Apple takes note

Apple may have been rather slow on the uptake with its first portable attempt. But its latest notebooks, the PowerBook range, are well worth taking a look at. Tony Smith gives his verdict on the 140 machine

When it comes to portable computing, you could be forgiven for thinking that Apple lives in a world of its own, divorced entirely from the events taking place in the rest of the computer industry. Occasionally, a rogue concept sneaks over the barriers around the Cupertino-based company's HQ and Apple steers its product designers onto a new path.

Compaq released the first IBM-compatible portable in 1982, and interest in the prospect of computing on the move has been growing ever since. Apple's attempts to cater for that interest didn't really begin until 1989, with the launch of the Mac Portable.

A large machine (its 13.75lb [6kg] put it firmly in the 'luggable' category of portables), it was designed as a Mac you could transport easily from one desk to another, rather than as a go-anywhere laptop. Its 16MHz 68000 CPU put it between the Mac SE and the II series.

But even as the Portable was being pushed by Apple's resellers, users in the IBM arena were being teased with the next stage in the portable PC's evolution: the notebook. Mac users quickly cottoned on to the notebook's power-to-weight ratio advantages, and they wanted a Mac version. The Portable ended up in the 'where are they now?' file.

Apple's launch of the Classic and LC in 1990 finally proved it had learned the advantage of considering demand as well as supply. That newfound philosophy, and a measure of prodding from Sony, led to the development of Mac notebooks. In the guise of the PowerBook series, they finally saw (official) light of day at Comdex Fall last year.

The new range comprises three machines: the 100, 140 and 170. The former was co-designed with Sony, the others by Apple alone. *MicroScope* took a look at the PowerBook 140, equipped with four megabytes of RAM and a 20 megabyte hard disk.

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The Powerbooks certainly conform to the classic notebook look: roughly the plan of an A4 sheet of paper, with the 'clamshell' screen folding down over the keyboard. Weightwise, the 140, like the 170, hits the 7lb (2.6kg) mark, the generally-agreed upper limit of the generic notebook specification. The 100 is a couple of pounds lighter, thanks to its lack of internal floppy drive.

Closed, the 140 looks like a dark grey slab, with a narrower and lower 'extension' at the back; narrower to allow the two large feet to remain flush with the sides of the main unit, and lower to accommodate the screen's hinges. The feet have only two positons: retracted and folded down. The slope they give to the keyboard is fine, and similar to that of a standard PC keyboard, but a more adjustable system would have been better.

The extension also houses all the machine's connectors, protected by a hinged flap that quickly wore down so that it refused to remain closed. The 140 and 170 both have microphone and headphones sockets, plus an ADB port and the proprietary PowerBook SCSI connector, a six by five slot female connnector. There is also a pair of AppleTalk connectors (the 170 also has a built-in fax/modem), and an on/off switch. The logic of putting the switch here, protected by the flap, is obvious, but a position next to the keyboard would have been just as safe from accidental power-ons and would save all the fiddling around with the back of the machine just to turn it on.

The 140 is equipped with four megabytes of RAM and a 20 megabyte hard disk

The PowerBook 100 is activated by hitting a key – why not the other two models? Also at the rear is the connector for the external power supply.

The main body of the PowerBook 140 sports the standard Apple 1.44 megabyte floppy drive and the battery. The floppy is located on the right side-panel, a far more sensible place than the front panel, where most manufacturers insist on putting them. Alas, Apple still feels it unnecessary to add a disk eject button to its drives.

The battery slots in on the left-hand side of the machine, at the front. Just pull it forward a little, then slide it out. Rechargeable batteries *don't* last forever, so it makes sense to make them removable too. Besides, it allows the user to have a second one in case the first runs out of charge at an inopportune moment.

Lifting up the PowerBook's screen reveals its trackerball, at the front, and the keyboard, positioned behind it. The trackerball has two buttons; one above, the other a little way below. The first, along with the ball itself, is nicely positioned for use with your thumb when typing. However, I found myself moving my hands away from the keyboard and

using the trackerball almost like a mouse, for which the second button is handy. The trackerball itself takes a very short time to master, but is too loose. Consequently, it's easy to move the cursor out of position. .

