

**THE SCHOOLS OF FORESTRY
AND INDUSTRIAL SCHOOLS
OF EUROPE, WITH OTHER
PAPERS**

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The schools of forestry and industrial schools of Europe, with other papers by B. G. Northrop

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B. G. NORTHROP

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INDUSTRIAL SCHOOLS OF EUROPE,

WITH OTHER PAPERS.

BY

B. G. NORTHROP,

SECRETARY CONNECTICUT BOARD OF EDUCATION.



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A few local allusions in these papers, reprinted from the Report of the Connecticut Board of Education for 1878, are retained to show the original aim of the writer, and the application of kindred plans and principles to other fields.

SCHOOLS OF FORESTRY.

The experience of Europe long since demonstrated the value and necessity of "Forest Schools" so numerous on the Continent. As these institutions are unknown in this country, a detailed statement of their aims and character will not only be of interest, but I hope, will help towards the organization of similar schools in America. In connection with either of our Colleges, the endowment of two additional professorships, or even one at the outset, might inaugurate a Department of Forestry. As the applied mathematics and the sciences comprise so large a part of the curriculum of Forest Schools, a Forest Department could very easily and economically be annexed to the Sheffield Scientific School, where the existing cabinets, laboratories and philosophical apparatus could be utilized in forestal instruction. The endowment of such a department would prove a great benefaction to the State and to the country, opening new fields of investigation which would bear directly on the ultimate resources and permanent prosperity of the country. The conclusions of foreign foresters, though confirmed by the broadest observations and experience in Europe, cannot all be wisely adopted in American Sylviculture. Difference in soil, climate, and other conditions may affect trees in regard to their rapidity of growth, health, durability of timber, texture, elasticity and grain of the wood, and many other qualities. These vital questions can be determined only by careful investigations carried on in each country. The Lombardy poplar, for example, sending out its almost upright laterals from the very ground all along its tall stem, grows beautifully in Italy, and is still a favorite with the Italians as of old with the Romans, who, it is said, gave it the name *arbor populi*. But in New England so many of its branches winter-kill that it soon becomes an unsightly collection of dead limbs.

Another object of my recent visit to the leading schools of Forestry in Europe was to gather the practical plans and suggestions embodied in my paper on "Economic Tree Planting," first published in the Report of the Connecticut Board of Agriculture, and thus help reclaim our ex-

hausted lands by tree planting. As these lands have been abandoned to hopeless sterility, and their reclamation has already been pronounced a visionary and impracticable scheme, I have shown that the experiment of reclaiming vast barrens in France, Germany, Russia, Austria, and other European countries has been tried with conspicuous success. What has been done on so broad a scale and with such grand results in Europe surely can be accomplished in the comparatively narrow barrens of the New England States.

Another purpose of my journey was to do something towards making our youth practical arborists by awakening a love of trees and an interest in their study and culture. From a wide field of observation, I tried to collect such facts as seem fitted to further the work of rural adornment, in which encouraging progress has already been made in our State. A few oral lessons in our schools on rural art, and especially on the beauty, variety and value of trees and the ease and ways of their propagation, would be as good seed sown in good ground bringing forth fruit an hundred fold. Very little time would be required for those school talks which would be sure to inspire an interest in the study and culture of trees, and in the broader subject of rural art and adornment. To all of the teachers of Connecticut inclined to give such instruction in their schools my "Economic Tree Planting" will be sent without charge, at least so long as the thousand copies printed for that purpose may last.

The planting of the Syrian Willow, the supply of which fell far short of the demand, was designed as a *mere beginning*, sure to lead to something more and better, and to interest our teachers and youth in the broad subject of tree-planting. Beautiful as is the weeping willow, I was careful to say "I should greatly prefer to start five thousand elms or maples if it could be done as easily as my five thousand willows seem likely to be stuck in the ground." While regretting that so many applicants should be disappointed, I urge those who failed to get the willow (and I expect the same of all who succeeded), to try the far better plan of planting our common but very beautiful white ash or elm, maple, white oak, tulip, American linden—or the Scotch fir and European larch. I advise our boys also to raise these

trees from the seed which may be easily gathered every autumn.

The Schools of Forestry have exerted a remarkable influence in Germany in diffusing among the people a general and genuine interest in arboriculture. They regard forests as their friends, and understand their climatic influence and economic value in staying spring torrents, preventing summer droughts and supplying lumber and fuel. The Germans have a passion for nature, and love to frequent their beautiful groves and gardens, for parks and woods abound in or near their cities and towns. The rural and suburban adornment, now the pride and glory of so many beautiful towns in Germany, and the fruit of this revived love of arboriculture, is largely due to the influence and the literature which has emanated from her Schools of Forestry. Hence the wanton forest fires so common and destructive in America are comparatively unknown in Germany. The forest incendiary would be regarded as a common enemy, like the poisoner of an aqueduct, recklessly destroying that which it is the interest of all to preserve. The Forest Schools have created a healthful public sentiment which constitutes the best possible protection of the woods.

