Melianthus being usually considered as an anomalous form of *Zygophylleæ*, the question presents itself, to what natural class this last order is to be referred? Is it also to be admitted simply as a tribe of *Rutaceæ* (as defined by the Jussieus), or shall we follow Mr. Robert Brown in considering it as an independent order? The author not only declares in favour of the latter opinion, but expresses his belief that while, on the one hand, *Diosmeæ* (including *Ruteæ*, *Diosmeæ* proper, *Zanthoxyleæ* and *Aurantiaceæ*), together with *Simarubeæ* and *Meliaceæ*, constitute a natural class, so, on the other hand, *Zygophylleæ*, *Oxalideæ*, *Connaraceæ*, *Leguminosæ* and *Moringeæ* are closely connected into one group, not only by their general structure and *facies*, but by the common tendency of their compound leaves to periodical sleep, or occasionally to movement under an irritating influence, a physiological phænomenon connected with the structural fact of the articulation of the foliole with the petiole on which it moves.

Neither of the two natural classes just mentioned admits, in the opinion of the author, the new order of *Meliantheæ*.

The pinnate leaves, irregular flowers, excentric and incomplete disc placed outside of the stamens, the quaternary proportion * of these organs in contrast with the quinary division of the calyx, the occasional cohesion of two of the sepals, the close analogy of the follicular capsule of *Diplerisma* with that of *Cardiospermum*, and of the coriaceous fruit and arillate seeds of *Bersameæ* with the corresponding parts in *Paullinia*, and the fact of a species of *Natalia* being justly named *Paullinioides*, are the points by which the close affinity of *Meliantheæ* with *Sapindaceæ* are traced out. Thus by the knowledge of very recent materials (*Bersama* and *Natalia* being both but lately discovered) are confirmed the views which Adanson expressed upon the affinities of *Melianthus*, when, in his otherwise rather heterogeneous family of *Gerania*, he placed that singular genus between *Cardiospermum* and *Geranium*.

After some other general considerations, the author concludes with a review of the geographical distribution of *Meliantheæ*, the most striking fact mentioned being the occurrence of *Melianthus Himalayanus*, Wall., in the mountains of northern India, while its only congener, the well-known *Melianthus major*, L., does not exceed the limits of the flora of the Cape of Good Hope.

BOTANICAL SOCIETY OF EDINBURGH.

April 13, 1848.—Rev. Dr. Fleming, President, in the Chair.

1. "Notes of Shropshire Rubi," by the Rev. Wm. A. Leighton, B.A.

The species noticed in this communication, which is the first of a series, were *Rubus idæus*, *suberectus*, *fissus* (Fl. Shrop.), *plicatus* (W. et N.), *affinis* (W. et N.), and *nitidus* (W. et N.).

2. "On the Reproduction of Cryptogamic Plants," by the late

* *Bersama* must here be excepted, because of its five stamens.

Wm. Stark Dougall, Esq.; part 3rd, on the Reproduction of *Lycopodiaceæ, Marsileaceæ* and *Filices*.

In this portion of the paper, the author first considers *Lycopodiaceæ*, in which he points out two sets of capsules differing in their respective contents. In *Marsileaceæ*, also, he notices two forms of reproductive bodies, and concludes by stating that there is evidence in favour of sexual reproduction in the Lycopodial alliance, the *Lycopodiaceæ* being hermaphrodite, and *Marsileaceæ* monœcious. In *Filices*, especially *Polypodiaceæ*, he points out the existence of antheridia associated with filiform bodies, and of thecæ or spore-cases. In some ferns phytozoa have been detected. He concludes by a general review of the whole subject, and expresses an opinion in favour of the view that the union of two cellular bodies is required in order to form the perfect spore.

3. Mr. Hamlin Lee exhibited a simple mode of constructing aquatic cells for microscopical objects, by splitting across very flat watch-glasses and cementing them to a piece of glass so as to leave cavities for holding fluid.

Dr. Balfour noticed a few plants gathered at Arniston on the 25th of March last. Eighteen phanerogamous plants were observed in flower, including *Pulmonaria officinalis*, *Lathræa squamaria*, *Galanthus nivalis*, &c.

MISCELLANEOUS.

On some Microscopic Organisms found in the Stomach of a Peruvian Freshwater Fish. By Prof. Ehrenberg.

M. Valenciennes having discovered in the stomach and in the intestinal canal of *Lebiasina bimaculata*, a new genus of fish belonging to the family *Erythrini*, a number of Infusoria, forwarded them to Prof. Ehrenberg to determine the species. The stomach and intestinal canal were filled as far as Bauhin's ventricle with a blackish or reddish mud. The river in which this small fish lives is said to flow from the Titicaca lake, and we thus obtain, by means of the microscopic organisms contained in the stomach of this fish, the first glance into the forms of the interior of Peru.

From Ehrenberg's examination of several hundred kinds of fish, it resulted that they very rarely and only accidentally contain isolated specimens of infusoria taken up with their food in the contents of their stomach and intestinal canal, a circumstance of importance in deciding the question respecting the origin of guano. This is generally regarded as the product of the numerous piscivorous birds inhabiting these localities. As these birds do not take in either water or mud purposely in any quantity, the infusoria could only have been contained in the fish upon which they had fed*. This difficulty was pointed out in a former communication, and the main part in the formation of the guano ascribed to the vermiferous shore birds.

* This conclusion appears to us unnecessary; it is far more probable that during the process of formation of these valuable deposits, spray containing multitudes of the infusoria may have been carried on to it.—W. F.