

The amount of eroded material cannot be ascertained as accurately as at C, because the height of the original fold above the present surface is often a matter of conjecture. Hence we estimate not merely the amount sufficient to fill the valley, but the probable extent of the contiguous strata before their removal.

Upon these principles English geologists have ascertained that in South Wales, and the adjacent English counties, a mass of rock from 3,000 to 10,000 feet thick has disappeared; in other words, the country was two miles higher than it is now. A few measurements of this kind have been made in the United States. The junior author of this book has found that 5,000 feet of strata have been removed from an anticlinal valley in Brattleboro, Vermont; and that nearly 10,000 feet of vertical thickness have disappeared from the surface at Shelburne Falls, Massachusetts.—*See Final Report on the Geology of Vermont.*

From these investigations it may be inferred that the matter torn from the present surface was far greater than all which still remains above the level of the ocean.

#### CHEMICAL DEPOSITS FROM WATER.

*Calcareous Tufa, or Travertin.*—In certain circumstances water holds in solution a quantity of carbonate of lime, which is readily deposited when those circumstances change. The deposit is called *travertin*, or *calcareous tufa*.

At Clermont, in France, a single thermal spring has deposited a mass of travertin 240 feet long, 16 feet high, and 12 feet wide. At San Vignone, in Tuscany, a mass has been formed upon the side of a hill, half a mile long and of various thickness, even up to 200 feet. At San Filippo, in the same country, a spring has deposited a mass 30 feet thick in 20 years. And a mass is found there, 1.25 mile in length, one-third of a mile wide, and in some places 250 feet thick. In the vicinity of Rome, some of the travertin can hardly be distinguished from statuary marble; and that which is constantly forming near Tabreez, in Persia, is a most beautiful variety of semi-transparent marble, or alabaster. At Tivoli, in Italy, the beds are sometimes from 400 to 900 feet thick, and the rock of a spheroidal structure.

*Marl.*—The only kind of marl now in the course of formation, is that deposited at the bottom of ponds, lakes, and salt water, known by the name of *shell marl*; and which consists of carbonate of lime, clay, and peaty matter; as has been described in a preceding section. The marls in the tertiary strata are frequently