



PUBLISHED
SEMI-MONTHLY.

The only Newspaper devoted to the Lumber and Timber Industries published in Canada

SUBSCRIPTION
\$2.00 PER ANNUM

VOL. 4.

PETERBOROUGH, ONT., AUGUST 15, 1884.

NO. 16.

FORESTAL EXPERIMENT STATIONS.

The following is a part of a paper entitled "Our next problem," read by Adolph Leue, Secretary of the Ohio State Forestry Association, at the Convention of the Ohio State Forestry Association, held in Cincinnati, April 25, 26, 27, 1883:—

The great importance of exact experiments in forestry, was felt by two German foresters, Hundshagen and v. Wedekind, as early as 1826, in which year the latter proposed the organization of a society for forestal experiments, but, as the proposition was not sufficiently endorsed, it was dropped for the time being. Several subsequent attempts to institute comparative experiments failed, until 1868, when, on 31st of August, at a Congress of German foresters, held at Vienna, a committee, consisting of Gustav Heyer, Franz Bauer, Ernst Ebermayer, Fr. Fudich, and J. Wessely, was appointed to consider the question: On what plan such forestal experiment stations should be organized. This committee met on 22nd of November of that same year, agreed on a plan of organization, and questions to be subjected to investigations and experiments. The report was adopted by the German Foresters' Congress, and submitted to the several governments, which were to bear all the expenses of these stations.

The first station was organized in Baden on 16th April, 1870—Saxony, Prussia, Wurtemberg, Austria, Bavaria, Brunswick and Hesse, followed in the order mentioned. The stations in all of the just named states, with the exception of Austria, which has an organization of its own, have formed a union called "The Association of the German Forestal Experiment Stations."

The great aim of these stations is, to furnish a scientific foundation for a rational management of forest, based upon exact experiments and careful investigation. They are intended to determine the significance of forests in the economy of nature, to try the various methods of forest management, to examine the advantages which one method may have over another, and, finally to establish a plan of forest administration, which will enable the owners of forests to realize the greatest possible profit from forests, and at the same time reduce the expenses of their administration.

Among the many problems to be solved through the agency of these stations, are the following: to determine the influence of forests upon soil and climate; to investigate the relative value of the several methods of thinning; to establish reliable tables of increase, and methods of valuing forests; to study the foes of the forest, both animal and vegetable, and to devise means of successfully combating them; to determine the value of forest litter upon the growth of trees; to test the relative value of forest implements; the devise new methods of

obtaining forest products, and to find new uses for the same; in short, they are intended to furnish the means by which to increase the wealth of the owners of forests, and thus that of the entire country, and to furnish legislative bodies with the foundation necessary for a just taxation of forests, and for a wise and beneficent code of forest-laws.

To fully appreciate the thoroughness of manner in which the work of solving these problems is performed in Germany, a glance at the organization of the Forestal Experiment Stations in that country, will be of some advantage.

These stations are State institutions, connected with schools of Forestry.

In Prussia, with the Forest Academy at Eberswalde.

In Bavaria, with the University at Munich. In Saxony, with the Forest Academy at Tharandt.

In Wurtemberg, with the University at Tubingen.

In Baden, with the Polotechnicum at Karlsruhe.

In Thuringia, with the School of Forestry at Eisenach.

In Hesse, with the University at Giessen.

As all these stations are, with only some immaterial differences, organized on the same general plan, and as the examination of but one will answer our present purpose, I would now ask your attention to the organization of that in Prussia:

According to an ordinance issued by the Minister of Finance, on the 14th of March, 1872, the Forestal Experiment Station of Prussia was organized, and connected with the Forest Academy at Eberswalde, and placed under the control of the Central Forestry Division of the Ministerium of Finance. This station consists subjectively of five divisions, namely: a forestal, a chemicophysical, a meteorological, a vegetable physiological, and a zoological; locally it consists of the chief station at the Forest Academy, and a number of secondary stations in appropriate Chief Forest apportionment. The chief station embraces all of these five divisions, while the secondary stations have either a forestal and meteorological, or only one of them.

The general superintendence of the experimenting is vested in the director of the Academy, who acts as Commissary of the Central Forestry Division. He makes all the estimates of the expenses for experimenting, and, after due consultation with the chiefs of the several divisions, determines what experiments are to be undertaken and how they are to be made. At the end of the fiscal year, he submits, in an annual report to the Central Forestry Division, the result of the work done at the station.

