

of structure, cast, as it were, into distinct moulds or forms.¹ Now there can certainly be no reason why we should not all agree to designate as types or branches all such great divisions of the animal kingdom as are constituted upon a special plan,² if we should find practically that such groups may be traced in nature. Those who may not see them may deny their existence; those who recognize them may vary in their estimation of their natural limits; but all can, for the greatest benefit of science, agree to call any group which seems to them to be founded upon a special plan of structure, a type or branch of the animal kingdom; and if there are still differences of opinion among naturalists respecting their limits, let the discussion upon this point be carried on with the understanding that types are to be characterized by different plans of structure, and not by special anatomical peculiarities. Let us avoid confounding the idea of plan with that of complication of structure, even though Cuvier himself has made this mistake here and there in his classification.

The best evidence I can produce that the idea of distinct plans of structure is the true pivot upon which the natural limitation of the branches of the animal kingdom is ultimately to turn, lies in the fact that every great improvement, acknowledged by all as such, which these primary divisions have undergone, has consisted in the removal from among each, of such groups as had been placed with them from other considerations than those of a peculiar plan, or in consequence of a want of information respecting their true plan of structure. Let us examine this point within limits no longer controvertible. Neither Infusoria nor Intestinal Worms are any longer arranged by competent naturalists among Radiata. Why they have been removed, may be considered elsewhere; but it was certainly not because they were supposed to agree in the plan of their structure with the

¹ It would lead me too far were I to consider here the characteristics of the different kingdoms of Nature. I may, however, refer to the work of I. GEOFFROY ST. HILAIRE, *Histoire naturelle générale des règnes organiques*, Paris, 1856, 8vo., who has discussed this subject recently, though I must object to the admission of a distinct kingdom for Man alone.

² It is almost superfluous for me to mention here that the terms plan, ways and means, or manner in which a plan is carried out, complication of structure, form, details of structure, ultimate structure, relations of individuals, frequently used in the following pages, are taken in a somewhat different sense from their usual meaning, as is always necessary when new views are introduced in a science, and the adoption of

old expressions, in a somewhat modified sense, is found preferable to framing new ones. I trust the value of the following discussion will be appreciated by its intrinsic merit, tested with a willingness to understand what has been my aim, and not altogether by the relative degree of precision and clearness with which I may have expressed myself, as it is almost impossible, in a first attempt of this kind, to seize at once upon the form best adapted to carry conviction. I wish also to be understood as expressing my views more immediately with reference to the animal kingdom, as I do not feel quite competent to extend the inquiry and the discussion to the vegetable kingdom, though I have occasionally alluded to it, as far as my information would permit.