Feel the **force**

Howard Oakley is reeling from the power of his new Mac, but installing OS8 brings him back to earth.

Although Apple's troubles are not trivial, it is all too easy to relegate the company to the edge of bankruptcy. That august organ of corporate America, *The Wall Street Journal*, recently published a correction to its report that sales in the final quarter of 1995 were 11 percent down on those of a year before. The truth is that Apple's sales had *risen* by 11 percent.

However, all in the orchard is not rosy, and Gil Amelio still has many problems to solve before he can declare that the trees are laden with fruit once again.

All change

Another story used to spread gloom is the departure of two of Apple's luminaries. Steve Capps was a principal architect of the Finder, and had a major influence on much of the Mac/human interface. More recently, he was a key member of the Newton team and his contributions to both areas will be sadly missed. Walter Smith, who gave his name to WallyScript (alias NewtonScript), saved the Newton project from foundering on the rocks of Dylan: this latter would have been the new language for the Newton but was scrapped at the last minute. Smith implemented a derivative of the little-known language called "self", and breathed life into the Newton.

While Steve and Walter are a loss to Apple and a gain to Microsoft's adolescent internet division, such movements are common and frequent. For every Capps and Smith, there are a dozen bright young people vying to succeed them as Apple heroes.

Meanwhile, Apple has been wooing developers like never before. In spite of anything you may hear to the contrary about Apple's business, it has been attracting new programmers in droves. Many appear to be dyed-in-the-wool Windows-wrights, who have completed the move to Win32 and are trawling for fresh markets. Apple's new regime has made Guy Kawasaki (eclectic evangelist, father of the 4th Dimension database and, more recently, Claris eMailer) an Apple Fellow responsible for liaising with developers. It has put Heidi Roizen, past president of T/Maker and vendor of WriteNow, in charge of developer relations. Inventory surpluses have been turned to advantage by selling them off to registered developers, enticing them with bargains.

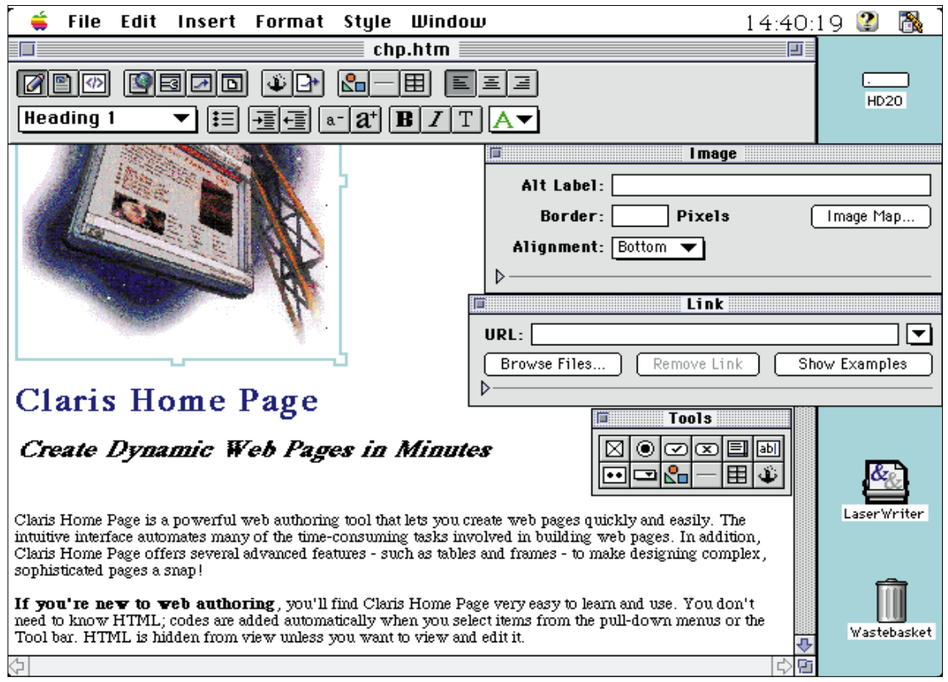

Fig 1 In a bold move, Claris not only announced its new web authoring application, Home Page, but made time-limited beta versions available on the internet. Offering tools as easy as those in ClarisWorks, it looks ideal for constructing small to medium-sized sites. A Windows version is promised later in the year

Power crazy

The upshot of Apple's generosity is that I am now the proud owner of a Power Mac 9500/132, which has quickly become my main development system. It arrived with a 16Mb memory, so my first task was to add two 32Mb DIMMs to bring it up to 80Mb in total.

Having languished for two years with an otherwise delightful 16Mb Power Mac 6100, I decided that the savings in the cost of the base unit should be invested in hardware resources. I also wanted to use the internal SCSI chain by adding a 4Gb hard disk to the 2Gb disk and CD-ROM supplied. If this seems gluttonous, consider that I needed to move files and applications from my old IIfx, the 6100, and my PowerBook 5300ce, which between them had access to a total of 6Gb of disk space.

