GIBSONIA, Mass. (nov. gen.).

'Perithecia subglobosa, superficialia, membranacea, olivacea, in rostrum longum cylindraceum apice fimbriata attenuata; ascis evanescentibus, octosporis; sporis continuus, brunneis, ellipsoideis, demum in massa mucilaginosa ex ore rostri eiectionis.'

This genus is almost the exact parallel of the genus *Spumatoria*, Mass. and Salm., in the Hyalosporae. Its characteristic features are the very long neck of the perithecium and the continuous, dark-coloured spores. The asci deliquesce into a mucilaginous mass in the perithecium immediately the spores are mature. This mucilage is highly hygroscopic and absorbs water through the wall of the perithecium. The tension thus caused forces the mucilage, in which the spores are imbedded, up the canal of the neck or beak of the perithecium, where it forms a globular dark-coloured mass, supported by the long hyphae terminating the beak, which spread out like the ribs of an umbrella. The mass of mucilage and its contained spores are finally dispersed by water.

GIBSONIA PHAEOSPORA, Mass. (sp. nov.).

'Peritheciis sparsis, circa 1 mm. altis, subglobosis, olivaceis, contextu parenchymatico e cellulis polygonis composito, glabris, basi hyphis repentibus instructis, in rostrum longissimum cylindricum abrupte attenuatis; ascis cylindraceis; sporis monostichis, ellipsoideis, brunneis, continuus, $14-15 \times 7-8 \mu$.'

Found sparingly on a decomposing mass of *Saprolegniae*, &c., in a drain in North Lancashire.

GEORGE MASSEE.

KEW.

NOTE ON THE RELATIONSHIP OF THE JULIANIACEAE.—In his description of the ovules of the Julianiaceae Mr. Boodle¹ mentions certain peculiarities of structure, on which, however, Mr. Botting-Hemsley has not laid stress in his discussion of the relationship of this new order to the Juglandaceae and other allied families. It seems to me that a good deal of support for Mr. Hemsley's views might be obtained from a more detailed comparison of the ovule of *Juliania* with that of *Juglans* as described by Nicoloff.² In the first place the ovules of both *Juliania* and *Juglans* contain a vascular supply in the integument, a feature not common in Angiosperms though present in some of the older Gymnosperm seeds, e. g. *Trigonocarpus* and *Polylophospermum*. A similar vascular supply occurs in the integument of *Myrica Gale*, a full account of which I hope to publish shortly. The presence of this vascular supply in *Juglans* and *Myrica*, and in some of the fossil seeds should, I think, be correlated with the fact that the integument is quite free from the nucellus

¹ Botting-Hemsley ('06): On the Julianiaceae: A new natural Order of Plants. Phil. Trans. Roy. Soc., vol. cxcix.

² Nicoloff: 'Sur le Type floral et le Développement du Fruit des Juglandées.' Journal de Botanique, tom. xxviii-xxix.

in these forms. In the anatropous ovules of other Amentiferae, where the integument is closely united with the nucellus, the vascular supply may have been lost, while in the hemi-anatropous ovule of *Juliania* it has still been maintained. Another feature which *Juliania* has in common with *Juglans* is the curious outgrowth at the base of the ovule—the obturator. In *Juglans*, where the ovule is orthotropous, there are two such outgrowths (see Nicoloff's² Figs. 24 and 25), and it is obvious that in becoming hemi-anatropous there might be a tendency in *Juliania* for one of them to disappear. Whatever their morphology or their physiological or biological significance may be,

TEXT-FIG. Diagrams of young ovules of *Juliania* and *Juglans*, reconstructed from Boodle's and Nicoloff's figures respectively. The obturator *o*, single in the case of *Juliania*, is seen to be paired in *Juglans*. *i* = integumentary vascular supply; *n* = nucellus; *m* = main supply bundle to ovule.

it seems to me that their occurrence, paired in the case of *Juglans* and single in the hemi-anatropous ovule of *Juliania*, strongly supports the close affinity of these two plants. (See the Diagrams above.)

The differences between the ovules of the two plants are explicable by the change in the direction of the ovule, while the characters they have in common are striking, and one of them, the possession of a vascular supply, is undoubtedly of considerable phylogenetic importance.

On the other hand it should be mentioned in support of the affinities of the Julianiaceae with the Anacardiaceae, which seem so strongly indicated by the similarity of their anatomical structure, that the ovule of *Mangifera* also possesses a vascular supply in its single integument, though there is no clear indication of the obturator.

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