

I have already stated, this is an entirely unphysiological principle, inasmuch as it assumes a contrast between the yolk and the embryo, within limits which do not exist in nature. The Mammalia, for instance, which are placed, like all other Vertebrata, in the category of the animals in which there is an opposition between the embryo and the yolk, are as much formed of the whole yolk as the Echinoderms or Mollusks. The yolk undergoes a complete segmentation in Mammalia, as well as in Radiates or Worms, and most Mollusks; and the embryo when it makes its appearance no more stands out from the yolk, than the little Starfish stands out from its yolk. These simple facts, known since Sars and Bischoff published their first observations, twenty years ago, is in itself sufficient to show that the whole principle of classification of Vogt is radically wrong.

Respecting the assertion, that neither Infusoria nor Rhizopoda produce any eggs, I shall have more to say presently. As to the arrangement of the leading groups, Vertebrata, Articulata, Cephalopoda, Mollusca, Vermes, Radiata, and Protozoa in Vogt's system, it must be apparent to every zoölogist conversant with the natural affinities of animals, that a classification which interposes the whole series of Mollusks between the types of Articulata and Worms, cannot be correct. A classification based, like this, solely upon the changes which the yolk undergoes, is not likely to be the natural expression of the manifold relations existing between all animals. Indeed, no system can be true to nature, which is based upon the consideration of a single part, or a single organ.

After these general remarks, I have only to show more in detail, why I believe that there are only four great fundamental groups in the animal kingdom, neither more nor less.

With reference to Protozoa, first, it must be acknowledged that, notwithstanding the extensive investigation of modern writers upon Infusoria and Rhizopoda, the true nature of these beings is still very little known. The Rhizopoda have been wandering from one end of the series of Invertebrata to the other, without finding a place generally acknowledged as expressing their true affinities. The attempt to separate them from all the classes with which they have been so long associated, and to place them with the Infusoria in one distinct branch, appears to me as mistaken as any of the former arrangements, for I do not even consider that their animal nature is yet proved beyond a doubt, though I have myself once suggested the possibility of a definite relation between them and the lowest Gasteropods. Since it has been satisfactorily ascertained that the Corallines are genuine Algæ, which contain more or less lime in their structure, and since there is hardly any group among the lower animals and lower plants, which does not contain simple locomotive individuals, as well as compound communities, either free or adhering to the soil, I do not see that the facts known at present preclude the possibility