

THE RIDDLE OF THE UNIVERSE

owe to the penetrating research of the nineteenth century, especially of the second half of the century. This is particularly true of the two most elaborate "æsthetic" organs, the eye and the ear. They present a different and more complicated structure in the vertebrates than in the other animals, and have also a characteristic development in the embryo. This typical ontogenesis and structure of the sensilla of all the vertebrates is only explained by *heredity* from a common ancestor. Within the vertebrate group, however, we find a great variety of structure in points of detail, and this is due to *adaptation* to their manner of life on the part of the various species, to the increasing or diminishing use of various parts.

In respect of the structure of his sense-organs man is by no means the most perfect and most highly-developed vertebrate. The eye of the eagle is much keener, and can distinguish small objects at a distance much more clearly than the human eye. The hearing of many mammals, especially of the carnivora, ungulata, and rodentia of the desert, is much more sensitive than that of man, and perceives slight noises at a much greater distance; that may be seen at a glance by their large and very sensitive cochlea. Singing birds have attained a higher grade of development, even in respect of musical endowment, than the majority of men. The sense of smell is much more developed in most of the mammals, especially in the carnivora and the ungulata, than in man; if the dog could compare his own fine scent with that of man, he would look down on us with compassion. Even with regard to the lower senses—taste, sex-sense, touch, and temperature—man has by no means reached the highest stage in every respect.