

in Bodensee 5.4 m. (Amberg, 1904, p. 73; see also Geistbeck, 1884-5, p. 387). In the high alpine lakes also the transparency may be very great, up to 22 m. (Delebecque, 1898a, p. 185); but in the majority it is much less. It must, however, be kept in mind that the transparency has nearly always been measured in summer, when, as a matter of fact, it is least. In the Montiggler lakes, Huber (1905, p. 43) has shown that the transparency of the water is greater in summer than in winter. Rivers coming directly from glaciers carry immense quantities of pulverised material into the lakes; in this case the lakes have milky water and are but slightly transparent (Bourcart, 1906, p. 107). Of the wonderful crystalline ice of the alpine lakes, and the very great depths at which the pebbles of the bottom may be seen, we have many records (see Geistbeck, 1884-5, p. 368).

The *colour* of the water is, as is well known, blue, bluish-green, or green; but the blue lakes, those which have 1-4 in Forel's scale, are rare (Lake of Geneva, d'Annecy, etc.). The majority are green, Forel's scale 5-9 (Lake of Zürich, Vierwaldstättersee bluish-green; for the rest I may refer to Amberg, 1904, p. 80). Yellowish-brown lakes also occur, not rarely with colours exceeding Forel's No. 9 (Forel, Delebecque, Bourcart).

With regard to the *chemical* nature it need only be mentioned here that Bourcart has clearly shown the close agreement between the petrographic nature of the surrounding country and the chemical composition of the lake-water (1906, pp. 120-127; see also Delebecque, 1898a, p. 205). Zschokke (1900, p. 38) records that high alpine lakes, owing to the lower atmospheric pressure and the slight vegetation, are of themselves poor in oxygen, although the mountain brooks supply somewhat the want in this regard. The absence of outlets from factories and on the whole of detritus of every kind, and thus of all oxidisable substances, has the effect, on the other hand, that the loss of oxygen during the oxidation processes is slight.

The organic life of the lakes does not influence the physical and chemical qualities of the water in the alpine lakes, nor the filling up of the lake-basins, nearly so much as in the Baltic lakes. The plankton only exceptionally determines the colour of the water (*Oscillatoria*), and has hardly any appreciable effect upon the nature of the bottom, as is often the case in the lakes of the Baltic zone (Chitin-, Diatom-, Cyanophyceae-gytjes), but influences certainly to a considerable degree the transparency. In the high alpine lakes the quantity of plankton is, as a rule, small; still, even high alpine lakes may be very rich in plankton (Zschokke, 1900, p. 302), but this is then thought to be due to abnormal phenomena (affluents from the St Bernard hospice).

The steep coasts prevent the occurrence of the broad vegetation belts which are so characteristic of the Baltic lakes; the conditions