Efforts are now making to organize a Department of Forestry in connection with the University and new Arboretum of Edinburgh. Hitherto Forestry has been little taught in England, and her young foresters have therefore been educated on the Continent. There is a growing conviction of the need of such institutions in England, due largely to the able and persistent exertions of Rev. J. C. Brown, LL.D., to whom I am indebted for many statements given in this paper. The London Journal of Forestry says: "The University of Edinburgh possesses remarkable facilities for the creation of a School of Forestry, which with some slight additions could be easily converted into a thoroughly equipped Forest Department, capable of teaching the science of Forestry in the most complete and efficient manner.* Such an Institution is one of the greatest wants of the age in this country, and no country in the world requires it more. With India, Canada, Australia, New Zealand and South Africa, not to mention numerous smaller dependencies of the British Empire,

* This language is equally applicable to the Sheffield Scientific School and to several scientific schools in other States.

crying out to us to furnish them with thoroughly educated foresters, to conserve and restore their fast disappearing forests, or to create new ones, it is a standing blot on the institutions of our country that we cannot educate and qualify at home the men who are needed for this important service. Such an institution would be of inestimable value to India and all our colonies, and exert a most beneficent influence on the management and productiveness of our home forests and the rural prosperity of the whole country. The forest wealth of Canada is being rapidly exhausted. The great pine forests on the Ottawa, St. Maurice and Saguenay rivers, with their wonderful net work of tributary streams, are rapidly disappearing beneath the ruthless ax of the lumberman. All the more accessible parts of these great forests are already cleared of pine timber. That huge tract of forest between the Ottawa and the St. Maurice, which once seemed inexhaustible, is fast disappearing beneath the destroying ax."

Dr. Hooker, Director of the Royal Gardens at Kew, says: "Forestry, a subject so utterly neglected in this country, that we are forced to send all candidates for forest appointments to France or Germany for instruction both in theory and practice, holds on the Continent an honorable, and even a distinguished place, among the branches of a liberal education. In the estimation of the average Briton, forests are of infinitely less importance than the game they shelter, and not long since the wanton destruction of a fine young tree was considered a venial offence compared with snaring a pheasant or rabbit. Wherever the English rule extends, with the single exception of India, the same apathy prevails. In South Africa, millions of acres have been made *desert*, and more are being made desert annually, through the destruction of the indigenous forests; in Demerara the useful timber trees have all been removed from accessible regions, and no thought is given to planting others; from Trinidad we have the same story; in New Zealand there is not now a good Kauri pine to be found near the coast, and the annals of almost every English colony repeat the tale of willful, wanton waste and improvidence. On the other hand, in France, Prussia, Switzerland, Austria, Italy and Russia, the forests and waste lands are the subjects of devoted

attention on the part of the government, and colleges provided with a complete staff of accomplished professors train youths of good birth and education to the duties of State foresters. Nor, in the case of France, is this law confined to the mother country; the Algerian forests are worked with scrupulous solicitude, and the collection of vegetable produce from the French Colonies in the Museum at Paris, show that their forest products are all diligently explored." The above criticism of the neglect and inaction of England applies equally to America.

One of the oldest and best schools of forestry in Europe is at Nancy, a beautiful city of great historic interest, pleasantly located on the left bank of the Meurthe, and at the base of a long range of wooded and vine-clad hills, about two hundred miles east of Paris. The parks and gardens of the city are finely adorned with trees and shrubbery. The Department of Meurthe, of which it is the capital, owes much of its rare rural beauty to the influence of this celebrated school. Forestry began to be studied as a science in France during the last century, though these investigations were long interrupted by the French revolution and the consequent wars. On the re-establishment of peace this study was resumed, and the School of Forestry was organized at Nancy, which, enlarged and more fully equipped, is now liberally supported. The cabinets, museums, apparatus and appliances of every sort, seemed to me most complete and ample, although the Director informed me that their choicest material was already packed for the Paris Exposition. Instruction is given gratuitously to those who prepare for the State Forest Service, and the importance of this service may be inferred from the fact that the State forests cover an area of nearly three millions of acres, or about the size of Connecticut, with a gross revenue of about seven millions of dollars, or deducting all expenses, a net revenue of over five millions of dollars. The total expense for board, lodging, uniform, instruments and pocket money, is from four to five hundred dollars a year. To "foreign students" a moderate charge is added for tuition. I found a considerable number of English students in attendance here last summer, who are candidates for forest service in India.

The course occupies three years. The daily work requires ten