VALUE OF MOUNTAIN FORESTS.

The first and most important function of mountain forests is the preservation of the mountains themselves by clothing them with soil. The relation of mountain forests to the soil out of which they grow is curious and interesting. The soil now produces the trees, but the forest has produced the soil which now nourishes it. There was a time when there was no soil on the mountains of New Hampshire, nor on any portion of the Appalachian System—when the mountains were only ridges, slopes and summits of bare rock. They were composed wholly of mineral substances, of matter entirely inert and incapable of supplying food to vegetable organisms. There was not an atom of soil on the rocks of the whole region, and no vegetable growth of any kind. Then when conditions permitted, Nature began a new order of things here with some of the lowest forms of vegetable life, resembling the lichens of our time. Some of these could grow here and there on the rocks, and whatever could grow would die and decay, but would not wholly perish. Some slight particles of its fiber or substance would remain undestroyed through all the changes of decomposition, and in the course of centuries or thousands of years a thin film of soil was accumulated here and there sufficient to nourish vegetation of a little higher character and organization than had belonged to the pioneer organisms.

How great the distance from that far beginning to the first trees! And very poor and inferior trees the earliest ones were, when they did appear, compared with those which make our forests now; but they were the best that the still scanty soil would sustain. Ever since the leaves of the first trees began to fall the trees have been slowly adding to the deposit of soil which now covers the rocks, and which has reached the depth and productive potency required to sustain the noble forests of our own time.

The great stratum of fertile, life-producing soil which now lies folded around the shoulders of the hills is the result and accumulation of patient ages of dendral toil. Nature has wrought incessantly, through mighty cycles of time, to clothe the desert rocks with life and beauty, and in the untainted air of these lofty slopes and plateaus she now grows forests which are like the columned aisles of vast cathedrals. Ships which cleave the waves of every sea, and the cottages and palaces of mighty cities, with myriads of structures for man’s varied industries, have been built of the materials supplied by our mountain forests. The superior quality of the timber now grown, and the vast quantities in which it is produced, are effects of the wonderful fertility which the soil has attained. It is richer than ever before, but it has not reached the limit of possible productiveness. There is no such limit, indeed, and if our mountain forests were rightly managed they would forever increase in fertility and the quality of their timber would be thereby gradually improved.

A forest is the only crop, so far as I know, which can be produced perpetually on the same ground without diminishing in any degree the fertility of the soil. It is a remarkable fact that a forest not only does not impoverish the soil out of which it grows, but that it actually enriches it. As the soil is thus improved it responds by producing superior timber. A mountain forest would yield better timber, and more of it, at the end of a thousand years of proper management than at the beginning and proper management means and includes the cutting of every tree when it reaches its best estate.
Farming in Mountain Regions.
The entire effort at farming in mountain forest-regions in this country is often a most destructive and suicidal mistake. Much of the ground that has been cleared for cultivation in such regions is so steep that if forest-conditions are once destroyed upon it the soil is certain to be washed away. It has always been manifest to intelligent observers that such land is suited to the perpetual production of timber, and of that crop alone. In many instances in our state land has been cleared and “farmed” with very slight returns which would be much more valuable than it now is if it were still clothed with forest. The yield of farm products in such cases is scanty and uncertain. In some places the land is too high and cold for successful cultivation. There are frosts late in spring and early in autumn, and sometimes in every month of the brief summer, and the soil is soon exhausted. It would be difficult to find anywhere an instance of more obvious natural adaptation to a particular function than our whole mountain forest-region exhibits in its fitness for permanent beneficial use after forest-conditions have been fully destroyed. It would have been much better if some of our “abandoned farms” had never been cleared. In some parts of our country vast values have been permanently blotted out by clearing and cultivating mountain land, and those states will be poorer for all time to come by reason of the resulting destruction and removal of the soil of considerable areas of their mountain regions.

Ruin by Fire.
The most fatal agency in destroying the soil of a mountain forest-country, and in wrecking the mountains themselves, is that of fire, and in the history of most mountain forest-regions the operation of this agency has been closely connected with the attempts to cultivate the soil to which I have just referred. In various regions of the Appalachian mountain system many of the farms have been cleared simply by burning the timber and brush left on a tract after it has been lumbered over, and the first crop is planted in the ashes. In a few years the soil is exhausted or washed away, and the farmer goes a little farther up or down the valley, or across the stream which runs through it, and repeats the operation. But the injury to the mountains which is caused by the destruction of the soil of these limited tracts which have been cleared for cultivation is trivial when compared with the losses which have resulted from the forest-fires having their origin in these clearings.

When we consider the rapidly increasing density of the population of our country, and the great advance in the value of all fertile lands, especially in the eastern states, it is obvious that the complete destruction of the soil of any considerable area is a very serious matter. There are few kinds of losses or misfortunes affecting property which are so calamitous as this. It is a crime against posterity, a permanent subtraction from the wealth and the capabilities of the country. The soil is, to a very great extent, the country itself. A burned city can be rebuilt, and the system of insurance distributes the loss widely. But there is no insurance on the soil of our mountain forests, and when it is once thoroughly burned it will require mighty cycles of time to restore it. Its producing capacity for ages, and all the “promise and potency” of a perpetual succession of valuable crops, are at once reduced to nothingness.