

bleau, used for pavement in France. More commonly we find sand and clay, or clay and marl, intermixed in the same mass. When the sand and clay are each in considerable quantity, the mixture is called *loam*. If there is much calcareous matter in clay it is called *marl*; but this term has unfortunately been used so vaguely, as often to be very ambiguous. It has been applied to substances in which there is no lime; as, to that red loam usually called red marl in certain parts of England. Agriculturists were in the habit of calling any soil a marl, which, like true marl, fell to pieces readily on exposure to the air. Hence arose the confusion of using this name for soils which, consisting of loam, were easily worked with the plough, though devoid of lime.

*Marl slate* bears the same relation to marl which shale bears to clay, being a calcareous shale. It is very abundant in some countries, as in the Swiss Alps. Argillaceous or marly limestone is also of common occurrence.

There are few other kinds of rock which enter so largely into the composition of sedimentary strata as to make it necessary to dwell here on their characters. I may, however, mention two others,—magnesian limestone or dolomite, and gypsum. *Magnesian limestone* is composed of carbonate of lime and carbonate of magnesia; the proportion of the latter amounting in some cases to nearly one-half. It effervesces much more slowly and feebly with acids than common limestone. In England this rock is generally of a yellowish color; but it varies greatly in mineralogical character, passing from an earthy state to a white compact stone of great hardness. *Dolomite*, so common in many parts of Germany and France, is also a variety of magnesian limestone, usually of a granular texture.

*Gypsum*.—Gypsum is a rock composed of sulphuric acid, lime, and water. It is usually a soft whitish-yellow rock, with a texture resembling that of loaf-sugar, but sometimes it is entirely composed of lenticular crystals. It is insoluble in acids, and does not effervesce like chalk and dolomite, because it does not contain carbonic acid gas, or fixed air, the lime being already combined with sulphuric acid, for which it has a stronger affinity than for any other. Anhydrous gypsum is a rare variety, into which water does not enter as a component part. Gypseous marl is a mixture of gypsum and marl. Alabaster is a granular and compact variety of gypsum found in masses large enough to be used in sculpture and architecture. It is sometimes a pure snow-white substance, as that of Volterra in Tuscany, well known as being carved for works of art in Florence and Leghorn. It is a softer stone than marble, and more easily wrought.

*Forms of stratification*.—A series of strata sometimes consists of one of the above rocks, sometimes of two or more in alternating beds. Thus, in the coal districts of England, for example, we often pass through several beds of sandstone, some of finer, others of coarser grain, some white, others of a dark color, and below these, layers of shale and sandstone or beds of shale, divisible into leaf-like laminæ, and containing