

tallization of silicates observed during the "Challenger" expedition is possibly also to be connected with the action of organic compounds (p. 770). The formation of flint concretions has been for many years a vexed question in geology. The constant association of flints with traces, more or less marked, of former abundant siliceous organisms seems to make the inference irresistible that the substance of the flint has been precipitated through the agency of these creatures. The silica has first been abstracted from sea-water by living organisms. It has then been redissolved and redeposited (probably through the agency of decomposing organic matter), sometimes in amorphous concretions, sometimes replacing the calcareous parts of echini, mollusks, etc., while the surrounding matrix was, doubtless, still a soft watery ooze under the sea.³⁸⁹

§ 4. Man as a Geological Agent

No survey of the geological workings of plant and animal life upon the surface of the globe can be complete which does not take account of the influence of man—an influence of enormous and increasing consequence in physical geography; for man has introduced, as it were, an element of antagonism to nature. Not content with gathering the fruits and capturing the animals which she has offered for his sustenance, he has, with advancing civilization, engaged in a

³⁸⁹ See Wallich, *Q. J. Geol. Soc.* xxxvi. p. 68; Sollas, *Ann. and Mag. Nat. Hist.* 5th series, vi. p. 437; and ante, pp. 247, 811; *Brit. Assoc.* 1882, sects. p. 549; Hull and Hardman, *Trans. Roy. Dublin Soc.* new series, 1878, vol. i. p. 71. Julien observes that a substance corresponding to humus appears to enter universally into the constitution of the oceanic oozes, resulting from the decomposition of organisms and containing a high percentage of silica (*Proc. Amer. Assoc.* xxviii. p. 359). Consult also the paper of Messrs. Murray and Irvine already cited (*Proc. Roy. Soc. Edin.* xviii. 1891, p. 229) and the suggestive experiments there described as to the solution of silica in sea-water containing living and dead organisms.