

## FORESTRY

Essay by Miss Annie Atkinson, at the Ocala High School Graduating Exercises May 22, 1908

Forestry is not a new subject. Two thousand years ago it was discussed and has been studied and applied ever since. The sources of forestry do not vary but depend upon natural laws, which are being carried out all the time. Mr. Cleveland, Jr., suggests that we take forestry as a yardstick with which to measure the height of a civilization. The foremost nation is the one that has pursued forestry most widely and systematically, and the nation that has overlooked it is termed "backward." With a little study it will be seen that those countries which have gone farthest in the use of forestry are the ones which may be the most prosperous, which have the least proportion of waste land, and which have the most promising futures.

The German empire today has nearly 35,000,000 acres of forest and has to import one-sixth of all the wood she uses, making a considerable drain upon her neighboring countries. Nearly two thousand years ago she felt the need of preserving her forestry, and now she leads in scientific thoroughness, and is increasing her profit annually. Half of a century has increased her money returns from an average acre of forest seven-fold and has protected agriculture and river systems.

France produces only one-third of her demand and the two-thirds imported amount to \$46,000,000. Two-thirds of the torrents of Europe are in France. In the Alps and Pyrenees mountains there are over one thousand mountain streams which are dangerous. Almost a million acres of mountain slopes are exposed to erosion by these streams and this does not take into consideration the flat lands. As far back as the 16th century there were certain laws prohibiting the cutting of forests, but during the French revolution those laws were swept aside and the mountain sides were cleared at such a rate that disastrous effects were felt within ten years. When 800,000 acres of farm land had been ruined and people had been reduced to poverty and forced to emigrate, attempts were made to check torrents by sodding instead of by forest planting, but were failures, and now forests are being planted and the money expended will reach \$50,000,000 before the work of reforesting for protection is complete. The sand dunes on the coast of France which covered 350,000 acres have been planted in forests and instead of being a constant threat to the farmers now are producing valuable crops of wood; 2,000,000 acres of marshes have been changed from a worthless condition into forest valued at \$100,000,000. In France forestry has, then, decreased the dangers from floods and dunes, which threatened to lay waste vast fields and has added millions of dollars to the national wealth.

Russia comprises two-thirds of the whole forest area of Europe and exports over \$30,000,000 worth of wood. She saw the necessity of forestry before the time of want had come, and was not forced into it for self-protection, as were Germany and France. She was convinced of their value by the lessons other countries learned by actual experience. Forests of natural growth, which hold shifting sands to protect the banks of rivers, canals and other waters, and prevent avalanches, are free from taxes, and forest-planting for that purpose is not taxed for thirty years.

Fifty-nine per cent. of the total area of Japan is under forests, and although Japan imports more timber than she exports, she exports over one million dollars worth of wood and four million of matches, and the annual revenue is now \$8,000,000. The management of Japanese forestry dates back to the time before the birth of Christ, and during the time of the early Christians forest planting on water-sheds to prevent floods was enforced. As a result, Japan alone among the nations began modern industrial progress.

China is the only civilized country which has destroyed her forests, without making an effort to replace them, therefore bringing upon herself two costly calamities—floods and water-famine. Her hills have been largely stripped of all vegetation and her soil is completely left to the mercy of the floods. Trees have been taken from every place possible, and no-

where in the world has the soil been so cleaned of forests. Without trees, water cannot be retained at the higher levels, therefore cannot be fed to the lower soils or to the springs. The result is that even on plains the water level is far beneath the surface to be used. Agriculture would be entirely impossible if it were not for irrigation and the terracing of hillsides by which the rains are made to wash the soil into small fields whose edges are propped up by walls.

Nearly one-third of Canada is forest, and her net exports of wood are over 2,000,000 tons a year, which is just twice that of the United States. Now, that all Europe is falling behind every year in the production of wood, the present indications are that the countries which lead as exporters of wood will have to cut short their supply. England, who has been depending upon foreign supplies of wood, and the leading importer of wood, will have to count more and more upon Canada.

When Columbus discovered America in 1492, the western hemisphere was practically a wilderness of boundless forests. No other part of the world equalled the beautiful and luxurious timber growth of this continent. While the settlers laid waste some of the timber to build their homes they burned millions of dollars worth of logs in the process of clearing the land for cultivation, and as the country grew westward, the "pioneer ax" continued the destruction of the forests, always cutting down and never replanting.

