

a powerful mechanical effect on the surface of the earth, carrying much sediment into water-courses, which unite to form brooks, rivulets, and finally, if the country be large, great rivers. Soft surface soil is thus easily carried away even in low countries, and in hilly and mountainous regions sands, coarse rounded gravels, and boulders, won from the adjoining rocks, are hurried onward; and thus it happens, that great valleys and ravines have often been formed in all parts of the world by running water, and by the long-continued attrition of stones driven onward by torrents over rocky surfaces. As the accumulated waters of rivers reach low lands, their power of transporting coarse sediment decreases, and finally, in great rivers, like the Rhine, the Nile, the Amazons, the Mississippi, and the mighty rivers of China, India, and Northern Asia, all but the finest sediment is deposited long before they reach the sea.

On a smaller scale the same kind of phenomena are obvious in such English rivers as the Thames, the Severn, the Ouse that flows through York, and the Clyde and the Tay, in Scotland. Every river, in fact, carries sediment and impurities of various kinds in suspension or held in solution, and this matter, having been derived from the waste of the lands through which rivers flow, is carried to lower levels. Thus it happens that when rivers empty themselves into lakes—or, what is far more frequently the case, into the sea—the sediments which they hold in suspension are deposited at the bottom, and, constantly increasing, they gradually form accumulations of more or less thickness, generally arranged in beds, or, as geologists usually term them, in strata. Suppose a river flowing into the sea. It carries sediment in suspension, and a layer will fall over a part of the sea-bottom, the coarser and heavier