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#### WHAT WE OWE TO THE TREES.

We continue our extracts from Mr. N. H. Egleston's paper in the April number of *Harper's Monthly Magazine*:—

##### DIMINISHED RAINFALL.

Humboldt is reported as saying: "Men in all climates seem to bring upon future generations two calamities at once—a want of fuel and a scarcity of water." The two come alike from the destruction of the forests, as a little consideration will show:—

The importance of water for successful agricultural operations has always been understood. It is only within a comparatively recent period, however, that the relations of the forests to the water supply and its distribution have been ascertained, and they are not understood even now. Enough is known, nevertheless, to warrant some very important conclusions. It is well established that the forest, except in winter, is cooler than the open ground. There will naturally, therefore, be more condensation and precipitation of the moisture of the atmosphere in a wooded region than in one destitute of trees. The lower temperature of the woods will also make itself felt for some distance above the trees, and tend to precipitate the moisture of the higher air. Then, also, without making anything of a somewhat extended popular belief that the forests, especially when situated upon hills and mountains, draw the clouds and the rain, we can see that elevated forests would act as an impediment to passing clouds, and by their very obstruction tend to condense their moisture and cause its precipitation. This effect of the forests will not be limited to their own area, but will extend more or less to the open ground beyond them, causing the rain to fall upon them for a considerable distance, when but for the vicinity of the forest they might not have been touched by it. An eminent scientific writer states that in a region near the Gulf of Guayaquil, which is covered with immense forests, the rains are almost continual. So on the island of St. Helena we have the double proofs of our problem in the ascertained fact, that with the cutting off, some time ago, of the forests with which it abounded, the rains were lessened, and certain crops greatly diminished, and now, in later years, as the woods have been allowed to grow again, the rains have increased in proportion. Sir John Herschel, speaking of this subject, says: "This is no doubt one of the reasons of the extreme aridity of Spain. The hatred of a Spaniard toward a tree is proverbial. Many districts in France have been materially injured by denudation, and, on the other hand, rain has been more frequent in Egypt since the more vigorous cultivation of the palm-tree." The Island of Santa Cruz, near Santa Barbara, was once heavily timbered, and sustained a dense population. Now it is almost destitute of trees, except on the highest summits. It has no water, and gives no return to the husbandman. "It is

impossible," says one, "to conceive a more dreary waste."

Near the close of the last century a lake in the valley of Araguay, in Venezuela, was observed to be lessening in area as the settlements in the valley and its cultivation increased. A civil war broke out in that region, which led to the neglect of agriculture, and allowed the forest-vegetation again to spring up. It was observed a quarter of a century later that the lake was resuming its former size. So it has been observed that since the settlement of Utah, and the reclaiming of the land by the Mormons, and the growth of trees, shrubs, and grasses, the water in Great Salt Lake and other lakes around has been very much increased, and the climate perceptibly changed.

We have few trust-worthy and exact observations on this point in our country. In Europe they are more abundant. The river Elbe between the years 1787 and 1837 was found to have lessened a depth of ten feet, as the result of the cutting off of the forests whose tributaries of that stream have their origin. A similar result has been found in the case of the Danube, the Oder, and other streams.

##### FLOODS AGGRAVATED.

In Europe and elsewhere in the Old World the most fearful losses from the removal of the forests are frequently incurred. Witness the flood which in 1880 desolated Szegedin, in Hungary, and that which last year took place in Spain—poor Spain, which long ago sunk in power because she had not timber enough in her wasted forests to keep alive her navy! So in France, and elsewhere along the Alps, in Germany, Austria, and Italy, they have learned by bitter experience that the trees are their best friends. In southeastern France whole cantons have been almost depopulated.

At Szegedin a population of 60,000 were overwhelmed by the waters of the Theiss. The Theiss district of Hungary is naturally one of the richest agricultural regions of the world. But it has long been known as a region of floods. The Theiss has its source in the Carpathian Mountains on the north. Formerly these were densely wooded, and they sent down their waters, whether rains or melting snows, into the valley of the Theiss with an even, steady flow. But the unrestrained greed and recklessness of man ravaged the forests, and opened those vast mountain flanks to sun and wind. The unimpeded waters first washed the soil of the mountains down into the stream below. Then wearing channels for themselves, they have cut these channels deeper and deeper from year to year, and as they have done so, they have torn the mountain-side with greater violence, and swept the rocks and gravel onward with resistless power for hundreds of miles. Thus the bed of the Theiss has been gradually filled up with the detritus of the upper country, until the river flows on a higher level than the adjacent land,

