NOTE.

NOTE ON THE OCCURRENCE OF AN ABNORMAL BISPORANGIATE STROBILUS OF *LARIX EUROPAEA*, DC.—In April, 1912, a specimen of an abnormal cone of *Larix europaea* bearing both mega- and microsporangia was gathered from a tree at Kiveton Park, Yorks. A careful search failed to discover any other similar specimens on the branches of the same tree within reach. The cone was thrown into methylated spirit soon after gathering, and later it was embedded in paraffin and completely sectioned in the vertical direction by microtome.

The strobilus was of about the same size as the ordinary female cones of Larch at the time of the year when it was obtained. The upper half of the cone was composed of normally developed megasporophylls, and the lower part of microsporophylls. The intermediate region between the two kinds of sporophylls was occupied by a narrow zone of small, sterile scales exhibiting no definite form or structure.

FIG. 1. Somewhat oblique tangential section of abnormal microsporophyll. *m.*, microsporangia; *v.b.*, vascular bundle.

FIG. 2. Median radial vertical section of abnormal microsporophyll.

While most of the microsporophylls were normally developed, those next to the zone of indeterminate scales showed various abnormalities. The microsporangia were reduced in size, and sometimes one was smaller than the other. Nevertheless, the development of the pollen-grains was scarcely affected, and some of them were sufficiently far advanced to show the two flattened and disorganized prothallial cells, the generative cell and tube cell.

The most abnormal feature, however, in several of the microsporophylls adjoining the abortive sporophylls, was the possession of a peculiar downwardly directed process, growing from between the two microsporangia. The form and position of this structure are shown in the two accompanying figures, where it

is indicated by shading with dots. Fig. 1 is a somewhat oblique tangential section of a microsporophyll, and Fig. 2 represents a median radial vertical section of a microsporophyll passing between the two microsporangia. This abnormal structure usually arises in the median position, but its apex is often somewhat obliquely directed on account of the mutual pressure of the neighbouring microsporophylls. It is traversed by a tubular cavity, which is widest at the mouth and gradually narrows upwards to a blind ending. The cells of which the principal part of the structure is composed are rather small, with relatively large nuclei which stain deeply with Delafield's haematoxylin, suggesting glandular tissue.

I am unable to draw any conclusions as to the nature of these peculiar processes.

According to Coulter and Chamberlain¹ the occasional occurrence of bi-sporangiate strobili has been reported for *Picea excelsa*, *Pinus maritima*, *Abies* sp., *Pseudotsuga Douglasii*, *Sequoia*, and *Juniperus communis*, and to this list *Larix europaea* must now be added. Coulter and Chamberlain state that they are evidently of very rare occurrence among Pinaceae.

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¹ Morphology of Gymnosperms, 1910, p. 238.

Bartlett, A. W. 1913. "Note on the occurrence of an abnormal bisporangiate strobilus of *Larix europaea*, DC." *Annals of botany* 27, 575–576.

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