ON AN ANOMALOUS LEAF OF ANEMIA HIRSUTA, SW.

—Abnormal leaves in the genus *Anemia* have been described by Prantl¹. One of the cases he mentions is that of a plant of *A. Phyllitidis*, Sw., in which the lowest primary segments of the leaf were quite or partly sterile, but were branched in the manner characteristic of the fertile pinnae.

A somewhat similar anomaly occurring in a leaf of *A. hirsuta*, Sw., seems worth mentioning on account of the conditions under which it was produced. In this case the lowest pair of pinnae, which would be the fertile ones in a fertile leaf, are quite sterile, but resemble fertile pinnae in that they are stalked and stand up vertically on the ventral side of the rachis. The laminae of these two pinnae are just as in the sterile ones, but are seated on stalks half an inch long, while sterile pinnae are typically sessile in this species, and the fertile pinnae of a normal fertile leaf produced by the same plant have stalks three inches in length. The plant in question was grown from one of several rhizomes kindly sent to me last summer by Mr. W. Fawcett, F.L.S., Director of Public Gardens and Plantations, Jamaica. The expanded leaves had been cut off leaving an inch or so of petiole, and the rhizomes were packed so as to keep damp for some time. By the time they arrived in England, however, the rhizomes and roots were quite dry externally. As the plants were intended for microscopic examination, only two of them were set apart for the purpose of trying to induce them to grow. This was successfully done in the Royal Botanic Gardens, Kew. One of the plants has produced several rather small sterile leaves, while the other plant put up first the abnormal leaf described above, and then a normal fertile leaf. Considering the facts of the case, it seems probable that the rudiment of a fertile leaf had been formed under normal conditions, but that the unfavourable conditions of transit, &c. caused it to complete its development in the manner characteristic of a purely vegetative leaf, as far as was still open to it. Expressed generally this may perhaps be said to be due to a check to the vitality of the plant, but the determining cause may well have been the lack of sufficient food-material of the kind required for the development of sori. It is probable that in a case like this, where the fertile pinnae are destitute

¹ Prantl, Unters. z. Morph. d. Gefässkryptogamen; II. Schizaeaceen. 1881, p. 20.

of a laminar expansion, the food-materials for sporangial development would not be manufactured locally, but brought from a distance. As the vascular bundles of the fertile pinnae are often decurrent in the petiole for some distance, there are grounds for supposing the reserves of the stem to be the source of the requisite substances. In the case under consideration these substances may have been present in the stem when the rudiment of the leaf was formed, but gradually destroyed in connexion with respiratory processes while the plant remained packed up and shorn of its leaves. Or perhaps only the supply of these materials to the developing leaf was prevented by the previous drying of some of the conducting tissues in the stem.

There is no need to try to explain the production of nothing but normal sterile leaves by the other rhizome. It may have previously produced no rudiments of fertile leaves, or none sufficiently far advanced to determine the form of the pinnae.

It should be pointed out that, although the production of an anomalous leaf immediately after the plant had been subjected to very unusual conditions may be a mere coincidence, a series of cultural experiments would probably decide the point, and might lead to very interesting results.

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THE VASCULAR STRUCTURE OF THE 'FLOWERS' OF THE GNETACEAE:—With a view to determining how much nearer, if at all, the vascular structure of the 'flowers' of the Gnetaceae approaches to the more primitive type of the Cycadaceae than do the vegetative parts of these plants, I made a careful examination of the axes and foliar members of the flowers of all three genera, with the following results.

The bracts (both those of the general inflorescence and individual flowers) exhibit practically the vascular structure of the foliage leaves of the same plant, viz. a collateral bundle with transfusion-tissue fairly well developed occurring in a lateral position. In the bract of the female inflorescence of *Ephedra distachya*, however, I distinctly observed a few tracheides of *centripetal xylem* on the ventral side of the bundle, and, as I have noted in other plants, there occurs more immediately in the *median* ventral position a second group of proto-xylem, although very slight in amount, belonging to the centripetal

Boodle, Leonard Alfred. 1901. "On an anomalous leaf of *Anemia hirsuta*, SW." *Annals of botany* 15, 765–766.

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