The keyboard is the same size as a standard Mac board. The Return button has been sliced in two, allowing the creation of an extra button, so the backslash key that appears above Return and Enter is now located next to the spacebar. And for some bizarre reason the Esc and tilde keys have been swapped round.

The keys have a very light touch, almost organic in their lack of solidity. That said, the keyboard isn't unpleasant to use. Its location in relation to the trackerball takes some getting used to: if you're used to keyboards being at the front of notebooks, suddenly having to reach towards the back is strange. Using the spaces on either side of the trackerball as wrist-supports might help.

Above the keyboard and under the right-hand side hinge are the screen's brightness and contrast controls. These are very sensitive (a short movement results in a big change) but unresponsive – changes take place just after you've moved the slider. This makes screen adjustment a slow if not troublesome, task. The brightness control panel, originally written for the Portable, doesn't work with the PowerBook. One plus is that it will also switch off the screen's backlight. This prolongs battery life, but means that a strong incidental light source is needed in order to read the screen properly.

The screen on the 140 is, as you would expect from an LCD, clear and has a resolution of slightly lower that that of the CRT screens built into the Classic machines (though it's slightly larger). That said, it does seem particularly susceptible to ghost images: horizontal and vertical lines, particularly noticeable in Finder mode, seem to bleed off the screen. Another problem that quickly becomes apparent is the persistence of images. Move the trackerball rapidly and the pointer has a tendency to disappear as its position changes faster than the LCD. A lot of time can be lost hunting for the missing cursor.

The screens of the PowerBook 100 and 140 are both backlit supertwist LCDs, the 170 has a more advanced active-matrix display. The upshot of this difference is that images should be sharper and won't be affected by ghosting or persistence problems.

O ne real problem *MicroScope* encountered with the review model was its insistence on unilaterally altering the contrast setting. Entirely at random, the screen would suddenly turn very bright or very dull. Adjusting the contrast control would help in the short-term, but the screen would soon change again to reflect the contrast adjustment as if the display hadn't altered in the first place.

A likely cause would be fluctuations in the power supply, for example, when the external power connector is removed and the battery takes over. However, the screen changes didn't seem to match such events. Neither did they occur when the battery reached a very low level of charge.

In the latter case, the Power-Books' software immediately warns the user, suggesting that he or she begin working from an external power supply in order to recharge the battery. This is a far better way of indicating imminent power-loss than the flashing or colour changing

LED favoured by IBM-compatible notebook manufacturers.

All the PowerBooks run a special version of System 7, specifically designed for the machines (7.01). The most useful of the features unique to the PowerBooks are the battery monitor, which gives a visual indication of a machine's power status, and the Sleep facility, selected from the Special menu in the Finder. Sleep just switches the screen and hard disk off, the two main drains on a machine's fuel. Sleep mode will also kick in automatically if the user leaves the Mac alone for a certain, user-definable time. The hard disk can also be set to power-down after a period of time, again as a power conservation technique.

Naturally enough, System 7's virtual memory techniques are not too applicable to a system where disk access should be kept to a minimum. You can still use the facility, but 7.01's version of the Memory control panel will warn you of the dangers.

Of more use will be the RAM disk system, where a section of memory is partitioned off as a hard disk. This again cuts down hard disk usage, but the contents must be copied onto the hard disk before the PowerBook is shut down, though the OS will give you the option of aborting a shutdown in order to save RAM disk files.

