

occur in the lower Carboniferous beds below the marine limestones, in the middle coal measures, and in the upper coal formation, separated by a thickness of beds which may be estimated at 15,000 feet, and certainly representing a vast lapse of time. Did we know the creature by these impressions alone; we might infer its continued existence for all this great length of time; but when we also find its bones in the principal repositories of reptile remains, and in company with the other creatures found with it, we satisfy ourselves that of them all it was the most likely to have left its trail in the mud flats. We thus have reason to conclude that it existed alone during this period, in so far as its especial kind of habitat was concerned; though there lived with it other reptiles, some of which, haunting principally the woods, and others the water, were less likely to leave impressions of their footprints. These may be but slight indications of truth, but they convey strong impressions of the persistence of species, and also of the paucity of species belonging to these tribes at the time.

If we could affirm that the Air-breathers of the coal period were really the first species of their families, they might acquire additional interest by their bearing on this question of origin of species. We cannot affirm this; but it may be a harmless and not uninteresting play of fancy to suppose for a moment that they actually are so, and to inquire on this supposition as to the mode of their introduction. Looking at them from this point of view, we shall first be struck with the fact that they belong to all of the three great leading types of animals which include our modern Air-breathers—the Vertebrates, the Arthropods, and the Mollusks. We have besides to consider in this connection that the breathing organs of an insect are air tubes opening laterally (tracheæ), those of a land snail merely a modification of the chamber which in marine species holds the gills, while those of the reptiles represent the air bladder of the fishes. Thus, in the three groups the breathing organs are