and the inhabitants have been obliged to dike the sides of the stream as the price of their own protection from ruin. But now and then the ruin comes, as at Szegedin, when the torrents which have hurled the debris of the mountain sides upon the fertile fields of the valleys below. In one district the population declined 5,000 in five years from this cause, the people being driven from their former homes and obliged to take up their residence elsewhere. But where this has not been the result, the almost yearly recurring floods have been attended with great loss of property and the sacrifice of many lives. In a recent flood in the valley of the Garonne it was estimated that 1,000 lives were lost, and a place of 30,000 inhabitants was almost blotted out of existence, while property to the value of 300,000,000 francs was destroyed. These destructive effects of floods and torrents had been experienced in some measure for a long time. But with the more rapid clearing away of the forests, which dates from the time of the French Revolution in 1789, these evil effects had become more frequent as well as more disastrous. So far had this work of destruction and this real impoverishment of the people extended, and so threatening had become the prospect of farther and most serious national loss, that about thirty years ago the matter was taken in hand by the government, and vigorous measures adopted for the purpose of arresting the evil, if possible, and reclaiming the injured soil. Investigating commissions were appointed, and the most careful examinations were made by competent engineers and scientific experts, the result of which was the enactment of a code for reforesting the mountains. Under this code a large expenditure was authorized to be made annually by the government for a period of ten years, for the purpose of replanting those districts which had been stripped of their trees, and which had thereby given occasion to the torrents. The right of eminent domain was asserted. No one was now at liberty to remove at his pleasure the trees growing upon his own ground. He could cut them only under governmental direction and in a way that would not be injurious to others; for it was seen that some peasant, living high up in the Alps, and desirous of extending his pasture ground by cutting off the forests around him, might by so doing give rise to a torrent which would carry destruction to the fields of someone miles below, perhaps to the fields of a whole village.

Where the fields have been laid bare, the government offers aid to those who need it in replanting them. If any will not, with this aid, set about the work of replanting, the authorities having the work of reforesting in charge take possession of the lands and replant them. The owner has the right of redeeming his land at any time within five years after the replanting by the government has been completed, on condition of paying the cost of the labor expended,

principal and interest, or by surrendering half of his land. In case this is not done, the land becomes wholly the property of the government.

#### THE FORESTS OF SIBERIA.

Some examinations have recently been made by exploring parties of the character of the immense forests of Siberia. The most important timber stretch begins a little south of Dudinka, and still far north of the arctic circle the pines become tall. Here is a veritable forest, the greatest the earth has to show, extending with little interruption from the Ural to the sea of Ochotsk, or about 650 miles, and four times as much from east to west. This primeval forest of enormous extent is nearly untouched by the axe of the woodman or cultivator, but at many places devastated by great forest fires. The forest consists principally of combro pine, valued for its seeds, enormous larches, the nearly awl-shaped Siberian pine, the fir, and scattered trees of the common pine. Most of the trees north of the arctic circle reach a colossal size, but one is often found far isolated from all others, grey and half dried up with age. The ground between the trees is covered with a labyrinth of fallen branches and stems, which are frequently covered and almost concealed by luxuriant beds of mosses. The pines therefore lack the shaggy covering common in Sweden, and the bark of the birches scattered through the pines is distinguished by an uncommon blinding whiteness.—*Northwestern Lumberman.*

#### A Heavy Timber Growth.

A critical examination was recently made of a tract of timber land, in the Samish section of the Puget Sound, W. T., region, including 160 acres. The parties making the inspection went entirely over the tract, counted the trees and computed their contents, and the estimate reached 12,000,000 feet of sawed merchantable lumber, or an average of 75,000 feet per acre. The stumpage at present is worth 50 cents a thousand, but the time will come, and that at no distant day, when it will be worth \$2 to \$3. The value of Puget Sound timber land will then make speculators wish they had bought some of it when it was cheap.—*Northwestern Lumberman.*

#### Big Cedar.

Messrs. T. W. Robinson and others have been for some time past taking out cedars for the Midland Railway of Canada. The principal scene of their operations has been the township of Smith. They have secured some fine pieces, but a log taken out by Mr. Garner Nicholls, of Bridgenorth, on the farm of Mr. J. C. McConkey, undoubtedly carries of the palm. The log in question is 24 feet long and 27 inches at the top end. It contains 790 cubic feet. It is the largest of over 15,000 pieces taken out by the firm.