

peduncle; (g) the form and extent of the cushion of siphonozoids on the pinnæ; and (h) the arrangement of the siphonozoids on the rachis.

I propose to give a more detailed account of the species in another place.

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EXPLANATION OF PLATE VI.

- Fig. 1. *Sarcophyllum bollonsi* (natural size); only on one side are the zooids indicated on the edges of the pinnæ: a, peduncle; b, vane; c, pinnæ (dorsal margins).
- Fig. 2. Apex of the colony, with pinnæ pushed apart to show the siphonozoids: a, apex; b, pinnæ; c, siphonozoids; d, rachis.
- Fig. 3. A single leaflet or pinna seen from below: a, cushion of siphonozoids; b, base of attachment to axis; c, ventral margin; d, dorsal or polypterous margin, with polyps (autozooids) diagrammatically represented.

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ART. XVIII.—*Recent Observations respecting the Origin of the Vegetable Caterpillar.*

By G. V. HUDSON, F.E.S.

[Read before the Wellington Philosophical Society, 6th June, 1906.]

IN the "Transactions of the New Zealand Institute" for 1903, page 170, Mr. Alfred Philpott states that he has practically reared *Porina dinodes* from a healthy larva which precisely agreed in structure with larvæ attacked by the *Sphæria* fungus and popularly known as "vegetable caterpillars." Since this time two additional facts have come under my notice indicating that "vegetable caterpillars" belong to several distinct species of Hepialid larvæ, and throwing considerable light on the origin of these remarkable objects.

Several years ago the late Mr. N. J. Tone, who was then Secretary to the Wellington Acclimatisation Society, called me into his office to see a specimen of vegetable caterpillar which he had found in the trunk of a tree and had kept in the same position as it had occupied when he discovered it. On examination I at once recognised the insect as a larva of *Hepialus vrescens*, and the portion of the tree-trunk with the burrow in which this larva was situated precisely agreed with the usual habitat of that species. I informed Mr. Tone at the time that

his discovery was one of extreme interest, and urged him to prepare a note on the subject for this Society. This he stated he intended to do, but did not carry out his intention before his death. I now place his observation on record to save it from probable oblivion. In connection with this discovery it is perhaps remarkable that the vegetable caterpillar was originally identified by the early New Zealand naturalists as the larva of *Hepialus virescens*, but apparently without any definite evidence, and that this chance identification has proved, in one instance at least, to be correct.

In June, 1905, Master Comyn Caldwell, a son of Mr. Robert Caldwell, of Karori, brought me two Hepialid larvæ, one very recently dead and infested with the *Sphæria* fungus, being in fact a vegetable caterpillar of recent formation, the other an identical larva unaffected by the fungus—alive, and very healthy. Both the larvæ were found in the earth, close together, amongst the roots of some native shrubs in some bush on Mr. Caldwell's property, through which a footpath was being cut at the time. I at once imprisoned the living larva in a jar of earth covered with turf, hoping to rear the perfect insect and thus ascertain the actual species of *Porina* to which the larva was referable. This I fortunately succeeded in doing, the moth emerging during the following November. I have much pleasure in exhibiting this evening the vegetable caterpillar found by Master Caldwell, together with the female specimen of *Porina enysii* reared from the living larva of the same species.

As vegetable caterpillars have, so far as I know, always been found in the ground, with the exception of the specimen found by Mr. Tone, we may, I think, now reasonably conclude that the caterpillars found in the North Island mostly belong to *Porina enysii*, and those in the southern portion of the South Island to *Porina dinodes*.

The appearance of the *Sphæria* in the larva of *H. virescens* is no doubt very rare, but clearly occurs, and it is probable that all the larvæ of the *Hepialidæ* in New Zealand are liable to attack.

In further illustration of these notes I exhibit male and female specimens of *Hepialus virescens* from Karori, male specimens of *Porina dinodes* captured by Mr. Alfred Philpott of Invercargill, and a fine specimen of vegetable caterpillar given to me by Mr. Leonard Hill, and probably specifically identical with the one which has been proved to be the larva of *Porina enysii*.