

On the average it will grow, for the first fifty years at least, at the rate of an inch every four years. Height-growth will average ninety feet for the stand.

BIRCH TYPE.

The birch type is very localized, being confined to small areas around the mouth of Nine-mile creek and in the Assiniboia River valley. The area is really negligible, but is interesting as showing development to pure stands of the northern canoe birch (*Betula resinifera*). This tree is small and spindly, and, except in exceptional cases, does not attain a diameter of more than six inches. It is susceptible to attacks of Polyporus fungi, and, when dead, disintegrates very rapidly.

JACK PINE TYPE.

The jack pine shows development in pure stands wherever sand is found. Along the Athabaska and Lesser Slave rivers it grows freely; generally, however, the stands are as yet young, the average age being fifty to fifty-five years and the average diameter eight inches. A remnant of an older stand is to be found around Mirror landing. Here are trees up to 24 inches in diameter at breast-height. They are, however, short and very limby. Growth around Mirror landing is rapid, probably averaging an inch in diameter every four or five years. This is, however, exceptional, and the average growth will not be greater than an inch in six years.

LODGEPOLE PINE TYPE.

This type covers the largest area of any in the country examined. It is the characteristic type of the valley slopes of the Swan hills, to which it is practically confined. There are, roughly, some 1,000 square miles of this type.

In the timber, lodgepole pine predominates, with a large admixture of black spruce wherever a flat bench occurs. Such benches—really small meadows—cover twenty per cent of the area. It seems that the lower the elevation the pine can obtain, the better it will grow. In creek gulches and on the outer edges of the benches, it attains the size, and has a rate of growth of approximately one inch every seven years. Such locations are, however, scattered, and on over 95 per cent of the area the pine will never make the size. The growth on this latter area is the typical Rocky Mountain timber-line development—dense, spindly growth one to six inches in diameter at breast-height (4½ feet from the ground), and twenty to forty feet high. On such locations this type is useful principally as a protective covering and as a possible pulpwood supply for the future.

On the better locations stands occur which will cut, on an average, twenty-five ties to the acre. No definite areas for this can be given, but, figuring on a basis of five per cent of the total area we have 95 square miles, or 60,000 acres, which gives roughly some 1,500,000 ties. There will be, easily, this amount on the area, but the patches are so scattered as to make it doubtful if it can be used for some time yet, at any rate. On the remaining 95 per cent of the area, comprising some 1,100,000 acres, there can be found at present five cords of pulp per acre of pine and spruce—5,980,000 cords in all. Inasmuch as a great deal of this timber is a young growing stand it may be considered certain that in twenty years time the yield will increase 100 per cent. Thus, by the time this timber is needed for pulp there should be a supply of at least 11,000,000 cords, if fire is kept out.

Trees examined on an optimum site showed an average height of 75 feet and a diameter of from 4 to 13 inches.

SUMMIT-PLATEAU TYPE.

This type is confined to the flat tops of the Martin mountain and Swan Hills plateaus. ²¹ It covers an area of some 1,300 square miles, of which almost four per cent pure miles, is on Martin mountain.