

moss-covered mountain slopes, always saturated with water, and rarely frozen, every period of heavy rains will at all times of the year send immense masses of water down into the lake-basins. In both cases the height of the water undergoes very considerable variations, but these are in the former case periodical, in the latter quite irregular (Scotland).

The *chemical* composition of the water is much less uniform than in the arctic regions. On the whole, it must be considered poor in lime; during its passage through layers of moss and peat a considerable portion has absorbed large quantities of humic acids; the lakes are further filled with organic material to a much higher degree than the arctic lakes, and this in suspended form is carried out into the lakes from the surrounding territory. Owing to the steep course of the affluents, this material is very rough; and, owing to the steep rocky sides of the lakes, much of this rough material (branches, leaves, hay, fruits) in unpulverised form is carried out even into very great depths (100 m. and over). Here the material, owing to the preserving action of humic acids, does not decay, but undergoes only a slow process of disintegration, the result of which is a remarkable sort of liquid brown peat (G. West, 1905, p. 968). Lakes with clay-filled water such as often occur in arctic regions are no doubt rare. The *transparency* of those lakes in which the water is coloured by humic acids (especially the Scottish) is very slight, generally only 5–7 m., and the *colour* of the water is brown (Bachmann, 1907, p. 7). Some of the Norwegian lakes are remarkable for their exceedingly great transparency, 14–18 m. (Huitfeldt-Kaas, 1906, p. 130); brown lakes are rare. Huitfeldt-Kaas mentions that the transparency of the water in Norway is much more influenced by detritus than by plankton (p. 126). The lakes are for the rest subject to the same fate as the surrounding territory; their surface receives only little direct *sunlight*; the rainfall is everywhere great; through long periods of the year, especially in Scotland, immense clouds and fogs shroud the country and persist longest in the valleys where the lake-basins occur. The low summer temperature with the usually very humid atmosphere do not allow of any appreciable evaporation from the surface, and consequently no great *concentration* of the water takes place in summer.

This zone presents greater variations in *temperature* than perhaps any other. It contains some lakes which, like several of the large Scottish lakes, must be classed among the tropical lakes, with water at a temperature $>4^{\circ}$ C. throughout the year, *e.g.* Loch Katrine, the temperature of which hardly sinks below $4^{\circ}44$ (Pettersson, 1902, p. 8; Forel, 1901b, p. 35), and Loch Ness, the surface temperature of which rarely sinks below 5° C., and which at any rate never freezes;