Without a RAM disk and a disk park time of one minute, we found that the 140 ran for about two hours before the reserve power warning came on. This puts it on a par with most IBM-compatible notebooks.
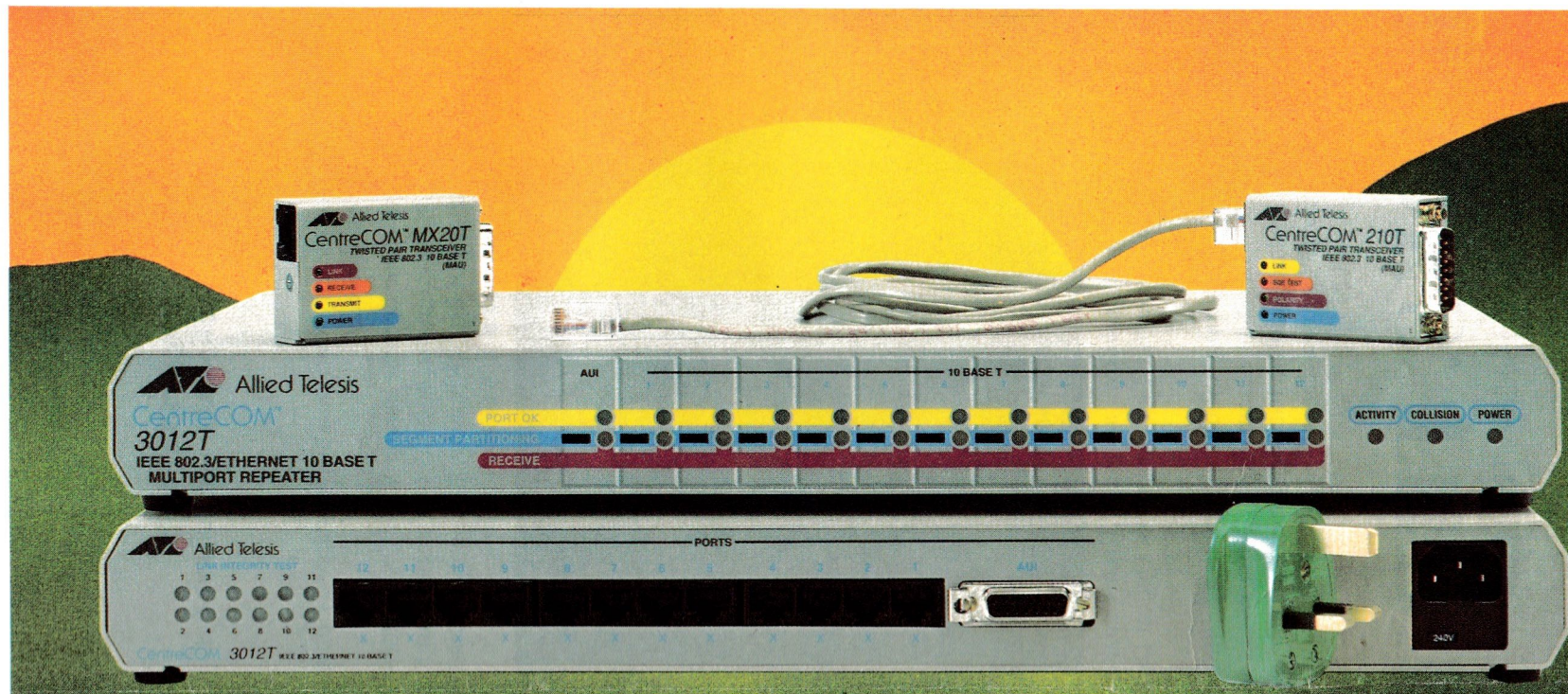
The PowerBooks make up a nice addition to the Mac range. To make the best use of System 7, users will really need the four megabyte RAM option, which pushes the prices beyond those of standard Macs of a similar spec – portability is obviously sold at a premium. This is a shame since both the 140 and 170 would be fine as a user's only Mac (as opposed to a portable adjunct to a desktop system, the 100's best role). ❑

Details

	PowerBook 100	140	170
CPU	68000 @ 16MHz	68030 @ 16MHz	68030 @ 25MHz 68882 co-processor
RAM*	2	2,4	4
HDD	20	20/40	40
Price:	£1375	£1795/£1995/ £2195	£2975/£3150**

*RAM expandable to eight megabytes max. **with fax/modem fitted.
An AC adaptor is vital, but isn't included with any PowerBook. It costs £75.