

diation, and which remain nearer to the surface, owing to the hinderance placed in the way of their greater descent by the intervention of sand-banks. By his observations Franklin may be said to have converted the thermometer into a sounding line. Mists are frequently found to rest over these depths, owing to the condensation of the vapor of the atmosphere by the cooled waters. I have seen such mists in the south of Jamaica, and also in the Pacific, defining with sharpness and clearness the form of the shoals below them, appearing to the eye as the aërial reflection of the bottom of the sea. A still more striking effect of the cooling produced by shoals is manifested in the higher strata of air, in a somewhat analogous manner to that observed in the case of flat coral reefs, or sand islands. In the open sea, far from the land, and when the air is calm, clouds are often observed to rest over the spots where shoals are situated, and their bearing may then be taken by the compass in the same manner as that of a high mountain or isolated peak.

Although the surface of the ocean is less rich in living forms than that of continents, it is not improbable that, on a further investigation of its depths, its interior may be found to possess a greater richness of organic life than any other portion of our planet. Charles Darwin, in the agreeable narrative of his extensive voyages, justly remarks that our forests do not conceal so many animals as the low woody regions of the ocean, where the sea-weed, rooted to the bottom of the shoals, and the severed branches of fuci, loosened by the force of the waves and currents, and swimming free, unfold their delicate foliage, upborne by air-cells.* The application of the microscope increases, in the most striking manner, our impression of the rich luxuriance of animal life in the ocean, and reveals to the astonished senses a consciousness of the universality of life. In the oceanic depths, far exceeding the height of our loftiest mountain chains, every stratum of water is animated with polygasttric sea-worms, Cyclidiæ, and Ophrydinæ. The waters swarm with countless hosts of small luminiferous animalcules, Mammalia (of the order of Acalephæ), Crustacea, Peridinea, and circling Nereides, which, when attracted to the surface by peculiar meteorological conditions, convert every wave into a foaming band of flashing light.

* [See *Structure and Distribution of Coral Reefs*, by Charles Darwin, London, 1842. Also, *Narrative of the Surveying Voyage of H.M.S. "Fly," in the Eastern Archipelago, during the Years 1842-1846*, by J. B. Jukes, Naturalist to the expedition, 1847.]—Tr.