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### On a Method of Transmitting Living Plants Abroad

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*On a Method of Transmitting Living Plants Abroad.* By  
R. LINDSAY, Curator, Royal Botanic Garden.

(Read 13th May 1886.)

The method usually adopted in transmitting living plants, particularly where very long journeys have to be undergone, is to pack the plants in Wardian cases, *i.e.*, cases fitted with glass sashes, which, when closed, are nearly air-tight. This is no doubt the best mode of conveying plants safely, provided they are properly attended to on the journey. To do so it is almost necessary for some one who understands the requirements of plant life, to take charge of the case, as, when sent without any special attention being paid to them, the results are frequently unsatisfactory. The dangers attending such structures appear to be want of ventilation and shading. The plants soon become drawn up and weakly in the steamy atmosphere of a close-fitting case, and often arrive at their destination in a dying or dead condition.

One of the most successful importations of plants that I recollect having seen was contained in a small wooden box sent to the Garden from Australia by Baron von Mueller, in 1866. The plants had been over three months on the journey, but were found to be in perfect health on their arrival at the Garden. This result we attributed chiefly to the simple manner in which the case was constructed. It consisted of a rough square wooden box, filled with soil, into which the plants (which had previously been grown in pots) were placed; two narrow strips of wood were nailed on to the sides of the box in an upright position, to which a cross-piece was attached, constituting a handle. The whole was then covered with strong cotton cloth, no glass being used. In vol. viii., p. 482, *Transactions of the Botanical Society*, a description is given of this case by the late Mr M'Nab. In July last our associate, Mr Buchanan, desiring to take some economic plants out with him to Central Africa, an opportunity was afforded of making an experiment. This was rendered all the more necessary, as on previous occasions similar plants sent to Central Africa from the garden, packed in Wardian cases, although taken every care of on the way out, were found to be

mostly dead on their arrival. On this occasion, a case similar to that now exhibited was prepared. It is 18 inches long, 12 inches wide, 16 inches deep, has a ridge roof with a handle fastened on the top for carrying. The main difference from an ordinary Wardian case is in the substitution of cotton blinds for glass sashes. The blinds are nailed to the top of the ridge and tied down with cords to the sides of the case. The advantage of this method is the admission of sufficient light and air to maintain the plants in a healthy condition; the fine threads of the cloth act as a shade from strong sunshine, and do not admit so much air as to cause the interior to become quickly dried up. The plants sent on this trial consisted of india-rubbers, several tea plants, cinchonas, and ipecacuanha. They were all turned out of the pots in which they had been growing previously, the balls of soil slightly reduced, and then wrapped up tightly amongst sphagnum moss. The plants were then packed in the case firmly, in an upright position, using sphagnum for filling in the interstices. Thin strips of wood were placed across the balls, the ends of which were nailed to a flange inside the case for that purpose, thus preventing the plants from moving, even if the case was turned on end. After being well watered and allowed to settle for a day, the blinds were tied down and the case sent to London to Mr Buchanan. He was eighty-two days on the journey, and in a letter to Mr Taylor he reports that all the plants arrived in a perfectly healthy condition, except the cinchonas, and that he had not given up all hope even of them. I may mention that the cinchonas referred to were not very vigorous plants to begin with; they were the best we had at the time, but were merely young seedlings. It would be well to have this method still further tested, either by having a few plants sent to a distance alone, or at all events in charge of some one less skilful in the management of plants than Mr Buchanan. For all but very tender plants (where special provision would be required), I think more favourable results would be attained by the use of a case such as that described, provided it were placed free from danger of sea water getting through the canvas, than if the usual Wardian case were used.