

SCIENCE

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THE ORIGIN OF GYMNOSPERMS AND THE SEED HABIT.*

INTRODUCTORY.

THE most difficult as well as the most fascinating problem in connection with any group is its phylogeny. The data upon which we base opinions concerning phylogeny are never sufficient, but such opinions usually stimulate research and are necessary to progress. Any statement dealing with this problem is merely an expression of our knowledge of comparative morphology, and of our judgment concerning the phylogenetic importance of certain structures.

To my mind, the most conspicuous error in many schemes of phylogeny is the tendency to focus attention upon very few structures. It may be that the structures selected are the most significant, but the organism is a plexus of structures and must be considered in its totality. Very different structures have been laid hold of by the processes of evolution, and it may not be possible to relate the resulting forms properly upon the basis of any one or two structures. A conspicuous example is furnished by the liverworts, in which one line gave special attention to the structure of its gametophyte body, another to the form of its gametophyte body, a third to the struc-

MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

* Address of the retiring President of the Botanical Society of America, delivered at Boston, August 19, 1897.