

be plain that the characters of the immediate instruments of these acts are essential characters, and that any peculiarities and identities among them must be important in determining their natural relations. In Turtles the jaws and the neighboring parts are the principal organs concerned in these acts; and the claws and limbs, which generally perform so large a part in the movements connected with the function of nutrition in some of the higher types, have here little or nothing to do with it. Moreover, in Turtles the structure of the jaws and their muscles determine, to a great extent, the structure and form of the whole head. About the jaws and head, then, are we to look, in this order, for the structural characters which belong to the voluntary acts relating to nutrition; and here, and here only, do we find the distinguishing characters of the natural groups that may be distinguished within the families and sub-families. Months of research in the family of *Cinosternoidæ*, and in corresponding groups of other families, have failed to point out any other organs as bearing distinctions and characters for these groups. Indeed, leaving out specific characters, it is impossible to identify any other part of the body of these animals, when examined isolatedly, as belonging to one or the other of these groups.¹ It thus appears that there are, among Turtles, natural groups founded upon the organs with which these animals take their food, and upon them only. These groups, unquestionably, are genera.

In preceding families I have not hesitated to insist at once upon the generic value of similar characters, trusting that the similarity in the range assigned to the genera which I was led to adopt upon such a foundation, with other genera already acknowledged as such, would not fail to convey the same conviction to the minds of other naturalists. But, the *Cinosternoidæ* are to this day so imperfectly known, the genera proposed by the ablest herpetologists are still so unsatisfactorily characterized, and, above all, the opinion expressed by Schlegel and Temminck² upon these Turtles is so diametrically opposed to the results to which I have been led, that I felt it indispensable to show, on this occasion, in what way, and by what evidence, I have satisfied myself, step by step, that the family of *Cinosternoidæ* is a natural family, embracing two distinct sub-families,³ each of which

¹ I mean to say, that parts of the body of a Turtle found separated, as is mostly the case with fossil remains, cannot be referred to their genus with certainty, unless the jaws be among them; or unless the parts found bear specific characters that occur only in well known genera. This result is of the utmost importance to Palæontology, and may explain why Cuvier did not attempt to determine the generic characters, and to give specific names to many of the fos-

sils which he described. It may also serve as a warning to those palæontologists who never hesitate to distinguish fossil species without sufficient preliminary comparisons with their living representatives, and sometimes upon the most insignificant fragments, which do not exhibit the first specific character.

² *Fauna japonica*; *Chelonii*, p. 59-62.

³ Already alluded to, (p. 250 and 251,) when contrasting *Ozotheca* with the old genus *Cinosternum*.