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NATIONAL RESEARCH COUNCIL OF CANADA

PROCEEDINGS

OF THE

FOURTH MEETING

OF THE

SUBCOMMITTEE ON FOREST TREE BREEDING

OTTAWA

22 AUGUST, 1940

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22 AUGUST, 1940

NATIONAL RESEARCH COUNCIL

P R O C E E D I N G S

of the

Fourth Meeting

of the

SUBCOMMITTEE ON FOREST TREE BREEDING

Held at the Petawawa Forest Experiment Station, Chalk River,
22 August, 1940

Present:

Members: Mr. D. Roy Cameron (acting chairman)
Dr. C. Heimburger
Dr. J. G. Malloch
Mr. M. B. Morison
Mr. C. G. Riley
Dr. H. A. Senn
Dr. L. P. V. Johnson (secretary)

Visitor: Mr. J. L. Farr

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51. Election — Mr. Cameron was selected to act as chairman in the absence of Dr. Newton. Dr. Johnson was elected to the position of secretary, replacing Dr. Peto who has resigned membership in the subcommittee.

52. Minutes — The minutes of the third meeting were read and approved without change.

53. Project organization — It was moved by Dr. Heimburger and seconded by Dr. Senn that a meeting of the Special Committee on Project Organization (Minute 14, first meeting) be called early in the winter to discuss and put into operation (probably in modified form) the project outline recommended by the first meeting of the Special Committee (Appendix "A", second meeting). Carried.

After considerable discussion it was agreed that summary reports on each project should be prepared each year and appended to the proceedings of the spring meeting. It was considered that this practice would be very useful in promoting co-ordination between the various projects, and in providing administrators with information on the scope and status of each project.

54. Progress report on tree breeding

Dr. Johnson gave a brief outline of the progress in breeding since the April (third) meeting. Hybridization had been carried on more or less as usual in elm, birch, and pine, but had not been attempted in spruce (because of poor flowering) nor in basswood (because of pressure of more important field work). Attempts to hybridize in ash were made for the first time. Many of the cross pollination were apparently successful, but unfortunately an unknown disease attacked and destroyed the developing seeds.

The breeding staff had been occupied for the most part with developing the National Research Council Annex property for nursery and testing purposes. Developments to date include: the transformation of a summer cottage into a field laboratory; the establishment of a disease garden for studying seedling reaction to white pine blister rust; the growing of hybrid, arboretum, and colchicine-treated materials in nursery beds and transplant lines; the preparation of land for nursery purposes (four to five acres); the installation of water pipes for nursery irrigation, and various miscellaneous improvements.

It is considered that the progress of the breeding work is reasonably satisfactory; but the handicap of reduced appropriation and other effects of the war are greatly felt, particularly since the stage had been all set for a great expansion of the work this year.

55. Progress report on pathology

Mr. Riley reported that studies on the rust prevalent on poplar material in the Petawawa nurseries had been continued. Inoculations of larch with rust sporidia from poplar leaves, and re-inoculation of poplars, using the resulting aeciospores, have served to establish the identity of this rust as *Melampsora medusae* Thum. It is possible that other rusts may also be present, but this is probably the principal one.

Samples of all of the available poplar material in

both nurseries, excepting the C x W stock, have been inoculated artificially to ensure a uniform basis for comparing the degree of susceptibility.

Inoculations with Septoria (leaf spot and canker) have been made for a similar purpose.

Populus alba trees on the Orange Road have been inoculated with Septoria and Hypoxylon (canker).

In all inoculation experiments, controls have been established on hosts of known susceptibility. Several hundred inoculations have been made. The results will not be known till later in the season.

A few natural seedlings of white pine have been inoculated with the blister rust fungus in order to develop technique and to become familiar with the early symptoms, in preparation for the time when white pine breeding stock will be ready for testing.

Owing to abnormal financial circumstances, the inspection of the Pte. Platon pine plantation had to be made by proxy. Dr. Pomerleau visited the plantation and marked those trees which appeared to be free from the disease.

