that the skull of all vertebrate animals is pretty well reduced to a uniform structure, and the laws of its variations nearly determined.<sup>7</sup>

The vertebrate animals being thus reduced to a single type, the question arises how far this can be done with regard to other animals, and how many such types there are. And here we come to one of the important services which Cuvier rendered to natural history.

## Sect. 2.—Distinction of the General Types of the Forms of Animals. —Cuvier.

ANIMALS were divided by Lamarck into vertebrate and invertebrate; and the general analogies of all vertebrate animals are easily made manifest. But with regard to other animals, the point is far from clear. Cuvier was the first to give a really philosophical view of the animal world in reference to the plan on which each animal is constructed. There are,<sup>8</sup> he says, four such plans;—four forms on which animals appear to have been modelled; and of which the ulterior divisions, with whatever titles naturalists have decorated them, are only very slight modifications, founded on the development or addition of some parts which do not produce any essential change in the plan.

These four great branches of the animal world are the vertebrata, mollusca, articulata, radiata; and the differences of these are so important that a slight explanation of them may be permitted.

The vertebrata are those animals which (as man and other sucklers, birds, fishes, lizards, frogs, serpents) have a backbone and a skull with lateral appendages, within which the viscera are included, and to which the muscles are attached.

The mollusca, or soft animals, have no bony skeleton; the muscles are attached to the skin, which often includes stony plates called *shells*; such molluscs are shell-fish; others are cuttle-fish, and many pulpy sea-animals.

The articulata consist of crustacea (lobsters, &c.), insects, spiders, and annulose worms, which consist of a head and a number of successive annular portions of the body jointed together (to the interior of which the muscles are attached), whence the name.

Finally, the *radiata* include the animals known under the name of *zoophytes*. In the preceding three branches the organs of motion and of sense were distributed symmetrically on the two sides of an axis,

Cuv. Hist. Sc. Nat. iii, 442.