nearly into contact with the porcelain tube (separated by aqueous vapour and air); the rest remained solid.

After the heat had been sufficiently applied, and the whole had become cool, the fusible metal which stopped the tube was melted out by moderate heat, and the calcareous powder in the porcelain tube was examined. Similar experiments were made in porcelain tubes alone, with different modes of hermetical sealing. The general result was, that, under mechanical pressure, carbonate of lime may be exposed to great heat without calcination; while, by the effect of great heat and pressure combined, the calcareous powder was agglutinated into a solid limestone, nearly as hard and as heavy as the natural rock. Some portions might even be polished as marble.

By a mechanical contrivance, the degree of pressure on the materials exposed to heat was varied and measured; and it appeared, that with a pressure of 52 atmospheres, equal to a column of 1700 feet of sea-water, powdered limestone was converted to hard stone; with 86 atmospheres, equal to a column of 3000 feet of sea-water, it is changed to marble; with a pressure of 173 atmospheres, equal to a column of 5700 feet of sea-water, it is completely *fused*, so as to act strongly on other earthy substances.

The celebrated marble of Carrara is probably an altered limestone of the oolitic era.

Having now seen many examples of the conversion of common limestone into crystalline marble, both by actual experiment, by volcanic action, and the heat communicated from pyrogenous rocks of different kinds, the application of these truths to the history of the "Primary Strata" is obvious. For primary limestones differ from secondary and tertiary calcareous deposits merely by their mode of aggregation, which is not such as water ever produces in carbonate of lime, but is exactly comparable to that occasioned by heat. And this general analogy is strengthened by collateral circumstances, as, for example, the frequent occurrence of serpentine in some of the "primary" limestones is a