

ground system of roots to collect moisture and nourishment from the soil, and its leaves are raised aloft on slender stems to derive benefit from the rays of light and build up organic substance out of carbonic acid and water. Ocean plants have no such *point d'appui*; they find their nourishment dissolved in sea-water and distributed uniformly all around them, and they get most benefit from the sunlight when they are regularly spread throughout the whole bulk of the water in the photic zone. Their diffusion is also their best defence against their enemies, for, while animals have no great difficulty in finding and consuming the larger plants, these creatures, scattered everywhere like dust amidst the immeasurable water-masses, are not so easily available. The majority of the floating plants pass their lives as single cells, though they are frequently far more highly organised than the single cells that go to form a higher plant.

Suspension  
organs.

As pelagic algæ have generally a greater density than the sea-water in which they live, they would sink out of range of the rays of light, and perish, if it were not for the fact that they are kept from descending either by their own exertions or by suspension organs which act as a parachute. The most noticeable features in their organisation are their different forms of structure, which are directly connected with the floating existence they lead. In what follows I shall describe the most important types, belonging to a limited number of classes, most of which have variously shaped pigment granules or chromatophores, consisting of brown colouring matter instead of green chlorophyl. Comprised in their number are diatoms, peridineæ, and brown flagellates, amongst which last we also include calcareous flagellates or coccolithophoridæ. In addition there are a few pelagic representatives of the green and blue-green algæ, which I will discuss separately.

Diatoms.

A diatom can be distinguished from other algæ by its silicated cell-wall. This is composed of two quite similar halves, or valves as they are called, that are united to one another like the top and bottom of a pill-box (see Fig. 212). Inside the valves the protoplasm lines the wall like a thin sort of bladder, while the nucleus is frequently in the very centre surrounded by a denser mass of protoplasm connected to the bladder by bridges or strings. The rest of the cavity is full of a clear cell-fluid. The pigment granules, which are organs of nourishment, enable the diatom to collect rays of light and build