

much less than in the temperate zone, where it reaches from below zero to about 30° C. In no other part of the world, except perhaps the arctic, will we find lakes with such small annual temperature variations as in the tropics. Owing to the high temperatures, the evaporation from the surface and the drying up of the rivers in the dry season will produce great concentration of the water and great variation in its level. In the dry season large water-basins will be dried up, and in the rainy season again filled with water. The heavy rain in the rainy season will, owing to the enormous amount of decaying organic material, carry vast quantities of suspended material into the lakes, which, combined with the great quantities of organic material held in solution in the water owing to the high temperature, will produce the dark-coloured water which characterises so many of the tropical fresh-water lakes.

We have now endeavoured to obtain, as far as possible, an insight into the variations in fresh-water lakes from the pole to the equator. I wish further merely to call attention here to a physical phenomenon of the fresh-water lakes which has only come to light during the last few years. It is a well-known fact that the specific gravity and the viscosity of the water vary in accordance with the temperature. At 25° C. the viscosity of pure water is just half as great as at 0° ; the specific gravity varies in accordance with the viscosity, but in a much less degree. Quite provisionally we may suppose that the viscosity of the fresh water is reduced concomitantly with the rising temperature in the direction from north to south, and undergoes the greatest regular annual variations in that zone, *i.e.* the temperate zone, where the annual variations in temperature are greatest. It is evident that the variations in viscosity and specific gravity, since the supporting power of the fresh water, and therewith the conditions for buoyancy, are dependent on these variations, are of the greatest importance to plankton organisms.

In accordance with the plan laid down in the beginning, we shall now consider the communities of plants and animals in fresh-water lakes and their variations in the higher latitudes. In fresh-water lakes we may distinguish between three great communities: the littoral, the abyssal, and the plankton communities. Of the abyssal communities in the fresh water we know very little; they very probably contain many cosmopolitan species, but Lovén's explorations in the Swedish lakes, the Russian investigations in the Baikal Lake, and Moore's in the African lakes have shown that the abyssal fauna of the fresh water contains many very peculiar organisms, more definite knowledge of which will have to be obtained from future investigations.

With the littoral communities we are best acquainted. Hitherto