

quently to shorten the resting-periods more than normally. This causes, as a rule, an increase in the number of individuals in the locality concerned, and is thus favourable to the species. It may be supposed that the supporting power of fresh water, as mentioned above, is different in different latitudes, and the possibility is not excluded that it diminishes from north to south. I am inclined to believe this, because the variability of the species, as mentioned above, is not equally great in the arctic and high alpine lakes and is slight in the North European. On the other hand, it is greatest in the Baltic lakes, *i.e.* the variability of the species is smallest where the variations in the supporting power are smallest, and greatest where these are greatest. All these variations tend to augment the cross-section resistance, and thus to diminish the rate of sinking of the organisms. We may therefore say that the cross-section resistance of the organisms increases from north to south.

Further, it has been shown with regard to many of the most well-marked plankton organisms, that a decrease in volume takes place in the direction from north to south; it therefore seems as if the organisms also undergo a relative increase in superficial area consequent upon a decrease in volume. Both phenomena agree very well with the fact that both the increase in cross-section resistance and the increase in superficial area owing to diminution in volume are in each locality most prominent in summer. Local as well as seasonal variations tend mainly to increase the form-resistance on the rise of temperature, *viz.* on the rate of sinking probably on the whole increasing.

In order to disprove or confirm these views, knowledge of the appearance and mode of life of the plankton in tropical fresh-water lakes is necessary. We know nothing of the reproduction there, nor of the variations, either local or seasonal. The little to be gathered from the literature seems to suggest that adaptations to the extremely high summer temperatures, in so far as they come under the conception of change in shape, consist less in an increase of the cross-section resistance through extensive formation of floating apparatus, and more in an increase of the superficial area due to a decrease in volume. With this increase in superficial area there is in the tropical fresh-water plankton an apparently distinct tendency towards making the surface rough by means of numerous closely placed roughnesses, reticulations, etc. It is a remarkable fact that no organism has yet been observed in tropical fresh-water lakes which through extensive formation of floating apparatus is specially adapted to water with high temperatures and slight supporting powers: the *Hyalodaphniæ* in Victoria Nyanza seem quite similar to our own. The most conspicuous structure I know of is the very large mucrones in *Bosminæ* from the river Amazon (Stingelin, 1904c, Tab. 20, f. 6).