FOREST TREE BREEDING IN CANADA
REPORT FOR SECOND LAKE STATES FOREST TREE IMPROVEMENT CONERENCE

Mark J. Holst 1/

An excellent report on "Forest Tree Breeding in Canada" was prepared by Dr. Co Co Heimburger and published in the Forest Tree Improvement Issue of the Journal of Forestry 52(9)0 682-685, September 1954. I shall briefly summarize the tree breeding activities in Canada by workers and localities, and if time permits, I shall discuss a few tree breeding problems of mutual interest to Canada and the Lake States.

W. A. Porter, who is employed by the Canada Department of Agriculture, is selecting western white pine for resistance to blister rust, and Douglas-fir for possible resistance to Rhabdocline pseudotsugae.

A. L. Orr-Ewing is employed by the British Columbia Forest Service and is studying flowering and fruiting of Douglas-fir as a basis for establishing seed orchards.

In the prairie Provinces we have W. H. Cram at the Forest Nursery Station, Indian Head, Saskatchewan, a branch of the Canada Department of Agriculture. Dr. Cram is concerned chiefly with selection of superior tree and shrub material for shelterbelts and windbreaks in the prairies. He is working with caragana, spruces, Scots pine, and poplars.

Dr. C. C. Heimburger, who is employed by the Ontario Department of Lands and Forests and stationed at the Southern Research Station, Maple, Ontario, is working with white pine, aspen, and hard pines. The aim of the white pine work is to select and produce strains having a high degree of resistance to blister rust and a favorable reaction pattern in respect to weevil injury, and satisfactory growth rate and form, The white pine provenance problem is also being investigated. The aim of the aspen breeding program is to produce strains with rapid growth, resistance to several

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important diseases, and which will be easily propagated from cuttings. The material is to be used in southern Ontario.

A. J. Carmichael, who is employed by the Ontario Department of Lands and Forests, and stationed at the Provincial Seed Extraction Plant, Angus, Ontario, is conducting provenance experiments with white pine, red pine, and jack pine, and various exotic pines. He is also multiplying the material selected by Dr. C. Co Heimburger to establish seed orchards, He is furthermore selecting and propagating yellow birch.

J A. C. Grant is employed by the University of Toronto. He is studying the photoperiodic responses of aspen, hard pines, and spruce.

Dr. A. W. S. Hunter is employed by the Canada Department of Agriculture and is working at the Central Experimental Farm in Ottawa, Ontario, and the Dominion Experimental Station, L'Assomption, Quebec. lib is breeding for resistance to Dutch elm disease, and he has provided sterile, blister rust susceptible currants for Dr. C. C. Heimburger's white pine breeding projects.

Dr, R. J. Moore is employed by the Canada Department of Agriculture and is working at the Central Experimental Farm in Ottawa. He is doing cytogenetic studies in Caragana.

Dr. L. Chouinard is giving lectures in forest genetics at the School of Forestry, Laval University, the first of this kind in Canada. He is working with air-layering of native tree species and has planned population studies in black spruce, red spruce, and jack pine in Quebec.

M. J. Holst is employed by the Forestry Branch, Canada Department of Northern Affairs and National Resources, and is working at the Petawawa Forest Experiment Station, Chalk River, Ontario. The work is centered on Canada-wide provenance studies of native spruces and hard pines, and selection and propagation of plus trees of native spruces and hard pines in a more limited area--the Great Lakes-St. Lawrence Forest Region. The white spruce work in this region is done in cooperation with the Canadian Pulp and Paper Association, The tree breeding work at the Petawawa Forest Experiment Station includes also a variety of projects such as: provenance experiments in, and selection of, exotic spruces and hard pines; breeding of hard pine types resistant to the European pine shoot moth (in cooperation with Dr, C. C. Heimburger); breeding of the perfect Scots pine Christmas tree; selection of larch; breeding for weevil resistance in Norway spruce; investigations of flower-inducing techniques for spruces and hard pines; population genetics of native conifers; and various experiments with propagation, mainly grafting.

At the Acadia Station in New Brunswick, H. G. MacGillivray is doing provenance experiments with red and black spruces, and is also studying introgressive hybridization of these species in New Brunswick; he is furthermore selecting balsam fir for resistance to spruce budworm.

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