

*Separation of the Artificial and Natural Methods in Ichthyology.*—It has already been said that all so-called *artificial methods* of classification must be natural, at least as to the narrowest members of the system; thus the artificial Linnæan method is natural as to species, and even as to genera. And on the other hand, all proposed natural methods, so long as they remain unmodified, are artificial as to their characteristic marks. Thus a Natural Method is an attempt to provide positive and distinct *characters* for the *wider* as well as for the narrower *natural groups*. These considerations are applicable to zoology as well as to botany. But the question, how we know natural groups before we find marks for them, was, in botany, as we have seen, susceptible only of vague and obscure answers:—the mind forms them, it was said, by taking the aggregate of all the characters; or by establishing a subordination of characters. And each of these answers had its difficulty, of which the solution appeared to be, that in attempting to form natural orders we are really guided by a latent undeveloped estimate of physiological relations. Now this principle, which was so dimly seen in the study of vegetables, shines out with much greater clearness when we come to the study of animals, in which the physiological relations of the parts are so manifest that they cannot be overlooked, and have so strong an attraction for our curiosity that we cannot help having our judgments influenced by them. Hence the superiority of natural systems in zoology would probably be far more generally allowed than in botany; and no arrangement of animals which, in a large number of instances, violated strong and clear natural affinities, would be tolerated because it answered the purpose of enabling us easily to find the name and place of the animal in the artificial system. Every system of zoological arrangement may be supposed to aspire to be a natural system. But according to the various habits of the minds of systematizers, this object was pursued more or less steadily and successfully; and these differences came more and more into view with the increase of knowledge and the multiplication of attempts.

Bloch, whose ichthyological labors have been mentioned, followed in his great work the method of Linnæus. But towards the end of his life he had prepared a general system, founded upon one single numerical principle;—the number of fins; just as the sexual system of Linnæus is founded upon the number of stamina; and he made his subdivisions according to the position of the ventral and pectoral fins; the same character which Linnæus had employed for his primary