Minutes of the Second Conference on Forest Tree Breeding and Propagation Held at the National Research Laboratories, Thursday, March 24, 1938.

Present: Dr. R. Newton (Chairman), Mr. J. L. Farrar, Dr. N. H. Grace, Dr. C. Heimburger, Dr. L. P. V. Johnson, and Dr. F. H. Peto (Secretary).

The minutes of the first conference were read and approved.

11. Report on hormone studies. Mr. Farrar presented a report on the results to date from treatments of spruce cuttings with hormones. He stressed the need for fundamental information on the proper horticultural conditions conducive to rapid callus and root formation aside from hormone effect. The treatments to date have shown that, (1) soaking in water prior to treatment 40°C is harmful; (2) hot water pre-treatments are harmful; (3) hormone 30 m dust treatments give better callusing than hormone solution treatments; (4) definite damage results from solution treatments over 100 p.p.m. of indolylacetic acid. The significance of the limited amount of rooting obtained was discussed. No clear cut differences between treatments in rooting response were observed although the superiority of certain treatments in causing callus formation was evident. Complete details of these experiments are given in Mr. Farrar's progress reports.

12. Dormancy. Dr. Heimburger discussed the necessity of additional fundamental information on dormancy. He pointed out that leaf bud development inhibits root formation and outlined a method to stimulate callus and root formation without stimulating leaf bud development.

13. Biochemical research. Dr. Grace stated that a valuable contribution to hormone research could be made through research by a highly qualified biochemist on natural extracts from spruce bark. There was considerable discussion on this point but no definite recommendations were agreed upon.

14. Arrangements with Chemicals Limited of Montreal. Dr. Newton announced that Chemicals Limited of Montreal have employed Dr. J. G. Dunn to work on plant hormones and that he will be working part time in these laboratories. The assistance of an additional investigator should be of assistance to this group.

15. Spring plans for hormone research. It was agreed that commencing May 1st most of the hormone research on tree cuttings should be transferred to Petawawa for the summer. One comprehensive

experiment should be started between May 1 and May 15 prior to leafing out in the deciduous trees and before new top growth commences in the conifers. No comprehensive experiments will be initiated between May 15 and June 15 and Mr. Farrar can attempt exploratory experiments with stored material and assist Dr. Johnson in tree breeding. After June 15, collections of branches from spruce, poplar and basswood may be made for large scale tests during the period of lignification.

16. Effects of substances on wound callus formation. Dr. Grace suggested that tests should be made on the effects of asphalt and hormone mixtures on wound callus development on growing trees. It was agreed that these should be carried out as time permits.

17. Poplar breeding. Dr. Johnson reported on the nine poplar crosses made this winter. Several thousand hybrid seedlings have germinated and these seedlings will be transferred to Petawawa this summer. Details of these crosses are given in Dr. Johnson's progress reports. Dr. Johnson outlined the new crosses that will be made during the next two weeks.

18. Rooting response of poplars. Dr. Heimburger and the Secretary emphasized the need for a thorough test of the parental material including all natural hybrids of flowering age to determine their natural rooting response. It was agreed that such tests should be carried out at Petawawa this summer. Hormone applications may also be included in these tests if time permits.

19. Conifer breeding. It was agreed that the plans outlined in minutes 5, 6 and 7 should be adhered to. The breeding for resistance to white pine blister rust appears to be the most important problem and the first cross to be made should be between Pinus peuce x P. strobus. Pollen of resistant oriental pines should be obtained from the Arnold Arboretum for 1939 breeding.

20. Cytology of poplars. The Secretary gave his report on cytological examination of 24 trees including P. tremuloides, P. grandidentata, P. alba, P. canescens, and natural hybrids between P. alba and the native aspens. Pollen measurements were also made on this material in the hope that diploids could be distinguished from triploids and tetraploids by this method. Although the triploid pollen was significantly larger than the diploid pollen, nevertheless there were several exceptions which indicates that this method would not be infallible. These studies should, however, be valuable in selecting suitable parental trees. Experiments will be undertaken this summer to determine whether polyploids can be detected by stomatal frequency per unit area.

21. Bimonthly progress reports. It was agreed that the members of the group should circulate the blue copies of their progress reports on project B23 to all the members of the group.

22. Greenhouse requirements at Petawawa. The Secretary reported that Mr. Sisam had been enquiring about the greenhouse space we would require at Petawawa since the Dominion Forest Service are contemplating building one. He was informed that our present requirements would be small but that unforeseen developments might increase this demand greatly. Consequently it was suggested that the greenhouse be built so that an extension of the proposed house or an adjacent house could be constructed if necessary.

23. Nursery space. It was agreed that the nursery space available at Petawawa should be adequate for this year but that requirements for 1939 should be anticipated as early this summer as possible to enable the Dominion Forest Service to make the necessary arrangements.

24. Co-operation of pathologists. Dr. Newton agreed to see Dr. Gussow to ascertain to what extent Mr. Riley will be able to co-operate with this group in their studies at Petawawa during the summer.

25. Date of third conference. It was decided to call a meeting of the group at Petawawa during the last week of June.