

progress are distinctly traceable in the history of Vertebrates. The first vertebrate was a prophecy of man. In the skeletal structure of the humble Devonian fish, man existed in potentiality. The whole general plan was destined to endure through the history of life, and unfold in man. The Amphibian, the Reptile, the Bird, and the Quadruped are only successive modifications of the vertebrate conception embodied in *On'chus* and *Onych'odus*. Still more striking are the successive modifications of vertebrate limbs. In the pectoral fin of the fish, we have a number of bony, articulated rays, which answer to digits; and above, are carpal and metacarpal bones, and finally, radius and ulna, humerus and scapula, exactly as in all other vertebrates. When, with the commencement of the purification of the air, the situation was suited to low air-breathers, the pectoral fin was modified into a five-toed fore-foot. When, later, the situation demanded a more perfect air-breather, the reptilian limb appeared. If the reptile was appointed to swim in the sea, its hand was shaped into a paddle, sometimes with six digits and many phalanges, as in the fish. If it was destined to fly, a finger was enormously elongated, and a skinny membrane was stretched from finger to hind-limb and tail. When the time came for the fitting of a vertebrate to make its home in the air, the bones were made hollow, to combine lightness and strength. The hand and fingers were abbreviated and consolidated; cartilage was attached along side, and in this were inserted the broad light quills which form the expansion of the wing. But here we find all the structures contained in the reptilian foot, except so far as changed function demanded modification. When locomotive appendages for an animal of mammalian rank were needed, the same set of bones was further modified to meet the exigencies of different situations, instincts, and habits. The paddle of the whale, the shovel of the mole, the clawed foot of the cat, the cloven hoof of the ox, the solid hoof of the horse, the wing-frame of the bat—all are but modifications of the same bony elements, adjusted in the same way, but modified in relative development. All this was prophetic of