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I. Note on Tylosis

F. M. Caird

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VII. *Letter from Rev. FRANCIS REDFORD to Professor BALFOUR, dated Hyeres, in the South of France, 8th March 1873.*

Mr Redford says :—" The climate here is most agreeable. We have been kept in-doors only two or at the most three days by unfavourable weather since we came. Even in December and January we could sit out of doors from four to five hours every day. Now the heat of the sun is well-nigh insupportable without a double covered sunshade, which every one carries. The country is very beautiful, and possesses many features interesting to the botanist, geologist, and meteorologist. Vegetation is very luxuriant, and the great number of semi-tropical trees and shrubs growing in the open air, such as Palms, Yuccas, Agaves, Aloes, Cactuses, &c., gives a pleasing variety to the scenery. Wild flowers are blooming in great profusion, and I am surprised to find that some of them, such as *Galanthus nivalis* and *Ranunculus Ficaria* are not earlier in blooming than at Silloth (Mr Redford's Rectory), although green peas were in the market, and strawberries ripe in the middle of January, grown in the open air. We had new potatoes for *dejeuner* on the 27th of January. Many deciduous trees are now in full foliage after being denuded only five or six weeks. The various species of Eucalyptus thrive well here. I measured one this morning (*Eucalyptus globulus*) which is 65 feet high, and the girth of the stem three feet from the ground is 6 feet 8 inches, the growth of seed sown in the year 1857.

10th April 1873.—JAMES M'NAB, President,
in the Chair.

It was resolved to offer the following prizes :—

I. *The Botanical Society Prize.*

The Botanical Society offers a prize of ten guineas for the best and approved Essay on the Reproduction of *Lycopodiaceæ*, to be competed for by students who have at-

tended the Botanical Class at the Royal Botanic Garden, Edinburgh, during at least one of the three years preceding the award, and have gained honours in the class examinations.

The author is expected to give results of practical observations and experiments made by himself on the subject, illustrated by microscopical specimens.

The essay and specimens to be given in on or before 1st May 1876, with a sealed note containing the author's name, and a motto outside.

Facilities will be given for carrying on observations and experiments at the Royal Botanic Garden, Edinburgh.

II. *The Jenner Prize.*

A prize of ten guineas is offered, through the Council of the Botanical Society, by Charles Jenner, Esq., for the best and approved Essay on the Structure and Reproduction of the *Frondose* and *Foliaceous Jungermanniaceae*. This prize is subject to all the conditions specified in the case of No. 1.

The following Communications were read:—

I. *Note on Tylosis.* By Mr F. M. CAIRD. (Plate IX.)

The author remarked that what he had to bring before the Society was little more than a list of plants which show good examples of Tylosis, or the cellular filling up of vessels. Tylosis, from a Greek word used by Galen, signifies "a becoming callous, swollen, or protruded," and seems applicable to the swollen irregular cells which fill the porous vessels in many exogens. Professor Thistleton Dyer, in the "Journal of Botany" for Nov. 1872, while calling attention to this as occurring in some fossil woods, also mentions several recent plants in which it may be seen, and notices very particularly a specimen of it from the Vine, prepared by Van Heurck. Mr Caird had found very good illustrations of Tylosis in various species of *Castanea*, *Carya*, *Juglans*, *Quercus*, *Ulmus*, &c. In *Juglans cinerea*, the cells within the vessels are in some instances distinctly dotted. *Ulmus campestris* and *fulva* furnish good examples,

and so also do *Quercus alba*, *Q. Robur*, and *Q. rubra*. In woods with a close structure, as *Betula*, *Fagus*, and *Pyrus*, the cells are not readily visible. Tylosis is extremely common in matured exogenous wood, but he had met with no instance of it in endogens.

The following are some of the plants in which he found it most fully developed :—

<i>Carya alba.</i>	<i>Quercus austriaca.</i>
<i>tomentosa.</i>	<i>Robur.</i>
<i>Castanea vesca.</i>	<i>rubra.</i>
<i>Fraxinus excelsior.</i>	<i>Suber.</i>
<i>americana</i>	<i>Ulmus campestris.</i>
<i>Juglans cinerea.</i>	<i>fulva.</i>
<i>regia.</i>	<i>montana.</i>
<i>Quercus alba.</i>	<i>racemosa.</i>

II. *Notes on some recent Researches regarding Dichogamy and other allied subjects.* By Dr ROBERT BROWN.

In this communication Dr Brown gave a verbal account of the more interesting observations which had been made of late years—chiefly by Delpino and Hildebrand—regarding Dichogamy, noting, in the course of his remarks, some observations of his own confirmatory or otherwise, of the statements of these naturalists. Particular attention was called to Konrad Sprengel's "*Das Entdeckte Geheimss der Natur in Bau und in der Befruchtung der Blumen*" (*Secrets of Nature in Structure and Fecundation of Flowers*), which contained the germ of all the discoveries of later years; though until Mr Darwin called attention to it, it seems to have been entirely neglected. Among the Zoidophileæ of Delpino he instanced *Clerodendron Thomsonæ*, Balf., as an admirable example of protandrous dichogamy, and described the arrangements to allow of insect fertilisation. The American Yuccas were fertilised by the agency of a single insect alone—*Pronuba Yuccasella*—a little moth, and accordingly, though the Yuccas were cultivated in the Northern United States and elsewhere, they never bore seed, on account of the insect which was necessary to their fertilisation not being found there. Speaking of the fer-

Transverse.

Longitudinal.

TYLOSIS IN JUGLANS CINEREA.