Fitting memory is clearly not for the faint-hearted. The 9500's vertical case stands the motherboard to one side, against which there are fixed plastic columns to hold internal drives and power supply. To add DIMMs, you have to remove all connections to the motherboard, then slide it gently forward before dropping it down as if hinged along the bottom edge. There is a lot to disconnect, including the heavily-finned processor daughterboard, all PCI cards, the plastic clip-on power switch, and a series of ribbon and other connectors along the top of the motherboard.

Fitting the hard disk is easier and does not require disassembly beyond removing the case, provided that you buy the right plastic "sledge" on to which the disk is screwed. Also, remember to set the SCSI ID jumpers so that they don't conflict with other devices on the internal chain.

Splitting up

Once everything had been reassembled, I had a couple of days' work ahead of me before it would be configured and ready to use. I formatted the new hard disk with FWB's Hard Disk Toolkit, dividing it into five partitions of different sizes.

Until I got my first big hard disk, I had not appreciated how the Mac's file system limits can waste space on disks. Just as with Windows 95, MacOS divides a partition into a maximum of 64k allocation blocks.

While files typically occupy more than one block, they can only occupy an integral number of blocks and cannot share a block with another file. If you have many small files, say of less than 4Kb in size, it is a shock to see in their Get Info dialogue that they are each swallowing up 32Kb of your hard disk. Thankfully, the Hard Disk Toolkit

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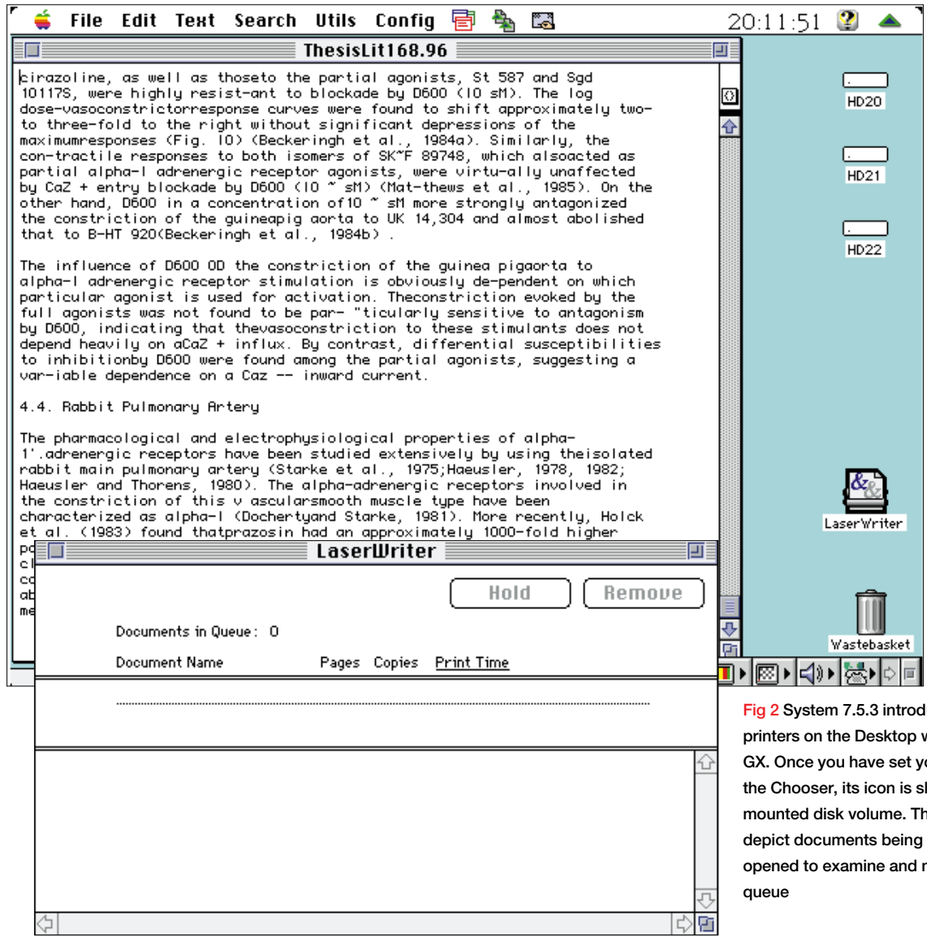

Fig 2 System 7.5.3 introduces, at long last, printers on the Desktop without QuickDraw GX. Once you have set your printer up using the Chooser, its icon is shown below your last mounted disk volume. The icon changes to depict documents being printed, and can be opened to examine and modify the print queue

