FIRE BREAKS IN PINE PLANTATIONS.

by J. McCormick.

Whilst firebreaks serve purely as a protective measure against possible fire outbreak, their cost and maintenance is high and in spite of necessity, they can be regarded as so much dead land. It would seem therefore that productive firebreaks would be more desirable, provided of course they serve their major role satisfactorily.

Those experinced in high rainfall forests will know the benefits accrued from the planting of oak and larch firebreaks. Firstly, both of those trees are deciduous and their leaf litter decomposes rapidly. In the green state they are fire resistant; also they are maintained by sustained yield cutting thus providing a valuable source of timber.

In selecting a firebreak tree suitable for local plantations the following attributes must be sought:-

(a) satisfactory growth;

(b) leaf litter with low combustion rate;

(c) leaf litter with rapid decomposition rate;

(d) utility value of timber.

The tree primarily fitting into this category is of course poplar since it appears to grow fairly well throughout the forest region and satisfies the above requirements admirably.

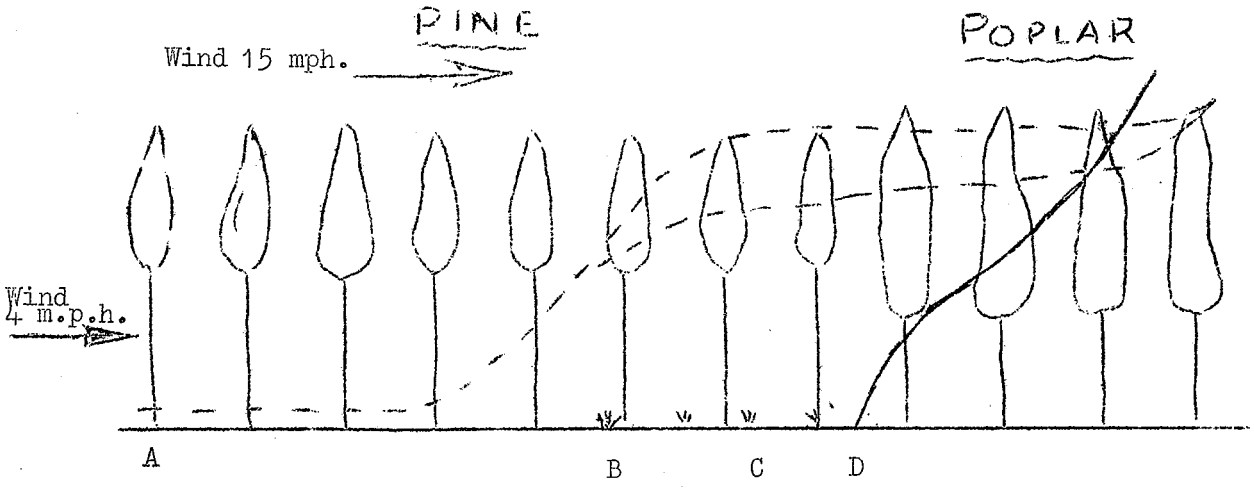
In litter burning trials carried out at Dwellingup the fire rate of spread for poplar litter was one third of that recorded for Jarrah and this rate could be maintained only by relighting the poplar fuel at three minute intervals. It is important to note that difficulty was experienced in trying to ignite the poplar fuel with the aid of fusee matches even after it had been exposed to direct sunlight in late December.

By way of a deus ex machina I would relate that my own experience of trying to dispose of heaps of poplar leaves in the garden led to the belief that the fires, if so those smouldering hoaps could be named, consumed more matches than leaves and I discovered that by the following Spring the heaps had decomposed completely save for a few leaf midribs.

In the event of a poplar break being established one must consider the possibility of undergrowth. In poplar plantations I have known, the undergrowth is sparse and consists largely of grass-type plants easily burned off without damage to the trees themselves. An alternative would be to undersow

with perennial clover thus having the double benefit of choking weed growth and raising the air moisture content near ground level.

If we consider the nature of a crown fire in pine and the way in which a planted firebreak works, we find (re illustration):-



– – – – – Line of headfire

w w w w Spot fires caused by crown fire.

———— Heat curve - ground fire stopped at point D.

A ground fire commencing at A (wind speed 4 m.p.h.) crowns out at B; thence crown fire takes over with 15 m.p.h. wind speed. At C the crown fire with increased wind behind it proceeds ahead of the ground fire spotting through on to the ground fuel; these spots link up providing the bottom heat which maintains the crown fire, for without this important factor the crown fire could not continue. Now, if we consider what happens when the fire hits the break at D, the first and most obvious thing is the fact that the bottom heat is removed. Secondly, owing to the fire resistant property of the break trees the crown fire is held in check. A combination of both factors will stop a severe fire but much depends on the width of the fire break. I would suggest that a fire break of this nature should measure 50 yards across with trees planted diagonally (staggered in rows) at 10 to 15 feet intervals. A wild fire will of course always spot ahead over a fire break but this sort of thing is much easier dealt with when the sting has been taken out of the headfire. Flank and backfires take little watching where a planted fire break exists.

The uses to which poplar can be put are varied e.g. matches, packing cases, veneers and soft fruit punnets. Poplar lends itself to coppice thinning

which would eliminate the need for replanting. A useful sideline is the sale of coppice shoots about 10' high, bundled up, rooted or otherwise for use in planting weather breaks on farms, recreation grounds, or along roadsides.

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