

coronal plates as we find in *Moira*. The actinostome of the Palæechinidæ still exists side by side with the anomalous actinal system of *Palæostoma* and the Pourtalesia, and the apical system of the Cidaridæ is contemporaneous with the extraordinary combination of the apical and anal system of the Pourtalesia, and spines very similar in structure to those so characteristic of the Palæechinidæ are found in the same period with the spines of the Cidaridæ, of the Diadematiidæ, of the Clypeastroids, and of the Petalosticha.

What has once been gained is never totally lost, it always reappears, not in the previous form but in a slightly modified one, sufficiently preserved to show its systematic connections, and hence the hopelessness of the task to do more than hint at the infinite number of relations which the types of the present day hold to those which have preceded them—relations which with each succeeding formation become more and more difficult to trace in proportion as our knowledge of the older formations is more accurate.

The existence of teeth in most groups of the Echinoidea, no matter how distantly related, is one of the most striking examples of the persistence of a structural feature once introduced, and of its development or modification entirely independent of other accompanying characters. The rate and direction of development of the teeth, of the modifications of the ambulacral system, of the coronal plates, of the anal and actinal systems, do not go on *pari passu* when once a slight modification has become introduced, and thus it is that we have in some of the earlier groups, such as the Collyritidæ and Clypeastridæ, which exist side by side, a widely different degree of complication of structure in the arrangement of the coronal plates, in the structure of the actinostome, in that of the apical system, of the ambulacral system, which have all developed in different directions from their first origin, so as to produce in the one case the Collyritidae, and in the other the Clypeastridae. Thus it is that among the Clypeastroids we find genera with very powerful jaws side by side with genera in which the jaws attain but a slight development, while other characteristic features of the group, such as the arrangement of the coronal plates, the degree of specialisation of the petaloid ambulacra, and the structure of the apical system, may be nearly equally developed.

Thus it is that among some of the Echinolampadæ we find a prominent auricular ring, while it is wanting in closely allied genera. In the same way, in some Spatangina, the large spur developed close to the actinostome in some genera is not found in their closest allies. It is to this same variation in the degree of development of the ambulacral system, combined with a differently developed anal system, coronal plates, fascioles, and actinostome, that we owe the great diversity we find in the recent genera of Spatangoids, and it is to their predecessors in time in the Tertiaries, the Chalk, the Jura or often far earlier, that we must look for the appearance of the structural features which, with the special combinations of structural features which may exist at any one period, give us the facies of the time. We must remember, while making our comparisons, that these structural features, when once they have originated, may either continue as a persistent type of structure