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III. *Contributions to Microscopical Analysis.* No. 1, *Tobacco.* By Dr GEORGE LAWSON.

In this paper Dr Lawson called attention to the imperfect descriptions that existed of the histological characters of tobacco, and the consequent liability to error in microscopical analysis on the part of those who depended upon books for their knowledge. It has been customary to characterize the tobacco as distinguished by its hairs being "glandular," or having an "enlargement" or "roundish swelling" at the tips; but this very imperfectly indicates the peculiar structure of these hairs, which, although extremely variable in size and general form, present certain characters in their lower cells, and in the structure of the glands, which are very constant and of great practical value. These characters were shown by a series of microscopical drawings from various species of *Nicotiana*, as well as from manufactured tobacco. The characteristic hair of the tobacco leaf varies from 1-20th to 1-100th of an inch in length, and is generally thick and gouty at the base, and tapering towards the extremity where the glandular structure is placed; that structure is of an oval or rounded form, and consists of a few closely-packed but well-defined cells, which are very much shorter than the other cells of the hair. The elongated cells of the body of the hair (of which the lower one is most characteristic on account of its very large size), contain fine colourless granular matter and generally nuclei; but the secreting cells are well furnished with colouring matter of a reddish brown, but sometimes of a green colour. A one-inch object glass, recommended by Hassall for the examination of tobacco, is usually insufficient to show the *structure* of the gland; and the mere presence of "glandular hairs" proves nothing, these being common in plants. It is also necessary to keep in view that many small hairs occur on tobacco leaves which are normally without glands. The glandular hairs are most abundant at the tips of the shoots, and especially on the calyx and flower stalks of the tobacco. Dr Lawson, in calling attention to the remarkable prevalence of glandular hairs on the surface of plants in many families, observed that we have here a striking illustration of the view which he endeavoured to explain to the Society last

summer, viz., that the secreting structures of plants are invariably formed by *epidermal cells* even where these structures are deeply imbedded in the plant's tissue. To the fact that epidermal hairs are so frequently organs of secretion, Gasparrini has just added the additional one that they are also the organs of absorption.

Dr Douglas MacLagan, in remarking upon Dr Lawson's paper, gave some interesting details of his own researches in regard to the histological and chemical characters of tobacco.

IV. *Notice of Galls found by Mr Beveridge on the leaves of the Beech.* By Mr JAMES HARDY. Communicated by Professor BALFOUR.

V. *Notice of the occurrence of Hypnum rugulosum, Web. et Mohr, on Demyat, Ochils.* By Dr GEORGE LAWSON.

This moss, although apparently not uncommon in some parts of Yorkshire and elsewhere in England, is decidedly rare in Scotland. It has been observed near the summit of Ben Lawers, Ben Voirlich, and near Kenmore, always barren. In August last I met with it on the southern slope of Demyat, near the summit, where it occupied the earthy crevices of exposed perpendicular rocks. The stems are robust, several inches in length, and sparingly branched in a pinnate manner. The foliage is of a pale greenish-yellow, slightly tinged with brown; the leaves being densely crowded, imbricated, more or less secund, concave, becoming very narrow in the upper part, the midrib extending half way or more. Towards the apex the margins are rather coarsely toothed, and a few scattered scabrous teeth are also seen on the dorsal surface. The stem leaves are broadly ovate-oblong, narrowed into a long slender point; those of the branches narrower, ovate-lanceolate, more shortly acuminate. The leaf is of thin texture, composed of very narrow cells, except at the basal corners, where they are quadrate and of larger size. The fructification has not been observed in Britain.