

CHAPTER IV.

IGNEOUS ROCKS, METAMORPHISM, SHRINKAGE AND DISTURBANCE OF THE EARTH'S CRUST.

I HAVE already explained that all rocks are divided into two great classes, those of aqueous and those of igneous origin; and I have shown how aqueous rocks may generally be known by their stratification and by the circumstance that a great many of them contain relics of marine and freshwater life, in the shape of fossil shells, fish-bones, and other kinds of organic remains. The materials also of which these beds are composed generally show signs of having been in water, being rounded by the action of the waves of the sea, or by the running waters of rivers.

The other kinds of rocks, termed igneous, occasionally are associated in different localities with the formations named in the foregoing table. For instance, there are no volcanic rocks in Wales associated with the Carboniferous and Old Red Sandstone strata, while there are in Scotland, and true contemporaneous volcanic rocks are intercalated with the Lower Silurian rocks of Wales and Cumberland, while there are none associated with the equivalent strata in Scotland. Some of these contemporaneous igneous rocks consist of beds of volcanic ashes, others of old lavas, others of masses of matter which were intruded among the strata from below. Rocks that have been melted are known