http://geology.19thcenturyscience.org/books/1893-Dawson/README.htm



times contains marine shells, or passes into marine clays in its horizontal extension, and invariably in its embedded boulders and its paste, shows an unoxidized condition, which could not have existed if it had been a subaërial deposit. When the Canadian till is excavated and exposed to the air, it assumes a brown colour, owing to oxidation of its iron, and many of its stones and boulders break up and disintegrate under the action of air and frost. These are unequivocal signs of a subaqueous deposit. Here and there we find associated with it, and especially near the bottom and at the top, indications of powerful water action, as if of land torrents acting at particular elevations of the land, or heavy surf and ice action on coasts, and the attempts to explain these by glacial streams have been far from successful. A singular objection sometimes raised against the subaqueous origin of the till is its general want of marine remains; but this is by no means universal, and it is well known that coarse conglomerates of all ages are generally destitute of fossils, except in their pebbles, and it is further to be observed that the conditions of an ice-laden sea are not those most favourable for the extension of marine life, and that the period of time covered by the glacial age must have been short, compared with that represented by some of the older formations.

It follows from all this that the great "continental moraine," which the United States Geological Survey has now "delineated for several thousand miles extending from the Atlantic to the Pacific," cannot be a glacier moraine, but must be, like its great continuation northward, the Missouri coteau, a margin of sea drift, and that we must explain the whole of the drift of the American continent by the supposition, first, of a period of elevation of the hills and subsidence of the valleys in which there were great accumulations of snow on the Western Cordillera; the Laurentian axis, and the Appalachians and Adirondacks radiating in every direction from these points, while