Nations, which now manage their forests on well laid principles have passed through four stages of forest experiences. First, forests were so plentiful as to be in the way, and were either neglected or destroyed. Second, as the borders of the forests receded from the settlements the question of local supply of wood had to be met, and the forests were either protected or spared. Third, the demand for wood and a better knowledge of forests and its growth led to the recognition of the forest as a crop, therefore must be replanted. Fourth, as progress led to measures for the general interest, including a wiser and less wasteful use of natural resources, the forest was protected and controlled so as to yield a constant annual income. The United States has the experience of all other countries to rely upon and the forest rules, which hundreds of years of actual practice have proved right, are at arm's length, and only have to be grasped.

During the year of 1906 forest work carried on by the states made greater advance than any previous year. About twenty-five states now have forest officers and ten have state reservations.

National forests are objected to by a great many people, who claim that as soon as a forest becomes national the industry of the region is checked, resources locked up, settlement prohibited and future growth made almost impossible. This decision is given when the real facts concerning them are not known. Some claim that they withdraw land from taxation, and if they were left to pass into private hands there would be more taxable property for the support of schools. The government pays no taxes, but it pays those counties in which the forests are located ten per cent. of all the receipts from the sale of timber. Taxes from private lands are temporary returns, because after the timber is used they are generally left to burn up and become vacant and barren, and are quite valueless for taxation. In 1906 the national forests paid the country school and road funds over \$175,000, and this amount will be greatly increased each year.

Mr. Humphrey of Mississippi says there are only three sources from which the national wealth is drawn, and they are the soil, the forests and the mines. To produce this wealth the soil must be made productive and the forest lands must be managed so as to produce a valuable crop each year. There are records where forests as large as the state of Rhode Island have been destroyed in a few days by fire. This means a loss of millions and millions of dollars. The preservation depends entirely upon the interest taken by the citizens. The evolution of this time changes all things, and every condition should be analyzed, and a problem solved that will bring the most good upon the whole country. Important as is the wood aspect of this question, the water aspect is more important. It has not yet been proven that forests increase the rainfall, but if they are de-

stroyed, drouths and likewise floods follow. Water runs down a barren, hard surface with a rush, all at once. It runs down a spongy, soft surface much more slowly, little by little, and the forest acts like a big sponge. It soaks up the water, checks it from rushing down all at once, and brings about an even flow during the whole season. Where the slopes are bare and the soil unprotected, the waters carry down with them great quantities of soil, gradually filling up the reservoirs and canals and causing immense damage to the irrigation system.

New England, destitute of mines and precious metals, and practically without agriculture, depends upon its forests, streams and manufactories. The latter grew up because of the water power, and these water powers are dependent upon the uniform flow of the streams. Cutting the forests seriously impairs the evenness of the stream flow, causing floods and drouths, and thereby threatening the well being, if not the very lives, of whole communities.

The utility of water-power in the south has been greatly increased for transmitting electricity, consequently electricity has become "the power behind the south."

The secretary of the American Forestry Association says that for the utilization of this power the forest, as a balance wheel to stream-flow, is absolutely indispensable. No system of reservoirs, however expensive, can more than supplement the forest, and in no way can it supply the forest's place. In both New England and the south, forest cutting has already seriously impaired the usefulness of water power. Millions of dollars of government money is thrown away in scooping out detritus, which should have been kept, through forests, in position upon the sides of mountains and in valleys. The best part of the soil is carried toward the sea. If this condition continues unchecked the resources of the government will soon be insufficient to the task of keeping channels and reservoirs clear.

J. Corrigan, Jr., says: "By employing the forces of nature the task can be accomplished, and instead of appropriating money to clear out obstructions in streams and deepen channels, the government should spend money in such a way that the streams would not fill up."

The classification of the different woods shows how sweeping has been the destruction. To what we used for hardwood twenty years ago is added anything that will saw up into a board.

The devastation of hardwood in the south is as great as the pine in the north. Stave-makers, tie-cutters, vehicles and machinery-makers have caused vast destruction. The prices of lumber have risen fifty per cent. during the past five years and is still rising. Last year nearly forty billion feet of lumber were cut, of which the railroads used one-third. Our standing timber is estimated to be somewhere between fourteen hundred and two thousand billion feet. If forty billion are used annually it will last between thirty-five to fifty years. What will the country have to offer to the coming generation when all of the trees are gone? In a few years large quantities of lumber will be imported into this country and the import duty alone will be in excess of the price of lumber now.

A bill was introduced in congress last winter, the purpose of which was to make a forest reserve of the important water-shed part of the Appalachian system. The constitutionality was denied by Representative Bartlett of Georgia, and it was held up by Speaker Cannon because the speaker said he was afraid of the immense cost. He certainly does not realize the tremendous need of his own country.

The trees destroyed, the law runs this way: "Shrubs, heat, sandbars, drouth, desert, poverty!" Trees saved, it runneth thus: "Trees, moisture, streams, rain, loam, harvesting, men!"

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