NOTES.

NOTE ON AN ABNORMALITY FOUND IN *PSILOTUM TRIQUETRUM*.

—The following note is a description of an unusual structure remarked by Dr. Benson in a dried plant of *Psilotum triquetrum*, sent her from New South Wales. My thanks are due to Dr. Benson for kindly allowing me to describe and figure this structure.

Some distance from the apex of the plant there occurred, among the ordinary synangia, a cluster of four synangia borne together on a common stalk. Three of these synangia were bilocular, while the fourth was unilocular. Diagrams I, II, III, IV, represent front, side, and back views of the cluster, and show the four synangia (A, B, C, D) with two forked bracts (x^1, x^2, y^1, y^2) and one single bract (z).

DIAGRAMS I-IV. Cluster of synangia in various positions (letters as in Diagram V).
 DIAGRAM V. M = main axis; S = common stalk, bearing cluster of synangia, the dotted portions represent the internodes, elongated for the purposes of the diagram; A, B, C, D = synangia; x, y, z = bracts.

On dissection it was found that no further bracts were present. The common stalk was flattened and was about a quarter of an inch in length. It bore, first, a bilocular synangium (A) with a double bract (x^1, x^2); secondly, a similar synangium with its double bract (B, with y^1, y^2); thirdly, a bilocular synangium (C) with a single bract (z); and finally it was terminated by a unilocular synangium (D) destitute of bracts (see Diagram V). Each of the first three synangia with their bracts was almost sessile, but the terminal synangium occurred at the end of a comparatively elongated, and also much curved, portion of the common stalk.

This abnormality appears to be of considerable interest in connexion with recent discussions¹ concerning the morphology of the synangium-bearing organ in the Psilotaceae. There seem to be two possible views as to the nature of the stalked cluster of synangia. It may be looked upon as equivalent to one of the normal aerial branches of *Psilotum*, which has for some reason become abortive in development; on the other hand, it may be regarded as derived from a single proliferated synangium-bearing appendage. The common stalk, arising from the main axis, and bearing the cluster of synangia, affords a striking point of difference from the ordinary sessile 'sporophyll,' but, since in the nearly allied *Tmesipteris* the synangium-bearing organs are stalked, this difficulty does not seem insurmountable. The presence of a terminal synangium is of extraordinary interest, and has not, so far as I am aware, been yet described in *Psilotum* (cf. *Tmesipteris*²). The theory that the abnormality is equivalent to a single 'sporophyll' appears to me far the more probable, especially when considered in the light of similar abnormalities in *Tmesipteris*, in which genus ordinary branches do not occur. It is not easy to suppose such a structure as this cluster to be of a foliar nature, for it can hardly be described as a repeatedly dichotomizing leaf.³ It is more possible to look upon it as a proliferated sporangiophore (primitively non-foliar in nature⁴), bearing several synangia, associated with several bracts, and terminated by a synangium at its apex.

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INTERNAL PHLOEM IN MYRISTICA.—In *M. fragrans*, Houtt., the midrib of the lamina of the leaf, which is a direct continuation of the petiole, contains a vascular cylinder which is much greater in diameter in the tangential than in the radial direction; its dorsal half is arc-shaped, while the ventral half is flat, the xylem of the latter is incomplete, two of the phloem-groups composing it being without any xylem, while what xylem there is present is much less thick than that belonging to the dorsal half of the cylinder. Four angular groups of *medullary phloem* occur, one of which is in direct connexion with one of the large phloem-groups of the ventral half of the cylinder which has lost its xylem. In the petiole these medullary phloem-groups at once tend to pass into the broad medullary rays, which they entirely fill, but one group is still left in the pith. At the base of the petiole the cylinder becomes, by the passing across of its ventral bundles, an arc of three arched bundles, each of which has a medullary phloem-group bending round each of its ends, thus standing half-way between pith and normal phloem. Thus, *before the leaf-bundles enter the stem, the medullary phloem leaves the pith and unites with the ordinary phloem of the cylinder.*

In *M. glaucescens*, Jack., essentially the same structure occurs.

In the *peduncle* of the fruit of the first-named species it was very interesting to find, what one might, in an organ of this nature, *a priori* expect, a transitional struc-

¹ Scott, D. H., Proc. Roy. Soc., 1897, and Prog. rei. bot., 1907; Thomas, A. P. W., Proc. Roy. Soc., 1902; Sykes, M. G., Ann. of Bot., January, 1908.

² Sykes, M. G., l. c. Text-fig. vii, x.

³ Cf. Abnormalities in *Psilotum*, referred to by Thomas, l. c., p. 349.

⁴ Sykes, l. c., p. 82.

Sykes, Mary Gladys. 1908. "Note on an abnormality found in *Psilotum triquetrum*." *Annals of botany* 22, 525–526.

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