

be opened for settlement and what kept as forest reserves.

Mr. A. Knetchel, forester to the Forest, Fish and Game Commission of New York State, complimented the Government and the Association on the success in reducing the fire loss and told of the system in vogue in New York State.

Mr. Joly again referred to the number of fires started by locomotives. In a stretch of six miles he had proven that the Intercolonial Railway engine had set fire in five places. Four of these fires, according to the evidence submitted at an investigation granted by the Government, were extinguished by Mr. Joly's own men, but the fifth was too far advanced to be conquered. He maintained that the engines are not properly inspected and contended that it should not be left to the railway authorities to say whether their engines were provided with proper apparatus to protect the forest from fire. If precautionary measures were taken nearly all the fires caused by railways would be prevented.

Mr. Chown thought the Government should put on more fire rangers on Crown lands and that there should be a still more effective manner of controlling the fire system.

This brought up the question of the competency of fire rangers. Mr. McCuaig stated that in the province of Quebec a ranger was compelled to show that he was qualified for the position from every point of view. As to settlement, he contended that no man should be allowed to locate in a section where there were only one or two farms.

THE FOREST FIRES OF 1902.

A report on the forest fires which occurred throughout the Dominion in the year 1902 was submitted on behalf of the Association by Mr. R. H. Campbell. In Nova Scotia the area burned over was greater than in 1901, but a considerable portion was not at the time good timber land. The area probably exceeded 25,000 acres, and the loss was between \$100,000 and \$200,000.

In New Brunswick the summer of 1902 was wet and comparatively little damage to the forests was done. The only fire of any account occurred in the county of Kent.

The Province of Quebec escaped without serious loss owing mainly to the wetness of the season, as many fires were started. In the Upper Ottawa district there were eight fires that were sufficiently serious to require an expenditure of about \$900 for extinguishment. Three of these fires were caused by locomotive engines, three by carelessness on the part of river drivers, and others by settlers and lightning. The rangers employed in this district were 29 regular and 21 special. The holders of timber licenses urge an addition to the number of fire rangers and the Superintendent suggests an increase of five. In Fire District No. 2 there were 79 fires reported, 47 of which occurred in May, 15 in June, one in July, 10 in August and 6 in September.

Six specific instances were reported by one ranger in which fires were set out by settlers in contravention of the Statute. The number of fire rangers in this district was twenty-two, and they had to patrol and safeguard a tract of 17,824 square miles. In the Gatineau District the average area for each ranger was 360 square miles, on the Lower Ottawa 585 square miles, and in the St. Maurice Agency 1316 square miles. The total amount expended in the province for the protection of the forests from fire was \$17,000 but the fire tax brought in the sum of \$7,306, leaving the net expenditure \$9,694.

Most of the particulars regarding the fires in Ontario have already been given, and no serious fires occurred in Manitoba and the Northwest Territories.

Several fires occurred in British Columbia, where the season was exceptionally dry. One of these started on Mr. Wells' timber berth on the Beaversfoot river, where about 1,000,000 feet of timber was destroyed. The fire was confined to the worked-over portion of the limits. In the Boundary district several fires are said to have started from prospectors' smudges.

In the evening an illustrated lecture was given in the Normal School by Professor E. C. Jeffrey, of Harvard University, on "Forest Trees and Their Uses." Hon. Clifford Sifton presided, and in introducing the lecturer dwelt upon the manner in which the forestry subject had been neglected in proportion to its importance to Canadian people. Professor Jeffrey, who is a Canadian by birth and education, advocated that none but scientific experts be

placed in charge of forestry work. The Canadian pine, he said, was one of the most valuable timbers in the world, as it was of the greatest practical utility for general purposes. He outlined the characteristics of different woods, giving reasons why some are strong and some are weak. The lecture was illustrated by stereoptican views.

SECOND DAY.

Resuming on Friday morning, the first business was a paper on "Tree Planting in Manitoba," by Mr. A. P. Stevenson, of Nelson, Man. This was followed by a paper on "The Growth of Forest Trees in the Forest Belts and Arboretum of the Experimental Farm," by Mr. W. T. Macoun, horticulturist. An abstract of this paper will appear in a later issue.

The paper brought up a discussion as to the methods of planting trees. Mr. Norman M. Ross explained the system adopted in Manitoba and the Territories, and Mr. Knechtel gave some particulars of the reserves in New York state. He had ascertained that two men could plant 1,600 trees per day. With an appropriation of \$4,000 a nursery had been made in the Catskills for half a million seedlings and some money was left. The average cost was about half a cent a tree. Replying to a question as to the percentage of the trees still living, he said that last spring, in a plantation of 5,000 trees, 97 per cent. of spruce, 80 per cent. of white pine, and 95 per cent. of Scotch pine were found in good condition. Scotch pine showed most rapid growth, namely, nine inches in about nine months.

