shale, varying in thickness from three to six hundred feet. The compact strata of this bed are separated by softer layers, which readily disintegrate, and these form the exposed face of Mam-Tor, or the shivering mountain near Castleton. They are succeeded by a mass of grit, or conglomerate, with vegetable remains, which is worked for mill-stones; hence the geological name, *millstone grit*, by which it is distinguished. Above the grit are the regular coal strata, comprising sandstones of various qualities and often in exceedingly thin laminæ; indurated clay; ironstones, the nodules of which contain organic remains; and softer argillaceous beds, which being of a slaty structure, are called *shale*. Two of these layers of clay abound in fresh-water muscle-shells, of extinct species, and are termed *muscle-bind;* these bivalves very much resemble the *uniones* of the wealden (page 377). The total thickness is 1310 yards, which includes thirty different beds of coal, varying from six inches to eleven feet, and making the amount of coal about twenty-six yards. In the beds of limestone shale below the coal, there is a transition from marine calcareous strata, with animal remains, to fresh-water deposits, with terrestrial vegetables: this may have originated from occasional intrusions of freshes from a river.

The series above enumerated is often repeated; shales, clays, and sandstones occurring under different beds of coal, with a perfect similarity