was superintendent. As he was away, John McLean, the acting superintendent, carried out the emptying and restocking of the cases. This latter operation took place in February, when the temperature reached between 90° and 100 °F, (32° to 38°C) again using unlisted ferns and grasses.

Soon after his arrival, Mallard advertised for cargo and passengers for his return voyage. These advertisements continued to appear until May 12, eight days before the *Persian* eventually left, so the plants had time to be established before being taken on board. As Cunningham returned to Sydney on April 13, he had time to see the cases and to understand what had happened to them in his absence. When he first arrived in Sydney, he blamed 'the want of proper accommodation for plant cabins on board the vessel' for his failure to introduce many new plants. It is somewhat surprising, therefore, that he made no mention of Ward's experiment in either of his reports to the Governor for 1834.

Ward's observations on the growth of plants in enclosed glass containers, begun in 1829, and his development of the cases that made it possible to grow delicate plants in the polluted atmosphere of industrial cities are well known.

The Arctic explorer Sir Edward Parry and his family were amongst the passengers on the return journey. As his son, who was on board, makes no mention of the voyage in his life of his father, it would appear to have passed without special incident. Ward, however, notes the temperature during the voyage fell to 20°F (-6°C) (when rounding Cape Horn, when there was a foot of snow on the decks where the cases stood), rose to 100° F (38° C) at Rio de Janeiro and reached 120° (49° C) at the Equator before dropping to 40° (4°C) in the English Channel.

After the ship docked at Gravesend in November, Ward, accompanied by George Loddiges, went on board to inspect the cases. They were delighted to find the plants they contained had survived those extreme conditions and without being watered, were in a flourishing state. In addition, they found that seeds of black wattle, *Callicoma serrata*, present in the soil placed in the cases in Sydney had germinated during the voyage. This no doubt suggested the use of the cases for conveying seed with short-lived vegetative properties, a use Ward was to emphasize when he came to write *On the Growth of Plants in Closely Glazed Cases*. Loddiges was especially pleased to see a live parasol fern, *Gleichenia microphylla*, only previously known in Europe from dried specimens, in one of the cases. So, not only did the expedition meet Ward's most sanguine expectations, but an Australian plant became the first to be introduced in a Wardian case, as the containers came to be named.

As the *Persia*n had spent so long in Australian waters, Ward had heard, by letter, of the success of the outward journey and in August Loddiges had dispatched similar cases containing useful and ornamental plants to Ibrahim Pasha for his gardens in Cairo and Damascus, commencing their widespread use. By 1842, Loddiges had employed more than 500, sending and importing plants to and from distant parts of the world cheaply and efficiently.

Reports of the results of Ward's experiment began to appear in scientific journals. His letter to W. J. Hooker was printed in the *Companion to the Botanical Magazine*, May 1836, and a paper by Daniel Ellis appeared in the *Annual Report and Proceedings of the Botanical Society*, Edinburgh, 1838–9. This was reprinted by J.C. Loudon in his *Gardener's Magazine*, September 1839.

In Loddiges's letter in which he gives the statistics quoted above, he draws special attention to the success of the assignments entrusted to Captain Mallard of the *Kinnear*. Mallard brought the *Kinnear*, which may be the *Persian* renamed, with the Kinnear family on board to Sydney in 1835, returning in 1837 and again in 1839. Then in 1842 he and his wife, who had accompanied him on the memorable 1833–4 voyage, arrived on the *Salus* to settle in Australia. Like her husband, Mrs Mallard was a keen naturalist, and in Port Phillip she collected algae for W. H. Harvey and one, *Arthrocardia mallardiae*, was named in her honour.

After a distinguished career in landscape architecture, Richard Clough has devoted his retirement to research and book collecting, especially in the area of Australian colonial horticulture and gardening.

BELOW: Parasol fern (*Gleichnia microphylla*) a woodblock print from EJ Lowe's *Ferns British and Exotic,* London 1864