boys sometimes pride themselves on their ability to wiggle their ears, no one has suggested that the ability has any real usefulness, and even this limited ability is not shared by everyone, the presence of these muscles, then, suggests descent from an ancestor to which the muscles were really useful.

"Similarly, the majority of mammals have a well-developed tail. In all of the higher Primates, the tail is lacking. But it is represented in these organisms by a variable number, from three to five in man, of incompletely formed caudal vertebrae. Usually, no rudiment of the tail appears externally, but rarely a fleshy tall, lacking vertebrae, does extend a few inches beyond the caudal vertebrae. Whether or not an external tall is present, the same muscles which, in other mammals, move the tall are also present in all of the Primates.

"A final example from man concerns the Wisdom teeth. The wisdom teeth, or third molars, are the posterior-most teeth, as well as the last to erupt. In other Primates, these teeth are as sound and as fully developed as the rest of the dentition. But in man, they are far more variable than are the other teeth with respect to size and time of eruption. Frequently, they fail to erupt altogether. And when they are present, they are far more subject to all types of dental defect than are the other teeth. Thus it is probable that these teeth should be regarded as vestigial, and, in view of the frequency with which they fall to erupt, that they will in time be completely lost to man.

"Many examples of vestigial characters may also be found among lower animals. The external ears of whales are completely of the type to be expected of a terrestrial mammal, but they are much reduced in size, and it seems unlikely that they are efficient auditory organs. Also among the whales, the hind limbs are completely missing, yet in some species rudiments of the pelvic girdle still remain, but these have lost their connection to the vertebral column. In ungulates (horse, deer, and other hoofed animals), the smaller bone of the lower rear leg, the fibula, has been reduced to a mere splint on the larger bone, the tibia. A similar reduction of the fibula has occurred in the birds. Perhaps no feature of the anatomy of snakes is so generally known as their leglessness. So far as the forelimbs are concerned, no snake shows any vestige. In the majority of snakes, the same is true of the hind limbs, but some, including the pythons and boas, have small, ineffective rudiments of the hindlimbs. These are capped by claws which show externally, but they are so reduced that they appear at a glance as scarcely more than raised scales.

"Many animals, both vertebrates and invertebrates, have become adapted to life in deep caves, where the light of the sun never reaches. Living thus in perpetual darkness, there is no adverse selection against degenerative changes of the eyes, and in fact blindness is a general characteristic of such cave dwellers. Their eyes show all degrees of degeneration from just short of the typical functional condition to complete absence of the eyes. Examples include the blind, cave-dwelling salamander of central Europe, Proteus Anguineus the many species of cave-dwelling fishes of the United States as well as other parts of the world; and the blind crayfishes. The latter have eyestalks which do not, however, bear eyes. While such degenerated eyes are easily understandable on the basils of descent from ancestors with functional eyes, their presence is inexplicable, indeed it is contradictory, by any other theory."

-- Edward O. Dodson, *A Textbook of Evolution* (Philadelphia. W. B. Saunders Company, 1952), pp. 525e.