

6. NOTES ON *TREUBIA INSIGNIS*, GOEBEL.

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This hepatic was discovered by Goebel in Java, and described by him as recently as 1891. It was subsequently recorded from Tahiti, Samoa, and New Zealand, and now I have gathered it in dense woods on the southern slopes of Mt. Wellington, near the end of Strickland Avenue, and also near Forked Creek. Specimens have been forwarded to Stephani, who confirms the identification.

The plant is bright green when fresh, grows flat on the ground, and bears few lateral branches; it is about one centimetre diameter, and about five centimetres long, but it has been recorded from Java of a length of sixteen centimetres. The stem is broad and flat, and bordered on each side by oblong, leafy expansions which, at least in the anterior portions, are arranged in a succubous manner. That is, the anterior margin of each leaf is depressed and overlapped by the posterior margin of the one in front of it. On the dorsal surfaces there are two rows of suberect, transverse, green bracts, one near the anterior margin of each leaf. These bracts in the Tasmanian form are subquadrate, and about 2 mm. long; in the Javan specimens they are shorter. In the species *Hepaticarum*, Stephani refers the New Zealand form to a distinct species, *T. bracteata*, principally on account of the bracts being subquadrate, longer than broad, and appressed. On the under surface the plant bears a quantity of thick pellucid mucilage that affords protection to the growing apex, provides moisture in dry periods, and assists in anchoring the plant. This mucilage is secreted by glandular tissue formed on the lower portion of the anterior margins of the leaves. *Treubia* is generally classed with *Aneura*, *Metzgeria*, and *Symphyogyna*, and like them it has a complete absence of perianth; the work of that organ is undertaken by the enlarged fleshy calyptra. The archegonia are formed under the bracts. After fertilisation the calyptra enlarges enormously, becomes clavate, erect, and about one centimetre long. The seta is long, often as much as 5 c.m.; the capsule is spherical, and bursts to the base into four valves.

Treubia is of great interest to the Bryologist, for it combines reproductive and fruiting characters of Aneuraceæ with the leafy morphology of the Acrogynææ. Many authorities try to avoid the breaking down of established systems by treating the lateral expansions as lobed portions of lateral wings. This seems a distorted description of the apparent structure, and does not tend to a clear understanding of the evolution of the hepatics. The leaves of this group of plants have without doubt arisen independently along many lines of descent, and also have arisen by the transformation of very different primary structures. In some instances they have arisen by the gradual modification of protective scales or from mucilage-secreting organs; or again as lateral expansions which have from the first, or subsequently, been segmented into the condition that we have generally called leaves. We must always remember that leaves of mosses and leaves of flowering plants are only alike in name and function. They can have no relationship one to another. They belong to different categories, and cannot truthfully be compared, except so far as their function.

If the term leaf is to be applied to definitely structured, lateral, assimilatory organs of Hepaticæ, then Treubia is leafy and not merely frondose. It is only a difference of words, with the addition of some recognition of evolutionary developments.

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