

conclusions one is obliged to draw are of serious importance in systematic aspects. Everyone who has systematic knowledge of the animal and plant groups dealt with here knows that the specific characters are based especially just on the course of the contour-lines; this applies to the plankton Diatoms, Desmidiaceæ, Ceratium, Rotifers, and Cladocera. As we may now assume that wide limits, just with regard to the course of these contour-lines, can be considered as a *conditio sine qua non* for the occurrence of all these organisms in the pelagic region, we see that these contour-lines in the plankton organisms must be subject to the greatest possible variation. So long as there was not the least conception of this, the study of the plankton led to innumerable species being set up, which have now been reduced to some few: 30 *Anuræa* species have become 4, about 100 *Bosmina* species and varieties 2, about 100 *Daphnia* species and varieties 1 or 2. I have called the old species "races," and objection has been raised against this, perhaps with justice: they should most probably rather be called modifications (or "Phenotypes," Johannsen).

It is very obvious that the naturalists who have dealt with these groups systematically and have created the many species should find it difficult to allow these species to be reduced to definite generations, broods, skin-changes (casts), produced by and adapted to definite outer conditions. Opposition towards the new views is quite natural. When, however, the naturalists of the older school treat the newer views of the species within the plankton community as loose theories which can be dealt with by loose, cursory criticism, whilst at the same time they demand that their views are to be considered as resting on an exact, scientific basis, they must be taken to task. Whatever systematic conception is taken as basis, one thing all should be agreed upon: the notion of species within the lower organisms is always of a distinctly hypothetical nature. The setting up of the numerous species within the plankton organisms was not at all of a less theoretical nature than to reduce them to some few, as at present. In every view of species there is a certain element of the investigator's own individuality. With some the conception of species becomes more and more restricted with years: these are the naturalists who are so fortunate as to be honoured with the title "exact scientists." With others the conception becomes ever wider and wider; it is different at different times and hardly the same within the different countries.¹

¹ In a work just published ("On *Synchæta fennica*, sp.n.," *Journ. Roy. Micr. Soc.*, 1909, p. 170), Rousselet contests my view of the *Synchæta* species as seasonal forms. When Rousselet maintains that I have "expressed the opinion" that the *Synchæta* species "are only seasonal variations of one species," this seems to me a bad starting-point for his criticism, and one which he is scarcely entitled to