

Now in time of drought, when the immediate surface has become parched, moisture rises by capillary attraction from the nearest subterranean reservoir. Evidently the nearer this reservoir to the surface, the more easily and rapidly its alleviating effects will reach the suffering roots of vegetation. So far as I can perceive, the soils of regions circumstanced as I have supposed must be doomed to irremediable sterility.

The epoch of the last emergence of the land was the time when the precise drainage features of modern times were determined. The great undulations of the surface which determine the principal water-sheds depend, it is true, upon the conformation of the rocky crust, and probably existed nearly as they now exist in the age anterior to the reign of ice. But all the subordinate details of the drainage were executed while the continent was rising from its last ablation. There was a time when the descent of the Mississippi was so gradual that the waters spread out many miles, and, like a vast bayou, filled the valley between the bluffs which bound to-day its alluvial bottom. This is the condition of the Amazon in the existing epoch. As the interior of the continent became more elevated, the currents of the rivers became swifter and narrower. Many river-channels, obliterated by the agency of the glacier, and, farther, by the blending and leveling of the submerging waves, could not again be found when the continent was restored. The new-formed streams were obliged to seek out new paths, and dig new outlets to the sea. The ancient gorge of the Niagara had been obliterated, and, when the labors of that stream were resumed, a slight change in the configuration of the surface turned the current from "the whirlpool" farther to the east than before. On reaching, near Lewiston, the brow of the escarpment which then formed the head of the great Laurentian estuary, it missed its an-