

Pringsheim extended the recognition of alternating generations to Algæ (*Edogonium* and *Coleochæte*), and in 1866 Hæckel gave a clear generalized account of the subject in his *Generelle Morphologie*, introducing the convenient term *metagenesis* for true alternation of generations as opposed to such cases as the succession of vegetative and reproductive shoots.

In 1868 Celakowsky introduced a theoretical distinction between two kinds of alternation—homologous and antithetic. Homologous alternation was illustrated among the Algæ, where there may be an alternate occurrence of sexual and asexual forms otherwise similar. Antithetic alternation was illustrated by mosses and ferns, where there are two fundamentally distinct generations, *e.g.* the prothallus and the “fern-plant”. With this Braun essentially agreed (1875), and it is interesting, in view of recent zoological discussions by Beard and others, to notice his opinion that antithetic alternation is confined to plants.

Of much importance was the discovery of apogamy (Farlow, 1874), the direct production of the asexual from the sexual without the intervention of ova and spermatozoa, and the converse apospory (Pringsheim, 1876), or the vegetative production of the sexual from the asexual without the intervention of spores.

An extended recognition of alternation of generations among Algæ and Fungi, the further study of apospory and apogamy, the interesting discovery that in many cases the number of nuclear bodies or chromosomes in the dividing nucleus of the sporophyte is twice as great as in the cells of the gametophyte, and a few experimental studies, have influenced the development of the theories of antithetic and homologous alternation, but as yet no decision has been arrived at.

“On the homologous theory, the sporophyte is to be traced back to a generation of originally independent individuals similar to those from which the gametophyte has arisen, the almost invariable alternation and the permanent or temporary dependency of the spore-bearing on the sexual generation being subsequent adaptations. On the antithetic theory, the sporophyte is not