

which comprises the greater part of the edible portion of the pome, as the receptacle, whilst Americans have been taught by Gray and others that this cup is a calyx-tube. This flower-cup of the drupaceous roseworts 'is the axis or receptacle of the flower which assumes this remarkable form. The hollowing out of the receptacle brings the points of origin of the calyx, petals and stamens above the ovary.' (P. 170.) The stamens are therefore borne upon the edge of the hollow receptacle rather than upon the throat of the calyx, as we have been taught, and this receptacle is *deciduous* in the drupes! It is generally held that the very proof of being a receptacle is the fact that it persists and bears the ripened fruit. If this cup-ring which falls off the drupe-fruit is really a receptacle, then it is difficult to explain the structure of the rubus flowers upon the same plan, for in them the stamens are clearly borne upon the calyx-rim, and the receptacle persists within the multiple 'fruit.' The only warrant for calling this flower-cup a receptacle is found in the rose-hip; but this organ proves itself a receptacle because it persists and because it bears the fruitlets scattered upon its interior. But the outside covering of the hip is, if analogies with other genera are true, a calyx-tube covering; and in some roses this calyx covering is almost free from the receptacle. It seems to be easy to demonstrate that the flesh outside the carpels or core in the pomes is thickened calyx, and not receptacle; for the carpels all spring directly from the apex of the pedicel (and not from an expanded and cup-like surface, as in the rose-hip), and the sepal tips still persist in the ripened 'fruit.' If the flower-cup in the roseworts is a calyx-tube, then the structure of the flower is fairly uniform in principle throughout the family; but if it is a receptacle in prunus and pyrus, then a different architecture of flower must be assumed for all the rubus-like, fragaria-like and spiræa-like plants.

L. H. BAILEY.

An Introduction to the Study of Seaweeds. By GEORGE MURRAY, F. R. S. E., F. L. S., etc., Keeper of the Department of Botany, British Museum. London and New York, Macmillan & Co. 8vo. Cloth, 271 pp. 8 colored plates and 88 illustrations in the text. \$1.75.

The algæ are least well treated of all the groups of plants in the average text-book, although for purposes of morphological comparison and general phylogenetic consideration they are of the first importance. The author of this most valuable and welcome little book has shown such familiarity with his subject, and such appreciation of the relative importance of detail, that it is much to be regretted that he has confined himself to the marine members and has not treated the group as a whole.

The author has modestly entitled his book, 'An Introduction to the Study of Seaweeds,' but we may venture to predict that it will be used rather as a handbook both by the less advanced and by the more advanced student, combining, as it does, summaries and discussions of the very latest literature and personal researches with such convenience of form and simplicity of style of writing that it is not only valuable to the special student but available also to the general reader.

Mr. Murray, after a general introduction treating of the important topics concerning the seaweeds in general and the division of the group into the four ordinary subgroups fairly well characterized by their color, begins for purposes of convenience with the Olive-green or Brown Seaweeds. Starting with the more complicated forms of these, the rock-weeds and gulf-weeds or Sargassa, he proceeds to the less complicated forms, tracing the simplifications of structure and details of reproduction, step by step down to the lowest forms of the group. It is noticeable, however, that the simplest undoubted member of the group, the *Phæosaccion Collinsii*, described by Farlow from our New England coast, and by Rosenvinge from the Greenland coast, is omitted, whether purposely or not is not evident. It is, however, a form so different in its cylindrical thallus of a single layer of cells, without hairs and without specialized zoösporangia, that a discussion of its relationship with *Punctaria*, for example, would have been of very considerable interest.

The Grass-green Seaweeds follow the Olive-green, and while admirably treated are perhaps less interesting than the latter. It is interesting to note that *Codium* is removed from beside

Bryopsis and *Botrydium*, where it is very commonly placed and put into the heterogeneous assemblage of the Protococcaeæ. We also notice that the animal-like *Ceratium*- and *Noctiluca*-forms find a place near them although of very doubtful affinities.

The Diatoms are placed by themselves as they well deserve to be, and even their superficial resemblance to the Desmids can hardly save them from the suspicion that their affinities are with organisms other than the undoubted seaweeds.

The Red Seaweeds are without question the most difficult and complicated group, not only in vegetative structure, but even more so in the details of the sexual reproduction. Mr. Murray's chapter was evidently written before Wille's paper announcing the discovery of the fusion of the two sexual nuclei had been published.

Schmitz's classification, based upon the variation in the development of the carpospores after the fertilization of the 'carpogonium,' has been followed, and this part will make accessible to the student an excellent account of Schmitz's system in a very convenient form.

The account of the Blue-green Seaweeds occupies the closing chapter of the book, and this is perhaps the least satisfactory part. The very interesting matter of the cell structure is very slightly touched upon, and the relationships between this group and other groups of organisms is barely hinted at. Considering the lack of general information about this group, even the comparative morphology might have received more attention.

It is pleasant to see that the author has not followed, in this book, the terminology of Benet and Murray's *Cryptogamic Botany*, but has used such words as antheridia, carpogonium, sporangium, and the like. The whole make-up of the book is very pleasing, the illustrations in the text are well selected and excellently reproduced, and the colored plates, interesting and valuable to the beginner for whom the book is intended, while lacking absolute accuracy of tint, are perhaps as good as the very low price at which the volume is sold would allow.

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Korean Games, With Notes on the Corresponding Games of China and Japan. By STEWART CULIN, Director of the Museum of Archaeology, University of Pennsylvania. Philadelphia. 1895. 1 vol. Large 4to. Pp. 177.

This handsome volume is a monograph of rare merit on a branch the importance of which is but imperfectly appreciated even by some of our most advanced ethnologists.

The subject of games, especially the games of children, has been generally regarded as beneath the dignity of real scientific treatment. They have been indulgently regarded as trivial pastimes, or, at best, as amusements only.

A quite different presentment of their significance is advanced in the work before us. The author, drawing most of his information from fresh and unpublished sources, describes ninety-seven games played by the youth of Korea, or by those of older years who retain the love of festal occupations. Some of them sound quite familiar, such as cards, chess, dominoes, dice, backgammon and blind man's buff; others have titles which seem remote from our experience as 'five gateways,' 'clam-shell combat,' 'water kicking' and 'corpse searching!' When, however, we come to examine even these, we recognize in most of them traits of familiar friends.

The methods of playing are explained, the terms employed are given in the Korean and often in the Chinese and Japanese tongues as well, and the position and costumes of the players and their utensils are depicted in twenty-two full-page colored plates by native artists and in 135 text illustrations, many of these also from native sources.

This is the basis of the study, and along with four elaborate indexes, one general and three of names in the languages referred to, make up the bulk of the volume. But the portion which will deservedly attract the thoughtful student beyond this is the Introduction, covering twenty pages, in which the author sets forth with singular lucidity the position which games should hold in ethnologic investigation. This is full of novel and original suggestions, the results not merely of the present monograph, but of years of study of the games of the world.

He claims, and one must concede with the strongest evidence in his support, that games