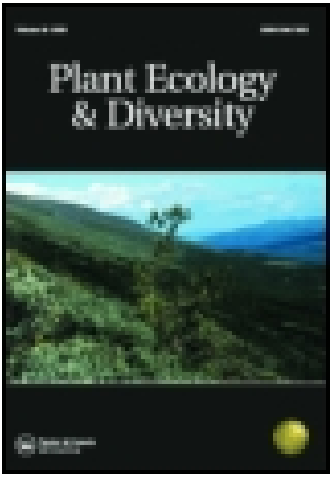
This article was downloaded by: [McGill University Library]
On: 04 February 2015, At: 23:38
Publisher: Taylor & Francis
Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Transactions of the Botanical Society of Edinburgh

Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/tped18

III. Tendrils of Ampelopsis Veitchii

W. R. M'Nab [a]

[a] Edinburgh

Published online: 01 Dec 2010.

To cite this article: W. R. M'Nab (1873) III. Tendrils of Ampelopsis Veitchii, Transactions of the Botanical Society of Edinburgh, 11:1-4, 292-293, DOI: 10.1080/03746607309467976

To link to this article: http://dx.doi.org/10.1080/03746607309467976

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at http://www.tandfonline.com/page/terms-and-conditions

Downloaded by [McGill University Library] at 23:38 04 February 2015

rates, experiments 1 and 2, were observed in the forenoon and afternoon, the sun being more or less obscured by passing clouds.

As Sachs has calculated the velocity on the amount transpired in 110 hours, the mean is lower than that obtained by spectroscopic observations. The short duration of the experiments, together with the time of day, increased temperature and brighter light, easily accounting for the difference. I am indebted to the Rev. J. Constable, M.A., Principal of the Royal Agricultural College, Cirencester, for some of the calculations required in this paper.

III. *Tendrils of* Ampelopsis Veitchii. By W. R. M'Nab, M.D., Edinburgh.

While visiting I. Anderson-Henry, Esq. of Hay Lodge, in August last, he directed my attention to the peculiar tendrils of *Ampelopsis Veitchii*. These tendrils are furnished with disc-like suckers—several of them occurring on one tendril and forming a very strong support. At first these appear as bodies resembling very much the head of a small pin, and afterwards they develope into flat discs. Sachs ("Lehrbuch der Botanik," p. 672) mentions, that in *Ampelopsis hederacea* the tendrils develope discs which secrete a sticky substance, and these adhere to walls, &c. Darwin found that the old dry discs would support a great weight—one tendril with five discs supporting no less than 10 lb.

The tendrils of Ampelopsis are like those of the vine—modified portions of the stem. They branch, and when examined in transverse section the ring of fibro-vascular bundles is seen to be complete. At the end of each of the branches of the tendril a slight club-shaped swelling is observed. This rapidly grows into a disc by the development of a large branching hair from every cell of the epidermis of the part of the club-shaped end of the tendril, which is next the body to be adhered to, and therefore that part which is most shaded from the light; as every cell produces a hair, the original epidermis is entirely lost. These hairs are glandular, and secrete a sticky substance which enables the disc to adhere to the wall or other support. The cells in the centre of the disc rapidly enlarge

Downloaded by [McGill University Library] at 23:38 04 February 2015

and become thickened, the dry walls having a well-marked pitted appearance. These tendrils have but little tendency to coil round any fixed object, but are markedly influenced by light. They turn away from light, as do also the branches, and therefore afford a very well-marked example of negative Heliotropisie. The interest in these tendrils is considerable. First, on account of their being negatively heliotropic, or turning away from the light; and second, on account of their morphological nature. They are stem organs, the apex of each branch developing a series of hairs. Each epidermal cell on one side of the club-shaped extremity developing a large glandular branching hair, and thus losing all the appearance of an epidermis. In the cells of the tendril both rounded and acicular crystals of calcium oxalate are to be met with. I am indebted to I. Anderson-Henry, Esq., for the specimens examined.

IV. *Histological Notes*, II. By W. R. M'Nab, M.D., Edinburgh.

3. *On a Modification of Schultz's Process.*—In order to separate the cells of plants, Schultz recommended that portions of the tissue should be placed in chlorate of potash and nitric acid. No quantities whatever are stated, and the strength of the acid is also omitted in all accounts of Schultz's process that I have read. I tried taking a little chlorate of potash and a little nitric acid, as advised in Naegeli and Schwendener's book on the microscope, and in placing the portions of tissue to be operated on in the test tube, I had the satisfaction of seeing them instantly dissolved, abundance of nitrous fumes being at the same time given off. Professor Church kindly came to my assistance, and by placing the tissue in a test tube, with 2 drachms of nitric acid of sp. gr. 1·10, with 3 grains of chlorate of potash, a mixture was obtained which gave good results. The action was slow, and after keeping portions of tissue in the solution for a fortnight, the cells could be separated. No nitrous fumes are given off, and as the action is slow, it is quite under control.

Specimens of scalariform vessels, prepared in this way,

Downloaded by [McGill University Library] at 23:38 04 February 2015