and are, become imbedded in clay, marl, or other soft sediment, they can be washed out and recovered in a condition similar to that of recent specimens, except that their pores or cells, if open, may be filled with the material of the matrix, or if not so open that they can be thus filled, they may be more or less incrusted with mineral deposits introduced by water percolating the mass, or may even be completely filled up in this way. But if such fossils are contained in hard rocks, they usually fail, when these are broken, to show their external surfaces, and, breaking across with the containing rock, they exhibit their internal structure merely,—and this more or less distinctly, according to the manner in which their cells or cavities have been filled with mineral matter. Here the microscope becomes of essential service, especially when the structures are minute. A fragment of fossil wood which to the naked eye is nothing but a dark stone, or a coral which is merely a piece of grey or coloured marble, or a specimen of common crystalline limestone made up originally of coral fragments, presents, when sliced and magnified, the most perfect and beautiful structure. In such cases it will be found that ordinarily the original substance of the fossil remains in a more or less altered state. Wood may be represented by dark lines of coaly matter, or coral by its white or transparent calcareous laminæ; while the material which has been introduced, and which fills the cavities, may so differ in colour, transparency, or crystallization, as to act differently on light, and so reveal the original structure. These fillings are very curious. Sometimes they are mere earthy or muddy matter which has been washed into the cavities. Sometimes they are transparent and crystalline. Often they are stained with oxide of iron or coaly materials. They may consist of carbonate of lime, silica or silicates, sulphate of baryta, oxides of iron, carbonate of iron, iron pyrite, or sulphides of copper or lead, all of which are common materials. They are sometimes so complicated that