Each of the afore-named five divisions has its chief, whose only duty is to carry out the work

assigned to his division. Yet, according to the magnitude of the work, he has one or more assistants.

The secondary or sub-stations, which are unlimited in number, are under the direction of the chief forester, in whose division they are located. The importance of these sub-stations can not be estimated too highly. The problems assigned to them are, as a rule, of an exceedingly great practical value to practical forestry. In order to obtain reliable results, only the most competent and conscientious of the Chief Foresters are selected for making the experiments, which are performed after certain definite plans.

The expenses of maintaining the Experiment Stations in Germany, vary greatly, but always in proportion to the forest area of the respective State. For the year ending '882 the expenses of the

Station in Prussia, amounted to 27,000 marks—\$7,750.

Station in Bavaria, amounted to 44,000 marks—\$11,000.

Station in Saxony, amounted to 14,000 marks—\$3,500.

Station in Wurtemberg, amounted to 7,000 mark—\$1,500.

The entire amount of money expended for the maintenance of Forestal Experiment Stations in Germany, amounts to about \$30,000 annually.

These stations have, as already stated, formed an association whose great aim is to facilitate the objects of experimental forestry, by joint plans of experimenting, by a proper division of labor, and by publishing the comparative results. The business management of this association has been confided to the Station at Eberswalde.

I cannot dismiss this subject without having alluded to the plans of labor, or the manner in which the experiments are conducted. A detailed account of these experiments would lead too far; I shall therefore confine myself to the main features of but two.

EXPERIMENT WITH FOREST LITTER.—The aim of this experiment is to determine the objective value of forest-litter, and its value to the growing forest. In order to obtain reliable results, the experiment is now being made at a number of stations in various parts of Germany. A tract of a forest section of five acres, stocked with only one kind of trees, which are all of the same, or nearly the same, age, is selected. This area is divided into five equal parts, which are laid out in squares.

From part I., no litter is removed.

" " II., litter is removed annually.

" " III., litter is removed every 2nd year.

From part IV., litter is removed every fourth year.

From part V., litter is removed every sixth year.

This process is continued for a period of about fifty years. The object of this method is.

1. To ascertain the exact quantity of litter which one acre produces, which is done by actually weighing it, first at the time when taken from the ground, and then when it is perfectly dry. It then sold at market price, and the amount obtained credited to that part of the experimenting area from which it was taken. 2. To ascertain the influence which the removal of litter has upon the increase of wood, which is determined by a repeated accurate invoice of the growing wood.

The significance of litter to the growing forest has long been felt, but never before in the history of Forestry, has this question been subjected to so rigid a process of investigation, which is certainly well calculated to settle the forest-litter problem.

EXPERIMENT IN THINNING.—Though we in this country have practised thinning to an alarming extent, it is nevertheless a subject on which we are badly in need of more light. With a few exceptions, the American idea of this part of forest management has been very ruinous to our country, in that, in many instances, it has left nothing that could remind us of a forest, except stumps of trees and a barren soil.

The object of experimenting in this part of forest management, is to determine the influence of the various modes of thinning upon the growth of individual trees, and to find out the difference in the production of wood. An area of about three acres is selected, and divided into three equal parts.

In part I., only the dead trees are removed.

In part II., also the defective are removed.

In part III., every tree that does not keep up with the average growth is removed, so that in this part none but choice specimens are met with.

In newly formed plantations the process of thinning is repeated every fifth year, and later every tenth year. In forests consisting of oaks, or beeches, or pine trees, the experimenting period lasts fifty years, while but forty years are required for the softer kinds. An accurate record of the quantity of wood obtained at the different thinnings of each section is kept. After each thinning an invoice of the remaining trees is taken, and recorded. At the expiration of the experimenting period, when the final invoice is made, the most profitable mode of thinning must appear.

Other questions in forestry are treated in the same thorough manner, and the results obtained thus far are very satisfactory, so that the Forestal Experiment Station are constantly growing in public favor.

THERE is one thing about a house which seldom falls, but never hurts the occupant when it does—that is the rent.—Texas Siftings.