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III. Mode of Transmitting Seeds and Cuttings

Mr M'Nab

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to see, in the extensive nursery establishment belonging to Messrs Smith & Son, at Worcester, a large weeping beech which was struck by lightning during the month of June 1857. This tree is 25 feet high, with a stem 6 feet in circumference at base, and branches off horizontally at top. The spread of the branches varies from 35 to 40 feet in diameter. This beech, instead of being riven in pieces like the generality of lightning-struck trees, has the bark on the upper horizontal portions of the branches injured, appearing as if they had been seared with a hot iron. The health of this tree does not appear to have suffered, as the points of the branches then struck, as well as the secondary ones immediately below the seared portions of the large branches, have grown quite as freely, and continue as healthy as those which were untouched by the electric fluid. The three main branches injured vary from 21 to 27 inches in circumference, and the portion of bark riven along their upper surface varies from 4 to 5 inches in breadth, in small irregular flakes, standing quite upright. The electric fluid must have passed off by means of the pendant branches, as no trace is observable on the surface of the horizontal ones beyond 10, 13, and 16 inches in circumference, nor is there the slightest appearance on the stem of any electric fluid having passed down it, which is not unfrequently the case with some lightning-struck trees.

Owing to the peculiar effect produced by lightning on this weeping beech, I am still inclined to think that there must be something in the constitution of the beech tree which ought to be investigated, and which renders it incapable of being injured to the extent of other forest trees. Still, large beech trees may occasionally be struck, and show no more injury than the weeping beech at Worcester.

III. *Mode of Transmitting Seeds and Cuttings.* By Mr M'NAB.

The introduction of certain seeds in a fit state for germination has long been wished by cultivators. I have repeatedly tried to induce collectors to send seeds in strong earthen jars, or bottles firmly packed in soil, and closely corked, the soil to be taken 6 or 8 inches under the surface,

so as to contain the natural moisture only ; however, few individuals seem inclined to give this method a fair trial, being rather disposed to send by the old system, viz., in dry papers.

As far back as 1834, I introduced, in this way, acorns of many varieties of American oaks in excellent condition for growing, while packets of the same seeds, brought home in paper, and also in canvas bags, did not succeed. Some acorns were also brought home in a box between layers of sphagnum moss, having the superfluous moisture previously wrung out of it. By this method of packing the acorns also succeeded well.

Dr Little, of Singapore, a gentleman eminently distinguished for horticultural skill and ardent love for the science of botany, has been very successful in introducing into this country interesting plants, such as that yielding gutta percha (*Isonandra gutta*), and many rare and valuable orchids. Dr Little seldom misses an opportunity of sending home seeds peculiar to his district, but it frequently happens that they are completely dried up before reaching this country. During Dr Little's visit to Edinburgh, in the year 1870, I told him of the disappointment so often experienced with many of his seeds, and recommended him to try the stone bottle system. About the middle of November last, I had the pleasure of receiving a stone jar from Dr Little, filled with palm seeds, firmly packed in soil, all quite fresh and capable of germination. In districts where sphagnum moss abounds, I would recommend it in preference to soil, as it retains the moisture for a much longer time, and is not liable to mould or decay. In sphagnum the radicles of the embryo are often slightly protruding when they reach their destination, while the soil, with its natural moisture, keeps the seeds much in the same condition as when sent away. Either system is good, and ought to be more generally adopted, particularly now, with the facilities afforded by the Post-Office for transmission from abroad.

With pulpy seeds or fruits, the above methods are by no means satisfactory. I have found from experience that all pulpy seeds succeed best when rubbed out in dry white sand. After being spread out in the sun or wind for a day

or two to dry, collect the mass and pack firmly in stone jars, and when they reach their destination, sow out the contents of the jars, and cover with soil according to the size of the seeds. By this method, I have frequently sent to Australia, Canada, and other distant parts of the world, the seeds of strawberries, gooseberries, raspberries, brambles, currants, blackberries, laurels, elderberries, thorns, hollies, yews, &c. Any portion of the pulp remaining with the seeds, seems less liable to decay when mixed with dry white sand, than with soil or sphagnum.

For a long series of years it has been customary to send home seeds packed in charcoal, and I regret to see it still recommended. This practice, however, ought to be abandoned, as it tends to destroy the vitality of the seed, unless in the case of seeds with very fleshy cotyledons.

It is not necessary that seeds should always be sent home in comparatively dry soil in earthenware bottles. About eighteen years ago I had some seeds of the akee fruit (*Blighia sapida*) sent from the West Indies. The seeds had been put into a large old blacking bottle (after being thoroughly cleaned inside), in a mixture of soil and water, firmly closed with a clean bung cork, and thickly sealed over. When they reached me I broke the bottle, and found every seed in a growing state. Each seed was put in a pot and set in a dark place for a time, light being admitted gradually; they soon lost their pale hue, and are now fine thriving trees. This simple method is also worthy of trial with many hard tropical seeds.

Wide-mouthed glass bottles are also useful to botanical collectors and amateur horticultural travellers. During my annual autumn peregrinations, both in this country and abroad, I have kept cuttings of rare stove and greenhouse plants in clean old pickle bottles, in excellent preservation for a fortnight, with a little moss and water, and have always found them succeed well after reaching home, if placed in an ordinary propagating pit or frame, in a pot of fine sand covered with a bell glass.

During a visit to the forest of Fontainebleau, I picked up a number of two-year old seedling oaks, elms, and other trees, and put them in a glass bottle among clean moss and water. After ten days, I broke the bottle, put the

young trees into pots, and placed them for a time in a shady situation ; they are now fine healthy trees. I mention this circumstance for the information of those who wish to bring home a memorial of their visit to some celebrated or interesting spot, as was the case with myself. Such seedlings will succeed equally well if lifted any time during the spring, summer, or autumn months. The chief risk is from sudden exposure to air and light.

Alpine plants are easily conveyed from their native habitats by the glass bottle system ; a strong wide-mouthed bottle will hold a large number of such plants, if put up in the way described. By this method they will reach home in a much better condition for growing than they could do when rolled in brown paper, as frequently happens.

IV. *Miscellaneous Communications.*

1. *Botanical Notes from India.* Communicated by Mr Sadler. "Some members of the Society may have observed an account of a meeting of the Agricultural and Horticultural Society of India, held on 17th of August last. At that meeting some papers were read, which have more than a local importance, and an abstract of them may not be uninteresting to the Society. The first communication which I would briefly notice, has reference to the transmission of living plants from Britain to India in hermetically sealed tin cases. Dr Jameson, superintendent of the Botanic Garden in the North-West Provinces, states that he received from Dr Forbes Watson, last spring, three tin cases filled with timber trees and flowering shrubs hermetically sealed, and forwarded per pattern post. Many of the plants were in excellent order, and are now in a thriving condition. This mode of transmitting plants is well worthy of being tried on an extensive scale with the finer kinds of flowering shrubs. Dr Jameson states that the cases ought to be forwarded from England in December or January, and not later, and the stems of the young plant ought not to be less than two-eighths of an inch in diameter. Lead numbers ought to be attached to the plants corresponding with the numbers in the invoices. Parchment labels are liable to be destroyed by the moisture and heat.