

great attention has been paid within the last quarter of a century to the planting of trees upon the steep bare hillsides; and it has been found that the fall of water has almost doubled since the time when Napoleon was a conqueror there. The reason seems obvious. The temperature of trees, in hot climates, is always lower than that of the surrounding atmosphere. The winds, loaded with moisture exhaled from the ocean over which they have past, sweep over the island. The trees condense this, and it is deposited in dew or rain. Still more remarkably is this shown by the famous fountain trees on Ferro, one of the Canary Islands. So great is their condensing power that they seem to be always wrapped in a vapory cloud, and the moisture collects in drops upon the leaves, trickles down the branches and stems, and collecting into a reservoir at their feet, forms a perpetual fountain. It is a repetition on a larger scale of the phenomenon which occurs when a jug of iced water is brought into a heated room.

We have of late years heard much of drought and consequent famine in the Cape de Verd Islands. The soil is of a peculiarly porous nature, and therefore requires a constant supply of moisture as an indispensable condition of fertility. For a long time the climate has been constantly growing less and less humid. The Socorridos, the largest river in Madeira, formerly had a sufficient depth of water to float timber down to the sea. It is now a mere rivulet, whose waters, except in flood time, are scarcely discoverable as they trickle along its pebbly bed. This diminution of moisture can be traced directly to the destruction of the forests that formerly covered the mountain sides. The Portuguese government were early aware of this, and laws were framed prohibiting the cutting down of trees near springs and sources of streams. But timber was valuable, and the land was wanted for vineyards. Portuguese laws were powerless against the demands of immediate interest. So the trees were cut down, the springs failed, and fountains dried up. Hence came drought, famine, and destitution. Present gain must sometimes be purchased by future loss. It is not good policy to kill the goose that lays the golden eggs.

Trees regulate the supply of moisture in many ways, even where we can not suppose that they affect its absolute amount. The evaporation from their leaves is considerable, and this, diffused through the atmosphere, is wafted over wide tracts of country. They shelter the ground beneath them, and thus prevent the water that falls from being carried off by evaporation, allowing it to penetrate the earth, keeping the springs and fountains in perpetual flow in the driest seasons. Their roots and interlacing fibres penetrate the soil, preventing it from being washed away by sudden showers, and forming a sort of sponge that absorbs the water, and gives it out slowly and uniformly, thus equalizing its flow, preventing droughts on the one

hand, and floods on the other. When the forests on hillsides and ravine slopes are cut down, the rain slides off from them as from a roof. A sudden shower swells every rivulet into a torrent. Every tiny brook pours its accumulation at once into the rivers, whose channels are inadequate to carry off the sudden accession, hence disastrous inundations, followed at short intervals by low water. The supply of water that should have been distributed over weeks is exhausted in hours. That which should have bubbled up in springs and flowed through rivulets, making the meadows green, is carried at once through the great rivers to the ocean, to be again taken up by evaporation only to go again through the same round. The volume of the great rivers, the Danubus, the Mississippi, the Niles, the Rhines, and the Connecticut may undergo no change from age to age; for they derive their waters from a wide extent of country, and droughts in one section are balanced by showers in another. But the smaller rivers diminish, the rivulets dry up, and the springs fail, except immediately after rains, when they are greatly swollen. Thus by the operation of one law, the destruction of forests causes the two opposite evils of floods and droughts.

Humboldt appears to have been the first to call public attention to the probable consequences of the destruction of forests. In 1800 he visited the Lake of Valencia, in South America. By careful observation he found that, in the course of the preceding century, the level of its waters had fallen five or six feet, and its shores had receded a number of miles. The neighboring mountains, he says, had been formerly covered with dense forests, and the plains with thickets and trees. As cultivation increased, the trees were cut down, evaporation from the surface was accelerated, the springs and fountains dried up, and the shores being low and flat, the surface of the lake rapidly contracted. Some years after his visit, the War of Liberation broke out; men betook themselves to fighting instead of farming; the tropical vegetation, no longer kept in check by man, again overspread the hills and plains. The rain-water, no longer taken from the surface into the atmosphere, sought out its ancient fountains; the rivulets reappeared, the waters of the lake began to rise and overflow the plantations that had been formed upon its banks.

It is a well-known fact, that the lakes in the valley of Mexico have lately contracted since the old Aztec times. The city of Mexico occupies its ancient site, but it is now some distance in-shore instead of on an island, as formerly. This is to be ascribed to the felling of the forests that formerly clothed the adjacent hills. In the mining district of Popayan it had been observed that the streams which put in motion the stamping-mills were diminishing in volume from year to year, although observations showed that the fall of rain had not diminished. Still that which found its way to the wheels of the stamping-mills