

into the lobes of the spore-mother-cells.' But this can hardly be accepted as an adequate explanation, for it implies that the force which causes the nucleus to assume the peculiar shape in question, and which further impels the outward development of the fibrillae, acts from the centre of the nucleus. The evidence, however, here, as in other cases, points not to a centrifugal push, but to a pull acting from without upon the nucleus, at four points corresponding severally to the aggregations of protoplasm situated in the four lobes of the cell.

The further assertion that 'the cones of fibrillae are not spindles' obviously involves a revision of terminology, and is at complete variance with accepted usage. It would be of interest to learn the precise stage at which Prof. Davis considers the fibrillae of the cones, which he figures as running out into the several lobes of the cell, to be transformed into actual spindle-fibres. But the mode of origin of 'the true spindle' is not given, although this is obviously a point of supreme importance in connexion with the views put forward by Prof. Davis.

I may conclude this note by remarking that I see no good reason at present for abandoning the views as to the origin and relations of the spindle structures advanced in the memoirs already cited, and I may be permitted further to express the opinion that, in dealing with complex matters such as those raised by Prof. Davis, the value attaching to general conclusions is very small unless they are founded on a wide and comparative basis.

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LOXSOMA CUNNINGHAMII—A CORRECTION. In vol. xv, No. LVII, *Annals of Botany*, Mr. D. T. Gwynne-Vaughan gives a short review of previous literature upon the anatomy of *Loxsoma*, in which he says (p. 75): 'Finally, Giesenhagen confuses the correct opinion hitherto held regarding the vascular system, by speaking of it as a central collateral or concentric bundle; he also refers incorrectly to the structure of the cortex.'

In view of the fact that the author has given in his paper a most careful description of the anatomy of *Loxsoma*, which adds greatly

to our knowledge of this interesting Fern, it seems to me worth while to correct the error contained in the sentence quoted.

At the time of my investigations of the Hymenophyllaceae in 1889 I excluded *Loxsonia* from my study because proper material was not then at my disposal, and also because I considered this *genus* as not included in the family. I therefore refrained from making any reference to the structure of *Loxsonia*. In the sentence over which the author is troubled this is expressly stated as follows:—

‘Der Stamm der *Hymenophyllaceen*—ich nehme immer *Loxsonia* aus, welches seinem ganzen Aufbaue nach eine besondere Stellung einzunehmen scheint und von den Systematikern neuerdings auch von den *Hymenophyllaceen* getrennt wird—besitzt ein centrales, collaterales oder concentrisch gebautes Gefässbündel. Dasselbe ist umgeben,’ &c.

It is therefore evident that the author has inadvertently failed to grasp my expressed meaning, and has consequently misrepresented my position in this matter, which is precisely that of Prantl, of whom he says—‘no mention is made at all of the anatomy of *Loxsonia*.’

K. GIESENHAGEN.

MUNICH,
April 10, 1901.

In my paper upon the anatomy of this Fern, published in the last number of the *Annals*, I made a reference to the work of Dr. Giesenhagen on the Hymenophyllaceae, in which, I regret to say, I have, inadvertently, completely misrepresented his statements. At the time I was writing my article I was unfortunately unable to verify this particular reference, so the error was allowed to pass undetected. It is unnecessary to state how much I regret my mistake; it only remains to offer my sincere apologies to Dr. Giesenhagen in the hope that the preceding correction will make clear, and at the same time entirely remove, the erroneous impression I have given of his results.

D. T. GWYNNE-VAUGHAN.