orders of Reptiles, the most specialized and the largest forms are restricted to the tropics (with the exception of *Macroclemmys) ;* but, unlike lizards or snakes, Chelonians Figs. 1. 2.—Shell of *Testudo pardalis* to show the divisions of the integument, which are marked by entire lines, and of the osseous carapace, these being marked by dotted lines. Fig. l Upper or dorsal aspect. Fig. 2, Lower or ventral aspect.

Dermal Scutes:—*co,* costals; *v,* vertebrals; m, marginals; *g*, gulars; *pg,* post- gulars; *p,* pectorals; *ab,* abdominals; *pa,* præanals; *an,* anals.

Bones of the Carapace :—*co',* costals ; *ne,* neurals ; *nu,* nuchal ; *py,* pygal ; *m*', marginals; *ent,* entoplastron, *ep,* epiplastron; *hyo,* hyoplastron ; *hyp,* hypo­plastron; *xyp,* xyphiplastron.

are unable to exist in sterile districts or at great altitudes. Chelonians are strictly animals of plains, or at least of low country.

Chelonians show a great divergence in their mode of life,—some living constantly on land, others having partly terrestrial partly aquatic habits, others again rarely leav­ing the water or the sea. The first-mentioned, the land tortoises proper, have short club-shaped feet with blunt claws, and a very convex, heavy, completely ossified shell. In the freshwater forms the joints of the limb bones are much more mobile, the digits distinct, armed with sharp claws, and united by a membrane or web ; their shell is less convex, and is flattened, and more or less extensive areas may remain cartilaginous to lessen its specific gravity. As a rule, the degree of development of the interdigital web and of convexity of the shell indicates the prevalence of aquatic or terrestrial habits of a species of terrapin. Finally, the marine turtles have paddle-shaped limbs re­sembling those of Cetaceans.

Land tortoises are sufficiently protected by their cara­pace, and therefore have no need of any special modi­fication of structure by means of which their appearance would be assimilated to the surroundings, and thus give them additional security from their enemies. These, how­ever, are but few in number : the large cats of South America are said to be able to tear them out of the shell with their claws ; and the ancient tale of Æschylus having been killed by a tortoise carried aloft by an eagle and dropped on the head of the unfortunate poet seems to be founded on the fact that tortoises are a favourite prey of the Lämmergeyer *(Gypaetus),* which has the habit of dropping them from a height on rocks in order to break the shell. On the other hand, among the carnivorous terrapins and freshwater turtles instances of protective resemblance are not scarce, and may even attain to a high degree of specialization, as in *Chelys* ; their shells offer them less protection, and their enemies (crocodiles and alligators) are more numerous ; they also require this special provision to enable them to approach or seize their prey with greater ease. The colours of land tortoises are generally plain or in simple patterns, whilst those of many terrapins are singularly varied, bright, and beautiful.

Chelonians are diurnal animals ; only a few are active during the night, habitually or on special occasions, as, for instance, during oviposition. Land tortoises are slow in all their movements, but all kinds living in water can execute extremely rapid motions, either to seize their prey or to escape from danger. All Chelonians are stationary, residing throughout the year in the same locality, with the exception of the marine turtles, which periodically migrate to their breeding-stations. Species inhabiting temperate regions hibernate.

Chelonians possess great tenacity of- life, surviving injuries to which other Reptiles would succumb in a short time. The heart of a decapitated tortoise continues to beat for many hours after every drop of blood has been drained from the body, and the muscles of the trunk and head show signs of reflex action twenty-four hours after the severance of the spinal cord. The longevity of tor­toises is likewise a well-known fact, to which reference will again be made.

Land tortoises, a few terrapins, and some of the marine turtles are herbivorous, the others carnivorous, their prey consisting chiefly of fish, frogs, and other small aquatic animals.

All Chelonians are oviparous, and the eggs are generally covered with a hard shell.

In the system@@1 proposed by Duméril and Bibron, and afterwards modified by Gray and Strauch, the Chelonians are arranged according to their mode of life, and divided into terrestrial, paludine, fluviatile, and marine forms. However natural such an arrangement may appear at first, a more careful examination proves it to be (as all arrange­ments based solely upon the mode of life) at variance with the structural affinities, whether the recent forms alone be considered or the fossil as well. The division of the bulk of the order into *Cryptodira* and *Pleurodira,* as suggested by Agassiz, Cope, and Rütimeyer, was a decided progress, as is also the elimination of the suborders *Atheca* and *Trionychoidea* recently proposed by Cope and Baur.

The order of Chelonians may then be divided into the following suborders and families :@@2—

Suborder I. ATHECÆ.

Vertebræ and ribs free, separated from a bony exoskeleton. Family 1. Sphargidæ.

Limbs paddle-shaped, clawless ; phalanges without condyles. Plastron reduced to an annular series of eight small bones. Exo­skeleton consisting of numerous small bony plates arranged like mosaic. Pelagic.

Genus : *Dermαtοchelys (Sphargis).*

Fossil genera : *Psephοphοrus* (Pliocene), *Prοtοsphargis* (Cretaceous), *Protostega* (Cretaceous), *Psephoderma* ? (Triassic).

@@@1 The more important works on this order of Reptiles have been enumerated in the article Reptiles, vol. xx. p. 440.

@@@2 Only the more important and best known of the extinct genera are admitted into this synopsis.