

cats only in the same way as the latter differ among themselves. The ground for asserting that the panther, the leopard, the tiger, the ocelot are descended from some common ancestry is precisely the same as for maintaining, among domestic cats the common ancestry of the brindled Tabby, the tortoise-shell Spanish, the slaty Chartreuse, the short-tailed Malayan, and the tailless Manx. The analogies compel us to admit that all the members of the cat-family are related by blood. We must say the same of the dog-family, and of the other families which include the horse, the ox, the sheep, the squirrel, and also, the families of the lower classes, Birds, Reptiles, and Fishes.

But it is impossible to stop here. The Lynx family and the Cat family do not differ more than Africans and Europeans; there is the same reason for recognizing in them a common descent. So of the dog-family and the hyæna-family. So of the perch and sun-fish families. So of all families. And now to make the matter short, for lack of space, I venture to state in general, that in the structural affinities of all animals—certainly those of the same sub-kingdom—we have relationships which justify the inference of common genealogical descent. The differences have arisen partly from differences in situation and a tendency in the organism to vary in the direction of better adaptation to the environment.

What next, of the succession of animals in geologic time? I think you are ready to admit that the succession is a real progress. I think you will admit in several instances, the graduation from lower to higher is shown to proceed by very short steps. Consider especially, the horse-series, and the two series reaching from reptiles to birds (stru'thious and carinate) (Talk XLV). Remember that these are only instances out of many which are similar in meaning, though less striking in completeness. Consider the probability that if the record of extinct life were fully restored, we should recognize the entire succession as a nicely graduated series, with numerous diverging branches also nicely graduated—the whole reaching from some primeval type through many ramifications, to the