formed entirely by the life and death of animals that lived in water. In many a formation—for instance, in some of the masses great and small of the *Carboniferous Limestone*—the eye tells us that they are formed perhaps entirely of rings of encrinites or stone-lilies, or of shells and corals, of various kinds, or of all these mixed together; and in many other cases where the limestone is homogeneous, the microscope reveals that it is made of foraminifera, or of exceedingly small particles of other organic remains. Even when these fragments are indistinguishable to the naked eye, reflection tells us that such marine limestone deposits must have been built up from the débris of life, for there is no reason to believe that vast formations of limestone, extending over hundreds of square miles, are now, or ever have been precipitated in the open ocean by inorganic chemical processes acting on mere chemical solutions. It sometimes happens, indeed, that gradual accumulations of such beds of limestone have attained thousands of feet of vertical thickness in what belongs to *recent* times in a geological sense, as for example in the great coral reefs of the Pacific Ocean, and, in less known degree, in the calcareous and foraminiferous mud of that ocean and of the Atlantic.

But where does the carbonate of lime come from by which these animals make their skeletons? If we analyse the waters of springs and rivers, we discover that many of them consist of water that is more or less hard—that is to say, not pure, like rain-water, but containing various salts in a state of chemical solution, the most important of which is generally bicarbonate of lime; for the rain-water that falls upon the land percolates the rocks, and, rising again in springs, carries with it salts of soda, potash, &c., and, if the rocks be