ate at the bottom of the Coal-measures—to be copiously saturated with brine; and in the lower peninsula of Michigan, the Marshall sandstones at the bottom of the Carboniferous system are a reservoir of saline accumulations. Still lower, the American geologist finds the Salina group of the Upper Silurian system the source of supplies of brine throughout a wide extent of territory.

The attempt has been made to explain the existence of saliferous and gypsiferous deposits by reference to chemical reactions transpiring subsequently to the solidification and upheaval of the strata; but I am led to regard the presence of sulphuric acid and other chemical constituents of gypseous and saliferous formations as products of the decomposition of previously existing gypsum and salt, rather than the agents employed in the present generation of them.

The body of water in which the saliferous materials accumulated may have been a bay or sea having imperfect communication with the ocean. Under ordinary circumstances, the evaporation from the surface of the bay would exceed the supply from atmospheric sources, and there must arise, consequently, a gradual influx of sea-water from the ocean. The bay-water would finally reach such a state of condensation as to begin to precipitate its least soluble constituents. These would be mingled with the ordinary sediments and *débris* of saline waters. This process continuing, the condensation would reach, in succession, those stages at which peroxyd of iron, gypsum, common salt, and Epsom salts would be crystallized and deposited around the shores and bottom of the bay, and mingled with the argillaceous mud brought in by the influx of surface waters. These substances are all constituents of sea-water. In course of time, the bottom of the bay may have been converted into dry land through the course of continental ele-