

cases after consolidation, they have been so much altered by heat and other agents of metamorphism, as to have lost almost all signs of their original stratification, while sometimes they are almost undisturbed, except by mere upheaval above the sea: in other cases the beds have been violently contorted, in the manner shown in diagram No. 3.

Next comes the question: Under what special conditions were given areas of these rocks formed?

Some formations, such as great part of the Silurian rocks of Wales and its neighbourhood, consist essentially of deposits that were originally marine mud and sand, accumulated bed upon bed, intercalated here and there with strata of limestone, the whole being many thousands of feet in thickness. These have since been hardened into rock. Others, like the Old Red Sandstone, were originally spread out in alternating beds of mud, sand, and stony banks, all coloured red by precipitation of peroxide of iron. Others, like the Liassic and Oolitic deposits, were formed of alternating strata of clay, sand, and limestone; while others, like the greater masses of the Carboniferous Limestone and the Chalk, were formed almost wholly of carbonate of lime.

When we examine such rocks in detail, we often find that they contain fossils of various kinds—shells, corals, sea-urchins, crustaceans, such as crabs and trilobites, the bones, teeth, and scales of fishes, &c., land plants, and more rarely the bones of terrestrial animals. For instance, in the bed of sandstone, No. 4 (fig. 1), we might find that there are remains of sea-shells; occasionally—but more rarely—similar bodies might occur in the conglomerate, No. 3; frequently they might lie between the thin layers of shale in