trived for the spread of a wing, without increasing the weight of the body. The more firm and solid arm of the bird indicates a more sustained flight. The short arm of the whale, with his spreading fingers, resembles a strong oar. The enormous hand of the mole, with its long elbow, is constructed for the difficult and prolonged efforts requisite in burrowing. The twisted arm of the tortoise can be applied to no other movement than creeping. And finally, the arm of the fish, completely enveloped in the mass of the flesh, presents, externally, a mere delicate balancer, the pectoral fin.

179. The posterior members are identical in their structure with the anterior ones. The bones of which they are composed, are, 1. The *pelvis*, (Fig. 46,) which corresponds to the shoulder blade; 2. The thigh bone, or *femur*, which is a single bone, like the humerus; 3. The bones of the leg, the *tibia* and *fibula*, which, like the radius and ulna, sometimes coalesce into one bone; and lastly, the bones of the foot, which are divided, like those of the hand, into three parts, the tarsus or ankle, the metatarsus or instep, and the toes. The modifications are generally less marked than in the arm, inasmuch as there is less diversity of function; for in all animals, without exception, the posterior extremities are used exclusively for support or locomotion.

180. The anterior extremity of the vertebrates, however varied in form, whether it be an arm, a wing, or a fin, is thus shown to be composed of essentially the same parts, and constructed upon the same general plan. This affinity does not extend to the invertebrates; for although in many instances their limbs bear a certain resemblance to those of the vertebrates, and are even used for similar purposes, yet they have no real

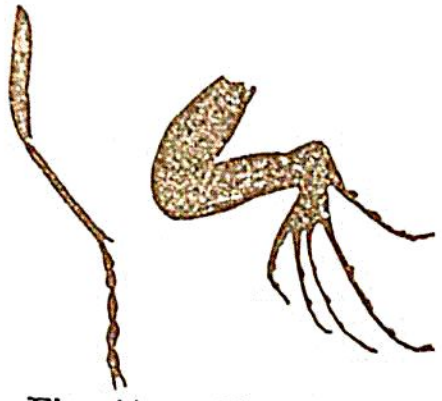

Fig. 44. Fig. 45.