

series of forms are different. With regard to the plankton organisms, I believe that they are connected with the more varied and transitory changes in the surroundings caused by the melting of the ice and the subsequent improvement in the climatic conditions after the Ice Age. As all the changes in the shape of the plankton organisms tend to reduce the rate of sinking, all being mutually connected and parallel with the rising temperature and the decreasing viscosity, vertically through time as well as horizontally from north to south, I conclude that for the plankton organisms it is a *conditio sine qua non* to follow the variations in the supporting power of the fresh water, which again are dependent upon temperature and concentration. As we now further know that the temperature, though with fluctuations, has risen from the Glacial Age to the present day, I would also conclude that the rising temperature subsequent to the improvement in climate after the Glacial Age was the direct external stimulant responsible for the occurrence of these series of forms.

As the difference between summer and winter temperatures and the consequent yearly variation in the supporting power of the water continually increased over more extensive areas, the species were constantly forced nearer to the limits of their range of variation on endeavouring to adapt themselves to the decreasing supporting power. The sexual periods in the pelagic colonies of the large lakes were at the same time more and more on the decline, and consequently local races arose. Through seasonal variations these races adapted themselves to the buoyancy conditions of the locality, and through selection the single links during wanderings arranged themselves in series of forms from north to south.

I have long held the view that the way in which variations in the outer conditions contribute to the occurrence of morphological series of variations is, that a biological separation has preceded the morphological division. Behind the morphological variations are the *biological*; both are but rarely printed on paper or preserved in museums, but he who lives much in nature has them before his eyes every day. Outer conditions first influence the mode of life of the organisms; the modifications in the latter through increased or decreased use of certain functions or structural characters then cause those differences to appear by means of which the different stages in the morphological chains can be distinguished. The division of the species brought about by variations in outer conditions often remains in the biological stage. Outer conditions separate a species into a number of groups of individuals differing biologically, but not to be distinguished morphologically. Examples of this must be sought for at present mainly among the lowest organisms, yeast and bacteria; but there is no doubt that even if the number of such biological species known