The plantation near Bowmanville was not inspected since it was learned, through Dr. William Haddow, of the Ontario Forest Pathological Service, that the history of this plantation rendered it unsuitable for the purpose of this Committee.

Replying to a question from Mr. Cameron, Mr. Riley stated that leaf rusts were mainly important in nursery stock production. Dr. Heimburger pointed out that, since these diseases were in some cases also highly destructive in plantations, every effort should be made to select for rust resistant types before establishing plantations of new material.

Dr. Johnson gave details regarding the disease garden being developed at the Annex. Several rows of Ribes sp. (an alternate host of the white pine blister rust organism) have been planted 15 feet apart. Pine material to be tested will be planted between these rows which, when infected, should provide an abundance of inoculum. There are at present in the Petawawa and Annex nurseries, seedling material from several rust-free white pines, seedlings presumed to be Pinus peuce

(resistant) x P. strobus, and seedlings of a number of resistant introductions.

56. Progress report by Dr. Heimburger

Dr. Heimburger reported gratifying results from the "SVB" system of planting poplar cuttings. Short (4 to 5 inch) cuttings are buried vertically (tops 3 inches below surface) in the fall. The method represents essentially the combination of heeling-in and planting into a single operation. Carolina poplar controls gave particularly good results.

Attempts to root basswood cuttings failed.

Two plantations were established, one of Scotch and jack pines, the other of hybrid poplars.

57. Progress report on vegetative propagation

Mr. Farrar reported that results with 1939 conifer cuttings are on the whole encouraging. Although the materials have not been lifted for examination, it may be stated that Norway spruce shows every evidence of high percentage of rooting, with white pine good but somewhat doubtful since these are the first extensive tests, and with white spruce results generally disappointing.

In all materials, the medium is very important. Peat-sand mixtures give consistently better results than sand. Peat from Alfred, Ontario, is better than imported Swedish peat, particularly in the promotion of new growth. Provisions have been made for the chemical analyses of these two peats.

Results from late fall collections (September and October) are better than earlier collections. Cuttings stored over winter at Ottawa and planted at Petawawa in the spring gave poorer results than similar cuttings planted at Petawawa in the fall.

Experiments with poplar and basswood cuttings were unsatisfactory, particularly in the case of basswood.

Dr. Johnson stated that a Populus alba individual had been found near Ottawa which, upon testing, gave 96 per cent rooting. (Previously no Populus alba had given more than 20 per cent rooting). This high-rooting individual will be used in crosses with native aspens.

58. Co-ordination, particular reference to plantations

Dr. Heimburger expressed the belief that closer co-ordination was needed between certain branches of the organization. He cited as an example the failure to prepare in advance plantation ground of suitable extent and quality to take care of nursery output.

Mr. Morrison pointed out that, under the governmemt

set-up, an administrator making up his estimates had to anticipate requirements a year in advance. It was necessary, therefore, that he be acquainted well in advance with the needs of projects dependent upon such estimates. He felt that it was the duty of the researcher concerned to anticipate as far as possible the detailed requirements of his project, and to make them known to the administration before the estimates were made up.

At this point it was moved by Dr. Johnson and seconded by Dr. Senn that, in view of the fact that Mr. Morison was directly concerned with many phases of the work, he should be added to the membership of the Subcommittee. Carried.

Mr. Morison said that as a member of the Subcommittee he hoped to be better informed of its activities than in the past. It was agreed that Mr. Morison be supplied with reserve copies of the proceedings of previous meetings.

Mr. Cameron asked Mr. Morison to make a statement regarding the possibilities of preparing suitable land for plantation purposes. Mr. Morison said he could provide four men during the month of October. This appeared to be satisfactory to those concerned.

The meeting adjourned at 2.30 p.m.

The members them inspected the nurseries at the Station, the various experimental materials being discussed by the research staff.

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