

current The shape of the fragments greatly affects their portability, when they are too large and heavy to be carried in mechanical suspension. Rounded stones are of course most easily transported: flat and angular ones are moved with comparative difficulty (see p. 653). (c) Pure water will retain fine mud in suspension for a long time; but the introduction of mineral matter in solution diminishes its capacity to do so, probably by lessening the molecular cohesion of the liquid. Thus the mingling of salt with fresh water causes a rapid precipitation of the suspended mud (p. 673). Probably each variety of river-water has its own capacity for retaining mineral matter in suspension, so that the mere mingling of these varieties may be one cause of the precipitation of sediment.¹⁸⁷

Besides inorganic sediment, rivers sweep seaward the remains of land-animals and vegetation. The great rafts of the Mississippi and its tributaries are signal examples of this part of river-action. The Atchafalaya has been so obstructed by driftwood as to be fordable like dry land, and the Red River for more than a hundred miles flows under a matted cover of dead and living vegetation. The Amazon, Ganges, and other tropical rivers furnish abundant examples of the transport of a terrestrial fauna and flora to the sea. Minute forms of life sometimes constitute a considerable proportion of the so-called "solid impurity" of river-water. The mud of the Ganges, for instance, is esti-

¹⁸⁷ T. Sterry Hunt, Proc. Boston Nat. Hist. Soc. 1874; W. Durham, Chem. News, xxx., 1874, p. 57; xxxvii., 1878, p. 47; W. Ramsay, Quart. Journ. Geol. Soc. xxxii., 1876, p. 129; C. Barus, Bull. U. S. Geol. Surv. No. 36, 1886; Thoulet, Ann. Mines, xix., 1891, p. 5. In this last memoir M. Thoulet concludes as the result of his experiments that the precipitation of clays takes place in fresh water which has had an addition of ten per cent of sea-water (and consequently of density equal to 1.002) exactly as in pure sea-water, and that this observation furnishes a measure for determining the true limits of the ocean and the continents.