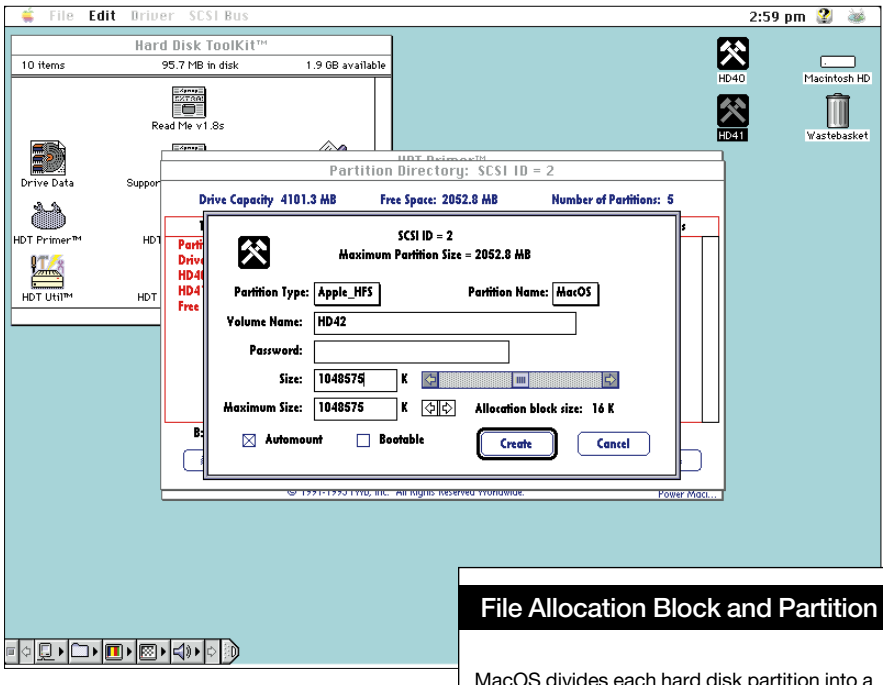

Fig 3 Configuring hard disk partitions is easy when you are formatting a hard disk using FWB's Hard Disk Toolkit: you can adjust the size of partitions to achieve a desired allocation block size. Apple's own Apple HD SC Setup and Drive Setup utilities require you to calculate partition sizes manually

can set partition sizes so that allocation blocks are of a particular size, so all I did was create some partitions for holding smaller files (block size 8Kb) and some for larger files (block size 16Kb).

Once completed for the 4Gb disk, I installed System 7.5.3 on it, restarted from that System, using the Startup Disk control panel, and repeated the process with the 2Gb disk.

Situation normal?

Just as I got everything running sweetly, and found the new desktop printer feature, I noticed that Apple had leaked a couple of bombshells over System 7.5.3.

Remaining bugs and problems with System 7.5 Update 2.0 have led to the release of a further, mercifully smaller, update known as Revision 2. As this is currently only available in US form, we in Europe will have to wait before knowing what it offers. But in the course of clarifying this, Apple engineers revealed that System 7.5.3 resulting from the Update 2.0 is more advanced than 7.5.3 installed afresh. So they advise us to apply Update 2.0 on top of PCI Power Mac 7.5.3. When Revision 2 arrives in British English form, we'll have to install that, too. What a mess!

Mac OS8

Sources inside Apple indicate that the company hoped to ship an initial alpha release of Mac OS8 in August or September. This was another factor in my decision to get some PPC muscle, although the final public release should run on all PowerPC-based Macs with 16Mb of memory.

If you have been wavering over Power Macs, OS8 is a good incentive to buy, as there are no plans to support 68K hardware. This also means that cheaper PowerPC upgrades on add-in cards will be bereft of Mac OS8, as they cannot relinquish full control to the card.

Mac OS8 is a complete redesign and reimplementation of MacOS. Instead of the complex and broad hierarchy of different Managers which make up System 7.x, it consists of a small and efficient microkernel, a larger set of core system services sitting on top, and layers of higher-level service managers such as networking, graphics and multimedia.

The microkernel not only supports pre-emptive multitasking, which automatically cycles between running processes according to their priority, but also provides virtual and protected memory. The current implementation of virtual memory is safe but slow and inefficient. By contrast, that in Mac OS8 will be permanently enabled, and function transparently and efficiently.

My older Macs have small, slow internal hard disks which are 90 percent full with the System folder, utilities and common applications. As I needed more disk space, I added external drives of greater speed and capacity. To get the best out of OS8, these internal startup disks should be replaced with modern, fast drives of greater capacity and kept with large, adjoining, free space for the backing store for virtual memory. Those who use Adobe Photoshop to process large, deep colour, images already make similar arrangements for its scratch files.

Next month I will consider the thorny issues of memory protection and System extensions, and how Mac OS8 promises to reduce data-destructive crashes.

File Allocation Block and Partition Sizes

MacOS divides each hard disk partition into a fixed number of storage allocation blocks (Fig 3). The table below shows, for given block sizes, the maximum size of partition you can create. Because files can only occupy an integral number of blocks, 1,000 files which are 100 bytes long will consume 3.9Mb on a 255Mb partition, but 31.3Mb on a 2,047Mb partition. If you have a large hard disk, divide it into partitions of different sizes so that you can put small files on smaller partitions with smaller allocation block sizes.

Allocation Block (Kbyte)	*Max Partition Size (Mbyte)*
4	255
8	511
12	767
16	1023
20	1279
24	1535
28	1791
32	2047

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Apple Computer is on 0181 569 1199; www.apple.com and www.euro.apple.com

FWB's Hard Disk Toolkit costs £110 (plus delivery and VAT) from MacLine 0181 401 1111

Claris is at http://www.claris.com/