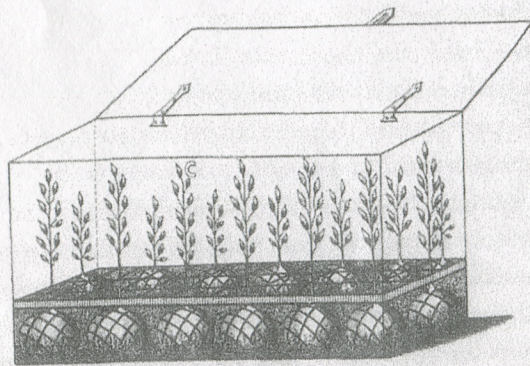


und? He suggested having a trained gardener to prepare, pack the plants home, thus avoiding the risks of careless ships' captains. Yet this good advice was not fully taken up for many years and rare plants would be destroyed in the meantime. Putting seed in a tin was almost as hazardous. Poorly packed seed rotted or while ships' rats and cockroaches could speedily chomp through a packed sackful. Sand was most commonly used and John Bartram packed seed in sealed bottles of sand or dry soil. The plantsman Dr. Bartram recommended sealing them in wax, even dripping. Linnaeus had a theory of packing seed to keep it cool in tropical conditions, by putting it within a small glass container which was put inside a larger container the space between filled with a mix of nitre and small amounts of sal ammoniac. Dr Livingstone suggested that, for damp conditions, seeds be held over concentrated sulphuric acid to dry the air around them. Whether or not either idea worked, they were hardly practical suggestions for the collector working alone in the steaming jungle. Sugar, both absorbers of moisture, were also proposed. Nathaniel Pons successfully sent back enormous quantities of seed, including the Pandanus seeds, packed in brown sugar. He also recommended that paper used for wrapping plants should be impregnated with arsenic to ward off would-be attackers. Later collectors solved some of the problems of transporting seed straight into cases before putting them on the ship. It was not until 1842, for James Veitch, a revolutionary change in transporting plants



Some East India seeds with as defended by wire.

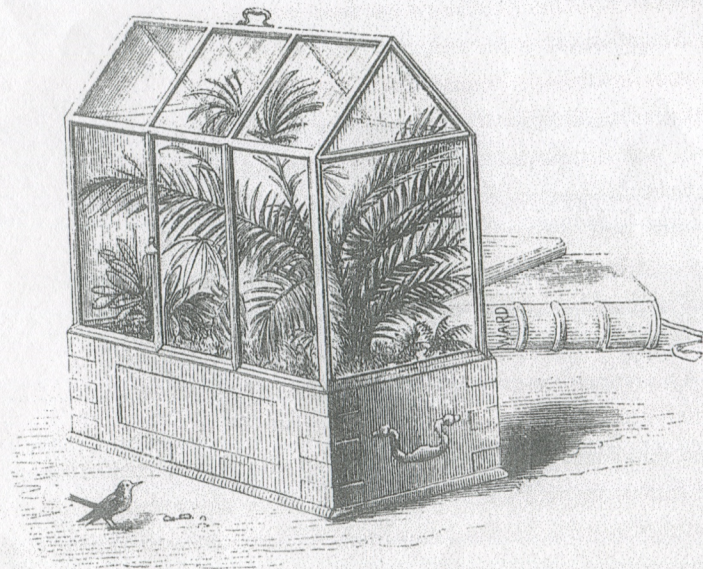


The inside of the box showing the manner of securing the roots of W. Florida and W. India plants surrounded with earth & moistened with packthread and put over creosote & creosote with laths or packthread to keep them steady.

Two methods of transporting plants. They were rarely successful

success. James, who was always up to the minute with information about the latest techniques, wrote to Kew that 'there is now a new patent glass case, very strong, would it be desirable to have a few cases with glass tops to grow seeds in to vegetate on the journey?' He was referring to the new 'Wardian' case first used by Joseph Paxton. Dr Nathaniel Ward, an amateur naturalist, had discovered in 1827 that a sealed jar in which he had placed a caterpillar to pupate had also grown a tiny fern and some miniature blades of grass. The plants were living in a permanent state of humidity as the moisture condensed by day and returned to the plants at night. The protected environment excluded polluting air and moisture and kept the plants clean and undisturbed. By 1834 Ward had proved conclusively that plants stood the best chance of surviving if they were transported in sealed, glazed cases modelled on his caterpillar jar. He experimented by sending some English ferns to New South Wales. After a six-month voyage, the plants arrived in perfect condition. The cases were then planted up with especially tender and difficult native Australian plants, and returned home through storm-tossed seas undergoing temperatures ranging from F20° to F120°.

When Ward opened the cases in London, the plants were secure, fresh and green. Collectors all around the world realised that their troubles with



The Wardian case