

back-bones, skulls, limbs, and teeth. It is doubtful whether they belonged to vertebrates as high even as reptiles. You remember that the beds of ancient reptiles were passed at higher levels. The bones here seem to be those of Amphibians and Fishes. Amphibians, perhaps you understand, are reptile-shaped animals which breathe water when young and air when adult. Frogs and toads are living Amphibians without tail. Salamanders, tritons, axolotls, and fish-lizards are Amphibians with tails. But fish-lizards retain their gills throughout life. The gills are beautifully fringed, scarlet, external appendages, projecting from the neck on each side. We call them amphibians because in their structure they so much resemble salamanders. Moreover, the axolotl, while in the elevated regions of Colorado it retains its gills permanently, in less elevated regions, absorbs them and becomes a salamander. So it happens that the permanence or absorption of the gills is not a circumstance of very great importance.

This thought leads me to add that in the plan of all vertebrates, provision is made for the development of both gills and lungs; but generally only one sort of respiratory organ is actually developed; and that depends on the life the animal is to lead. Man himself has provision for gills in the early embryonic stages of his being. The eggs of Amphibians are deposited and hatched in water, and the young must, therefore, be fitted with gills. All vertebrates below Amphibians have gills for a permanency; all above, have lungs for a permanency. The Amphibian is on the dividing line. In the lowest phase of its existence, it goes with fishes; in the highest phase, it goes with reptiles. Its life is double. But, on the one hand, the separating line leaves the fish-lizard wholly on the aquatic side; and so, on the other it leaves the toad, in some cases, wholly on the land side; since toads sometimes rear their young without finding their way to the water.

These amphibious border-land creatures possess very great interest; and so this type of creatures fossilized in the Coal Measures, throws much light on the problem of life and organization. They are border-land creatures here in an addi-