FOSSIL PLANTS.

M. PAUL BERTRAND ON THE STEMS BELONGING
TO *CLEPSYDROPSIS*.

LAST November M. Paul Bertrand published a short report in the "Comptes Rendus de l'Académie des Sciences" on the stems belonging to *Clepsydropsis*, a genus of Unger's revived for certain petioles hitherto supposed to be distinctly Botryopteridean. The best known species of *Clepsydropsis* is probably that described as *Rachiopteris duplex* by Williamson. The vascular bundle of this petiole is shaped like an hour-glass; the species is sometimes included in the genus *Zygopteris*, the two swollen ends of the hour-glass representing thickened side-pieces of the H-shaped trace of that genus. It is, therefore, very interesting that M. Paul Bertrand, from a careful comparison of the petiolar bundles of *Clepsydropsis* with the structure of the stem at the departure of the trace in *Cladoxylon* and in *Medullosa* (*Steloxylon*) *Ludwigi*, should have come to the conclusion that the first-mentioned genus represents the petioles of the two latter forms. In the case of *Medullosa* (*Steloxylon*) *Ludwigi* such a view is supported by the association of this type of stem with *Clepsydropsis Kirgisica*.

These fossils from the Lower Culm are of great antiquity, and without necessarily accepting M. Paul Bertrand's view that *Clepsydropsis* appears to be very primitive, and "infinitely closer than any other plant as yet described" to a form in which Lycopods, Ferns and Medulloseæ ultimately converge, it is obvious that the discovery that Botryopteridean petioles were associated with stems included in the Cycadofilices on account of their anatomy is very remarkable. The significance of this circumstance is enhanced by the similarity (recognized as early as 1881 by Dawson) between *Cladoxylon* and *Asterochlaena* (his *Asteropteris*), and by the fact that *Botrychioxylon*, regarded as one of the Botryopterideæ, possessed a considerable amount of secondary xylem.¹

A certain number of Cycadofilicinean stems are now known to have belonged to seed-bearing plants and suspicion has fallen on many others. As other Medulloseæ were certainly Pteridosperms, some doubt is naturally cast upon the cryptogamic nature of *Medullosa* (*Steloxylon*) *Ludwigi*, although this species is not a true or typical *Medullosa*. But as its petioles and those of *Cladoxylon* appear to belong to the same "genus" (*Clepsydropsis*), *Cladoxylon* itself may turn out to be a Pteridosperm, although further and more direct evidence would be wanted to confirm the suspicion. Further the reference of *Clepsydropsis* to Cycadofilicinean stems throws some doubt on the cryptogamic nature of the Botryopterideæ, now frequently regarded as the most important Palæozoic group of "Ferns".¹ This doubt must rest at least on the Zygoptereæ (to

¹ D. H. Scott. "Studies in Fossil Botany." Second Edition, Vol. I., 1908.

which *Clepsydropsis* belongs), the more complex, and so far as we know, the older of the two families included in the Botryopterideæ. For these reasons M. Paul Bertrand's researches seem to be of great importance.

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FUNGI.

"Synopsis of the British Basidiomycetes." A descriptive Catalogue of the drawings and specimens in the Department of Botany, British Museum; by Worthington George Smith, F.L.S. Printed by order of the Trustees of the British Museum.

THIS book is a welcome addition to the Fungus-floras of this country. In it the author embodies the notes of many years made on the characters and distribution of the higher Basidiomycetes. The scheme of classification generally adopted is that used by Fries in his *Hymenomycetes Europæi* (1874), but the sub-genera of *Agaricus*, e.g., *Amanita*, *Collybia*, etc., used by Fries, are raised to the rank of genera, as is now indeed customary. The number of such genera is increased by the addition of *Amanitopsis*, *Hiatula* and *Togaria*. The genus *Exobasidium*, parasitic on species of *Vaccinium*, is still kept in the Thelephoraceæ, but it would seem better to assign it to a distinct group, as is done in Engler's "Pflanzenfamilien." It will be noted also that the anomalous genus *Tremellodon* is placed in the Hydnaceæ, whereas Massee assigns it to the Tremellineæ on account of its divided basidia and gelatinous consistency.

The descriptions of species in this book certainly do not err on the side of excessive length. Indeed it must be admitted that such brevity as is prevalent here will make it difficult for a beginner to be certain that his determination of species in all cases is correct. It will probably be found that he will be obliged to combine the use of this book with that of larger floras. On the other hand such long descriptions as are to be found in some other books are not desirable.

An attempt has been made to give somewhat more definite details of habitats than have been customary in former mycological floras, though it must be said that a good deal yet remains to be done in this respect. The general term "woods" is still often used as descriptive of the habitat of many of these fungi, whereas one would like to know what kind or kinds of wood are really indicated. The ecological distribution of the higher Fungi is now more widely recognised than formerly, and one looks forward to the time when a "biological" flora of the Basidiomycetes can be written.

The author of this synopsis has thoughtfully provided a glossary of special mycological terms. This will be appreciated by the

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