecom Gold — free registration is being offered to purchasers of all **Miracle Technology** modems. Gold and Miracle are also running jointly a series of seminars in London later this year to expound the benefits of electronic mail.

And Gold has acquired a new Corporate member. To date, Corporate members have usually been individual companies with a network of offices; but the **Business Expansion and Exchange Group** consists of over 30 different professional member firms operating a market for the purchase and sales of companies or for raising or investing capital. Four of them are to take part in a pilot study on Gold to provide BEX with "a rapid and cost-effective method of transmitting confidential information" — between them the BEX members have 400 offices. ◆

Send money now

This issue of APRICOT FILE sees the end of Release 1: but from next month we publish Release 2.1. Most subscriptions expire with this issue, and inevitably we're having to put up the subscription rate; from 1 October 1986, new UK subscribers will pay £50 per year and overseas subs will also rise proportionately.

But we appreciate your support and we're keen to keep you with us as we go into our second year. So for a limited period we'll be offering a discount on the normal rate: existing subscribers can have another year's worth of APRICOT FILE for £40 in the UK, £45 in mainland Europe, £60 elsewhere.

With this issue you should have received a sub form. Return this with your payment before 1 November 1986 and you'll qualify for the reduced Charter rate.