

remembered that by far the greater part of our knowledge of the Desmid flora, and especially of the tropical, is based upon Messrs West's own excellent investigations. Other times may come and other investigators whose detailed views of species may perhaps not be the same as Messrs West's; it is thus quite possible that the boundaries between the regions given by Messrs West will be abandoned.

Against my opinion it can further be said that in the high arctic zone some types are apparently absent, that the great African lakes are characterised by their remarkable Diatom plankton, and that some few genera and species (*Sida limnetica*, *Limnosida frontosa*) are restricted to rather limited areas; only the Diaptomidæ, according to our present classification and knowledge, seem to have a distribution which is fairly sharply delimited for each species.

It must be emphasised that the fresh-water plankton communities, in contrast to all other communities on land or in water, everywhere contain the same types, nearly everywhere the same species. The arctic or North European zone and the tropical zone have a very large number of species in common. This applies especially to the *Diatoms*, *Cyanophyceæ*, *Chlorophyceæ*, and *Flagellata*; further, amongst the *Rotifera*, *Anuræa aculeata*, *Polyarthra platyptera*, *Asplanchna Brightwelli*, *Triarthra longiseta*, species of the genera *Branchionus*, *Pedalion*; amongst the *Cladocera*, *Bosmina longirostris* and *B. coregoni*, *Ceriodaphnia cornuta*, *Daphnia hyalina*, *Chydorus sphaericus*; amongst the *Copepoda*, *Cyclops serrulatus*, *C. Leuckarti*, *C. oithonoides*, etc. In no other community is so great a number of species common to the whole world: only very few new types are found on comparing the plankton of northern latitudes with that of southern. Considering to what a degree the different plant and animal communities, terrestrial as well as marine, change from the pole to the equator, and how no end of new types appear for every degree of latitude as we proceed to the south, the cosmopolitanism of the fresh-water plankton must first and chiefly be emphasised as its greatest peculiarity and one of its greatest puzzles, which we are at present unable to solve with certainty. The phenomenon is confirmed by every new research; future investigations may indeed increase the number of exceptions, but the fundamental result of this review will hardly be changed.

Compared with this phenomenon, the supposed maintenance of sharply delimited areas of distribution for certain fixed genera and species is of quite secondary importance. If we try by means of such areas, which appear at present apparently natural and well defined for some species within certain groups of animals, to divide the fresh-water plankton into similar well-marked zoo- and phyto-geographical territories like those of other communities, we find that the attempt quite fails.