

of *Ceratium hirundinella*, and finally a specially rich development of Chlorophyceæ.

For North Uist and Benbecula, an abundance of *Diaptomus wierzejskii* and apparently absence of *Diaptomus laciniatus*; otherwise much like Lewis. The plankton material from Mull and the small island of Lismore is too small to justify an exact comparison with the above-mentioned areas, but I shall refer to it later on.

In the four areas which we have just distinguished the lochs differ somewhat in physical features:—(1) The Shetland lochs are mostly shallow, some few are relatively deep, and they are elevated 20 to 300 feet above sea-level; (2) the Orkney lochs are all broad, shallow, and flat-bottomed, and they are elevated about 50 feet; (3) of the lochs surveyed in Lewis, the greater part are relatively deep, some few are shallow, and they are elevated 100 to 400 feet above sea-level; (4) the North Uist and Benbecula lochs are nearly all shallow, a few are of moderate depth, and they are elevated only a few feet above sea-level. As regards the temperature of the waters in these same areas, there appears to be a small but decided difference, the Shetland lochs being colder than those of the other areas. In the following table I have given the surface temperatures taken in all the lochs of the islands which were visited by the Survey. As will be seen, the Lewis and Shetland lochs were surveyed contemporaneously, and at that time the Shetland lochs were superficially several degrees colder than those of Lewis; and I am supposing also that in general a like difference in thermal conditions would obtain for all the upper strata where the plankton organisms live. In North Uist and Benbecula the survey commenced in the second week of May, when the surface temperature was about 49° Fahr. After that a rapid warming of the waters took place, and by the fourth week in May the lochs had a surface temperature of over 60° Fahr., and early in June a maximum reading of 68° Fahr. was recorded. It should be noted, however, that the difference in the whole thermal conditions of these lochs is often not so great as would seem to be the case from a consideration of surface temperature alone, for in the heated lochs of early June there was actually found to be a very rapid fall of temperature in passing from the surface to the lower layers of water, in several cases a range of 16° Fahr. occurring in a vertical distance of only 20 or 25 feet. On the other hand, the colder lochs of early May had a more or less uniform temperature from top to bottom; further, it will be seen that the deeper lochs remained cooler than the shallower lochs of the same neighbourhood. So in all the areas under consideration, especially in North Uist, the tow-nettings were taken from lochs differing quite appreciably in their thermal conditions, and later on we shall see to what extent the plankton varies accordingly.