GIRTH REDUCTION DUE TO FIRE

by W.R. Wallace

Mr. Williamson's suggestion that some decrease in girth in the Dwellingup fire area is due to causes other than the actual loss of bark through burning is interesting. Following the Plavins fire in 1950, it was found that in the head fire area a number of second growth trees showed that more than half the thickness of the green bark had been killed, either by heat or desiccation. The division between the living and the freshly killed bark was readily discernible. Following the Ferguson fire in 1949 it seems that the same thing may have happened there. An examination of the bark in this area at the present time shows on a number of trees a peculiar smoothness, which could possibly be associated with some damage to the cambium 12 years ago.

The question of loss of girth through shrinkage was considered at Dwellingup while investigating results of the Plavin fire, but nothing definite could be obtained at that time.

In the present instance, it is stated that there is an unaccountable loss of 17% of the total girth decrease, and it is suggested that this may be due to a stem shrinkage through desiccation of the outer portion of the live bark. While this positive decrement suggests it is both real and significant, it must be remembered that it is based on radial bark thickness measurements. Average loss of girth is stated to be $2\frac{1}{4}$", of which 17% is suggested as due to shrinkage. This represents a radial decrease of:

$$\frac{17}{100} \times \frac{9}{4} \times \frac{7}{44} = 0.06"$$

This raises a few interesting questions.

1. What is the normal error in measuring bark thickness?

2. Is there any difference in this error when measuring a tree with unburnt bark, compared with a tree which has been heavily burnt?

3. Why were only 36 of the 47 trees measured included in this calculation?

4. Was it because the remaining 11 trees did not support the theory of stem shrinkage?

The figures produced by Mr. Williamson should be of great interest to all foresters, and particularly those who are concerned with measurement of forest increment.
