

PRELIMINARY NOTE ON THE FORMATION OF GEMMAE ON TRICHOMANES ALATUM.—The plant on which the observations now to be described were made belongs to the Edinburgh Botanic Garden. Through the kindness of Prof. Dickson, who had already noted a similar peculiarity in a species of *Trichomanes* in a private collection in Edinburgh, the plant was placed at my disposal for detailed observation and culture. As noted by Prof. Goebel in a recent work dealing with the germination of certain Ferns, and especially the Hymenophyllaceae¹, the growth of the prothalli of this family is exceedingly slow, and, on this as well as on other grounds, I think it advisable not to delay the publication of facts already acquired till the close of the observations of cultures which are likely to extend over many months.

The plant of *Trichomanes alatum*, on which these observations were made, is in a strong, healthy condition, and on the upper and larger leaves there are numerous sori, bearing apparently normal and mature spores. It is on the lower leaves that peculiarities of development are to be seen; outgrowths of two kinds are formed at or near to the tips of the pinnae, and it is especially to be noted that they are actually vegetative outgrowths, as was shown to be the case in those aposporous Ferns which I have described elsewhere². The outgrowths of the first type appear as ribbon-like prolongations of the laciniae of the frond, and several such may be found on a single leaf: they are only one layer in thickness, and may consist of two to four or more rows of thin-walled cells having the usual characteristics of a prothallus: they differ from the normal frond in the entire absence of those stiff hairs which are so numerous in this species. On the ends of these processes are borne numerous *sterigmata* [this term is adopted in the sense of Goebel, l. c. p. 82], many of which bear spindle-shaped *gemmae* similar in aspect and position to those described by Cramer³. Others may bear similar *gemmae* in various stages of development, while others again show merely a brownish point, where the mature *gemma* has broken away from its support. The results of cultivation of *gemmae* after removal from the *sterigmata* are as yet very incomplete, but I am in a position to state that germination does at least take place.

The outgrowths of the second type may start from any single marginal cell of one of the lower leaves of the plant: this grows

¹ Ann. Jard. Bot. Buitenzorg, vol. vii. ² Trans. Linn. Soc. vol. ii. Part 14.

³ Denkschr. der Schweiz. Nat. Ges. xxviii.

out into a long protonema-like filament, with transverse septa, and numerous lateral rhizoid processes: the cells contain chlorophyll, and the whole resembles moss-protonema, though the filaments are coarser. Ultimately the filaments widen out into flat expansions of ribbon-like form, and may bear gemmae as above described: again, single marginal cells of these ribbon-like expansions may grow out as protonemal filaments similar to those produced from the parent frond. No antheridia or archegonia have as yet been observed on any of the outgrowths above described.

We have here to deal with a very peculiar development, differing, I believe, from any hitherto described among the Hymenophyllaceae. In the first place it is to be noted that the gemmae correspond in structure and position to those described by Cramer: he ascribed those observed by him to one of the Hymenophyllaceae, a view which is supported by the recent observations of Goebel (l. c.). We now see in the Edinburgh plant the confirmation of this view, by the production of closely similar gemmae actually in connection with a specimen of *Trichomanes alatum*. But whereas Cramer's gemmae were borne on a prothallus bearing sexual organs, those of the Edinburgh plant are produced on processes resulting from a direct outgrowth from the fern-plant. How then are we to view these processes? Are they prothalli produced in an aposporous manner? Notwithstanding the failure as yet to note sexual organs on these outgrowths, I am inclined to the opinion that this is actually the case: that in the Edinburgh plant we have a fresh example of apospory, associated with a formation of gemmae, which, according to Goebel's observations, is not an uncommon mode of reproduction of the prothalli of Ferns. It will remain for detailed observation of the cultures now in progress to show whether this view be correct or not: but whatever view of them be taken, the facts are sufficiently noteworthy to justify an early though incomplete record of them.

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'COCO-NUT,' NOT 'COCOA-NUT.'—In the recent discussion of the subject of 'coco-nut' pearls botanists have with wonderful unanimity written the word 'cocoa-nut.' Although this is a spelling of some standing and is supported by the authority of several dictionaries it is none the less incorrect; and as botanists should be above reproach in the matter of spelling of plant-names I may contribute to



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