

lation of certain strata, accompanied by the sudden destruction, not only of testacea, but also of the higher classes of the then existing inhabitants of the seas. We have analogous instances of sudden destruction operating locally at the present time, in the case of fishes that perish from an excessive admixture of mud with the water of the sea, during extraordinary tempests; and also from the sudden imparting of heat, and noxious gases, to water in immediate contact with the site of submarine volcanoes. A sudden irruption of salt water into lakes or estuaries, previously occupied by fresh water, or the sudden occupation of a portion of the sea, by an immense body of freshwater from a bursting lake, or unusual land flood, is often fatal to large numbers of the inhabitants of the waters thus respectively interchanged.*

The greater number of fossil fishes present no appearance of having perished by mechanical violence; they seem rather to have been destroyed by some noxious qualities imparted to the waters in which they moved; either by sudden change of temperature,† or an admix-

* See account of the effects of an irruption of the sea into the freshwater of the lake of Lowestoffe, on the coast of Suffolk. Edinburgh Philosophical Journal, No. 25, p. 372.

† M. Agassiz has observed that a sudden depression to the amount of 15° of the temperature of the water in the river Glal, which falls into the lake of Zurich, caused the immediate death of thousands of Barbel.