

northern Europe was covered with vast forests at the beginning of our era, how could we know this fact? What has become of the herds of wild oxen, the bears, wolves, and other denizens of the lowlands of primeval Europe? For unknown ages, too, the North American prairies have been roamed over by countless herds of buffaloes, yet, except here and there a skull and bones of some comparatively recent individual, every trace of these animals has disappeared from the surface.<sup>3</sup> How could we prove from the examination of the soil either in Europe or North America that such creatures, though now locally extinct, had once abounded there? We might search in vain for any superficial relics of them, and should learn by so doing that the law of nature is everywhere "dust to dust."

The conditions for the preservation of evidence of terrestrial (including freshwater) plant and animal life, must, therefore, be always local, and, so to say, exceptional. They are supplied only where organic remains can be protected from air and superficial decay. Hence, they may be observed in lakes, peat-mosses, deltas at river-mouths, caverns, deposits of mineral-springs and volcanoes.

*a. Lakes.*—Over the floor of a lake, deposits of silt, peat, marl, etc., are formed. Into these, the trunks, branches, leaves, flowers, fruits, or seeds of plants from the neighboring land may be carried, together with the bodies of vertebrates, birds, and insects. An occasional storm may blow the lighter débris of the woodlands into the water. Such portions of the wreck as are not washed ashore again, may sink to the bottom, where they will, for the most part, probably rot away, so that, in the end, only a very small fraction of the whole vegetable matter, cast over the lake by the wind, is covered up and preserved at the bottom. In like manner, the remains of winged and four-footed animals, swept by

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<sup>3</sup> See Jules Marcou, "Lettres sur les roches du Jura," p. 103.