

evidences of transition from the gills of the Prosobranchiate and the Crustacean to the air sac of the Pulmonate and the tracheæ of the millipede. It is also to be observed that many other structural changes are involved, the aggregate of which makes a Pulmonate or a millipede different in every particular from its nearest allies among gill-bearing Gasteropods or Crustaceans.

It may be said, however, that the links of connection between the coal reptiles and fishes are better established. All the known coal reptiles have leanings to the fishes in certain characters; and in some, as in *Archegosaurus*, these are very close. Still the interval to be bridged over is wide, and the differences are by no means those which we should expect. Were the problem given to convert a ganoid fish into an *Archegosaurus* or *Dendrerpeton*, we should be disposed to retain unchanged such characters as would be suited to the new habits of the creature, and to change only those directly related to the objects in view. We should probably give little attention to differences in the arrangement of skull bones, in the parts of the vertebræ, in the external clothing, in the microscopic structure of the bone, and other peculiarities for serving similar purposes by organs on a different plan, which are so conspicuous so soon as we pass from the fish to the Batrachian. It is not, in short, an improvement of the organs of the fish that we witness so much as the introduction of new organs.¹ The foot of the batrachian bears, perhaps, as close a relation to the fin of the fish as the screw of one steamship to the paddle wheel of another, or as the latter to a carriage wheel; and can be just as rationally supposed to be not a new instrument, but the old one changed. In this connection even a footprint in the sand startles us as much as that of Friday did Robinson

¹ An ingenious attempt by Prof. Cope, to deduce the batrachian foot from the fins of certain carboniferous fishes, will be found in the *Proceedings of the Philos. Academy of Philadelphia* for the present year.