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Mr M'Nab

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the event of a glass covering, air ought to be introduced gradually, but with a cotton covering, less care is required, as no matter how strong, it always admits a certain amount of ventilation.

If the plants arrive in good condition, they should be planted at first in an open, free, and fibrous soil, with a slight mixture of sand, and properly shaded and protected. In such a mixture, the fleshy roots will develop themselves better than in soil of a heavy compact or clay nature; which, however, may suit them after they are sufficiently matured.

If the tops of any of the plants should decay during the transit, the pots and soil should be preserved, as it is likely that fresh tops will be produced, from the fleshy portion of root under the surface.

EXPLANATION OF PLATE IV.

- Fig. 1. Ipecacuan Plant in flower.
 „ 2. Annulated Root or Rhizome, cut from a pot-grown plant.
 „ 3. Cut portion of a Rhizome, showing the growth at one month old.
 „ 4. Cut portion of a Rhizome, showing the growth at two months old.
 „ 5. Cut portion of a Rhizome, showing the growth at four months old.

V. *Notes on the “Dogwood” of Powder Manufacturers.*

By Mr M^CNAB.

In a letter Mr George E. Frere, Roydon Hall, Diss, remarks—

“Are you aware that the wood which is called ‘dog-wood’ at the gunpowder works, and used in the manufacture of the finer kinds of powder for small arms and fowling-pieces, is not *Cornus sanguinea*, but *Rhamnus Frangula*, and that the main supply of it is imported into this country from Belgium and Prussia? This last mentioned circumstance makes me think the *R. Frangula* ought to be more frequently cultivated in England, for it is quite out of character that the nation should be dependent on foreigners for the supply of an important material of defence. Failing to procure plants from the English nurseries, I looked into the catalogues of the Edinburgh nurserymen, and I find the Messrs Lawson quote it amongst ornamental trees and shrubs,

at 1s. to 3s. 6d. each; while Reids, of Aberdeen, do not mention it at all. Of course, there is no planting it by the acre at Lawson's price.

"If you have any means, by labelling the *Rhamnus Frangula* in the Edinburgh Botanic Garden, or otherwise, of informing the public that it is the dogwood of gunpowder makers, you will be doing a decided benefit; and perhaps nurserymen may then turn their attention to its cultivation for coppice wood."

The notice by Mr Frere on the use of the *Rhamnus Frangula*, or alder buckthorn, as it is called, in the manufacture of the finer kinds of gunpowder, is not new, having been already noticed by several old authors. It is, however, an important subject, and one worthy of the attention both of nurserymen and arboriculturists. This species of buckthorn is a tree resembling in habit some plants of the common white hawthorn. It is of easy cultivation, both in light and heavy soils, and by a little attention could soon be got in large quantities. It produces abundance of fruit, which ripens freely in favourable seasons. It could easily be cultivated in hedge-rows, or used to form hedges, as it bears cutting in remarkably well. It could also be planted with great advantage on many railway embankments, both in England and Scotland; with a little care after planting it would succeed well. In such places it would sustain no injury from engine sparks.

The subject of using charcoal-producing plants for gunpowder purposes is an important one, and the Highland and Arboricultural Societies should bring it prominently before the public in their prize lists, in order that it may be fully investigated.

The genus *Rhamnus* embraces about twenty-six species and varieties; and all are probably suited for gunpowder charcoal. A few of the species are sub-tropical, some are natives of North America, others of Spain, Switzerland, and the south of Europe; while *Rhamnus Frangula* and *R. catharticus*, although Continental species, are likewise considered natives of Britain.

Dr F. Buchanan White has recently discovered *Rhamnus Frangula* in the parish of Contin, Ross-shire; he states—"The plants (of whose number I cannot, owing to the dense

growth of other bushes, speak with certainty) were well-established bushes, about 4 feet in height, flowering and fruiting freely, and growing in a marshy ground. Their associates were all native plants—alder, willow, birch, sweet gale, common heather," &c. This circumstance shows that there is no limit in Britain to its cultivation, if parties feel inclined to grow it for profit.

It is not improbable that many other genera of shrubby plants are capable of producing a fine quality of charcoal as well as the common alder, the alder-buckthorn, and dogwood, all now in use. Experiments could be made on the following British woods (if they have not already been tried). the sea buckthorn, common maple, white hawthorn, rowan tree, bladder-nut, spindle-tree, barberry, guelder-rose, way-faring-tree; also the hazel, birch, hornbeam, sloe, furze, broom, or even the ivy, which, in many districts, is injuring our forest trees to a great extent, likewise several exotic shrubs and trees, now largely cultivated in this country.

Experiments could also be made with dried roots of many of our forest trees. After felling, such roots are generally left in the ground to rot, and are often very troublesome. If any, or all, could be turned to account for producing a useful charcoal, it would hold out an inducement to remove them from the ground, which could then be used for planting, or for agricultural purposes.

The high price which the wood and branches of *Rhamnus Frangula* bring in the British market—L.10 to L.14 a ton—is certainly an inducement for landholders to turn their attention to the cultivation of the alder-buckthorn, dogwood, or any other trees and shrubs found best calculated for producing the finer kinds of charcoal. The dry buckthorn branches are sent from the Continent in the form of compressed faggots, and peeled, previous to being charred.

Since the above was written, I have received, through the kindness of Mr P. S. Robertson, a sample of the gunpowder-wood from the Roslin Mills, with the following letter from Messrs Hay, Merricks, & Co.:—"We have pleasure in sending you a sample of the dogwood we use here in the manufacture of gunpowder. The sample sent is of English growth, in the county of Sussex, and the price varies from L.10 to L.14 per ton, according to quality. We require all peeled

and packed into bundles of 100 pieces in each. The wood is cut generally in May and June."

The specimen sent from the Roslin Mills was subjected to a microscopic examination, along with recent woods of buckthorn and dogwood, and turns out to be the true alder-buckthorn (*Rhamnus Frangula*). It can readily be distinguished, both in the fresh and dried state, from the dogwood (*Cornus sanguinea*), by turning yellow immediately on being moistened, which is not the case with dogwood. If dogwood is really a charcoal-producing shrub, no plant could be so easily grown, as cuttings can be got in quantity. They will soon strike root, and grow as freely as a red or black currant.

The misnomer of dogwood for alder-buckthorn ought to be corrected by all powder manufacturers, as it is apt to lead to unpleasant consequences, by parties growing and supplying the true dogwood, and afterwards finding the produce refused by manufacturers as not the dogwood required by them.

VI. Notice of *Ruscus aculeatus*. By Mr M'NAB.

Mr M'Nab exhibited a specimen of *Ruscus aculeatus*, or butcher's broom, covered with rich crimson berries, sent by George E. Frere, Esq., of Roydon Hall, Diss, with the following letter :—

"Some years ago I found this plant in a state of ripe fructification. It is brought every Christmas into the market at Brighton, for the decoration of houses at that season. I had never seen before, in any other part of England, more than one, or, at most, two berries in any one clump of the plant, and I wished very much to get it to fruit in profusion at this place.

"I was reminded that the plant was dioecious, and I found friends to supply me with female plants. Soon after I received them it was suggested to me that my plants might possibly not have been hitherto barren, because they were of the male sex, but for want of impregnating agencies. I saw, a day or two since, an article in 'Nature,' by A. W. Bennett, who calls attention to the fact, that the normal time of flowering of the plant is almost the depth of winter,