Colonel McRae, of Guelph, said he, too, had found the Scotch pine to make the most rapid progress. He asked Mr. Knechtel whether it was advisable in a plantation to remove the dead branches, to which the latter replied in the affirmative, adding that with pine trees he would apply a coating of lead paint.

Mr. Hiram Robinson brought up the question whether by removing a dead branch it would be possible to obtain more clear lumber than if the branch were permitted to remain in the tree.

Mr. Joly thought that as long as the branch remained, the tree would continue to develop the knot. Coniferous trees should be carefully trimmed, but with hardwoods he would let Nature do her own trimming.

Mr. Ross said that in the Scotch pine forests of Germany it was the custom to go through them when about twenty years old and prune such trees as had made the most satisfactory progress.

At the afternoon session the secretary read a paper on "Forest Protection in the Railway Belt of British Columbia," by James Leamy, Crown Timber Agent, New Westminster. An address on "Forestry Education" was given by Professor W. L. Goodwin, Queen's University, Kingston. Prefacing his remarks by reference to the gradually declining timber supply and the increase in the value of timber lands, Professor Goodwin reached the question "Will Forestry Pay?" That it paid in the long run there could, in his opinion, be no question. The 35,000,000 acres of German State forests produced a net revenue of \$1.80 an acre, equal to a net annual income of \$63,000,000; and both capital and income are increasing. This is after some 150 years of forestry management, but the records show that the State forests have yielded a fair income from the start. When in Kingston recently, Dr. Fernow told of German municipalities which paid all taxes and even declared a dividend from the profits of their carefully managed forests. The large profits of the present Canadian system represented for the most part capital being eaten up, as our forests are rapidly decreasing. Forestry education was very essential in order that we might

work into a system of forestry suitable to Canadian people and Canadian conditions. Professor Goodwin then reviewed what had already been done in Canada along the line of forestry education. Recent steps included the engagement of Dr. Fernow to lecture to the students of Queen's University in January, 1901, followed by a course of lectures in January and February of this year. One result of these lectures, the speaker said, had been to determine several students to make forestry their profession; and the Board of Governors of Queen's University had decided to go forward next session as far as circumstances will permit to make provision for a forestry course.

Dr. Unwin spoke of forestry education in Europe, where he graduated. In Germany the forestry course was seven years, but he would not advocate such a lengthy term in this country.

An interesting address was given by Professor A. P. Knight, of Kingston, on "The Effect on Fish Life of Sawdust in Rivers." His observations and experiments, he said, had been confined to the Ottawa and Bonnechere rivers. He believed that no healthy fish had ever been killed by the discharge of sawdust into these streams. His view was supported by Professor Prince, of the Dominion Fisheries, but refuted by Dr. Bastedo, of the Ontario Fisheries. Personally conducted experiments showed that from fifty to eighty per cent. of the different kinds of sawdust thrown into streams sank in from three to five minutes. Owing to the late hour there was very little discussion on the paper, which was pronounced a most valuable one.

A motion was then introduced by Mr. Campbell changing the date of the annual meeting to the second Thursday in March, which was carried unanimously. This will avoid a clash with the annual meeting of the Canadian Mining Institute.

It was decided to hold the next annual meeting in Toronto.

Mr. Joly submitted a resolution calling upon the Government to increase the number of fire rangers throughout the provinces and to explore the unsettled portions of the country more fully and to prepare maps showing those portions of the country fitted for settlement and those entirely unsuited for this purpose yet good for timber growing. The resolution referred to the advanced steps that had been taken towards forestry protection by the Ontario Government and was carried unanimously.

ELECTION OF OFFICERS.

The election of officers for the ensuing year resulted as follows:

Patron, His Excellency the Governor General; Hon. President, W. Little, Westmount; President, Hiram Robinson, Ottawa; Vice-President, Aubrey White, Toronto; Board of Directors, Dr. Saunders, Prof. Macoun, J. R. Booth, C. Jackson Booth, Ottawa; E. G. Joly de Lotbiniere, Quebec; Thos. Southworth and John Bertram, Toronto; Secretary, E. Stewart, Ottawa; Assistant Secretary and Treasurer, R. H. Campbell, Ottawa. Vice-Presidents of the provinces: Ontario, J. B. McWilliams, Peterborough; Quebec, Hon. E. F. Caron; New Brunswick, The Lt.-Governor; Nova Scotia, A. H. McKay; Prince Edward Island, Rev. Father Burke, Alberton; Manitoba, Major Stewart, Winnipeg; Assiniboia, J. F. Dennis; Saskatchewan, P. L. Laurie; Alberta, Wm. Pierce; Arthabaska, F. B. Wilson, Fort Vermillion; British Columbia, Hewitt Bostock; Yukon, The Commissioner; Keewatin, The Lieut. Governor of Manitoba.

The passing of votes of thanks to the railway companies, the City Council, the Secretary and Treasurer of the Association, and the Press, concluded the business of the convention.