A large number of interesting observations have also been made by geologists on the wear and tear that takes place on broken rock-material in the course of its transport by a river. Professor Daubrée demonstrated experimentally the effects of mutual abrasion. By subjecting fragments of granite and other rocks to artificial means of trituration and friction, he produced the rounded water-worn forms of pebbles and the fine sand and mud characteristic of river detritus. He also showed that the chemical action of the water appreciably contributed to the dissolution of the fragments. The deposition of the transported material over alluvial tracts at the entry of rivers into fresh-water lakes and the ocean, was fully and ably treated in the writings of De la Beche, Lyell, and Élie de Beaumont. And since the publication of the earlier works, the literature has been enriched by the special contributions of Delesse, as well as by the excellent exposition of the subject contained in the text-books of Geikie, De Lapparent, Von Richthofen, and others.

The speculative aspect of the invasions of the land by the sea had been frequently dealt with in the writings of the Greek and Roman philosophers. Careful historical records had also been kept of the more striking changes in the Mediterranean coast-lines. Von Hoff, in his account of the inroads made by the sea, embodied all the previously known data, both historical and scientific, regarding the mechanical action of breakers, tides, and currents in the erosion of a coast-line. New observations were added by De la Beche and Charles Lyell; and Oscar Peschel in his *Physical Geography* (1879) discussed the particular form of coastal outlines in their relation to the destructive action of breakers.

While Peschel's views of the action were based upon a supposed stationary condition of the coasts, Baron Richthofen brought new life to bear on the subject when he pointed out that the denudation of a coast may be going on contemporaneously with a movement of elevation or subsidence of the land (*China*, vol. ii., 1882). In the former case, the breakers of the retreating ocean can only erode a denudation slope parallel with the original outline of the beach, and the depredations of atmospheric weathering tend to rapidly produce an irregular appearance of the surface. As the movement ceases, a marine terrace is formed, or if several pauses occur at periodical intervals, a series of terraces is