

way company by the Minister of Lands, the Hon. W. R. Ross, who is actively interested in carrying out the policy of the Forest Branch, the contractors were instructed to see that all demands of the forest officers were carried out, and at the present time the work of piling the brush is being carried on by all the contractors, without exception, in this district.

The contractors endeavoured to get the tie-makers to pile the brush and offered them one cent a tie more than they were getting, but they would not accept this, and consequently a special crew had to be engaged to do the work. Of course the work can be done cheapest by the tie-maker, and the statement has often been advanced that the brush can be piled for

one cent a tie if done by the tie-maker, but a great deal depends on the nature of the timber and the country. It is very doubtful if the work can be done for that figure in this valley where the timber is mostly spruce and runs very much to brush. On one permit the brush has been piled for one and a half cents a tie, but in this case four tie-makers took the contract in partnership and they are doing most of the brush piling themselves, which fact would lead one to believe that they can do the work much cheaper than it can be done by a contractor who is hiring day labor. As a matter of fact, it is very difficult to secure laborers for this work at all because it is rather unpleasant when there is much snow in the bush and the men who do take it up seem rather inefficient.

## Records and Care of Plantations in Foreign Countries.

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The following notes of an address by Mr. Retan before a gathering of Pennsylvania foresters were sent by him at the request of the Editor of the Canadian Forestry Journal. It is hoped to have other articles from the pen of Mr. Retan in the near future.

Records of plantations, as plantations, do not exist. On the contrary records are continuous for every unit of management. They not only cover the present plantations on the ground but give the complete history of the last stand occupying the site. These records are complete in every feature, typical of the scientific German character.

Records are of two kinds, written and cartographical. The two show practically the same thing, the written covering a longer period of time. One map may show geological characteristics and quality of the soil, age and species of the stand, units of management and even sylvicultural plans. The written record adds as to the plantation in particular, a minute history of every expense, loss, treatment and results. There is never a second failure from the same reason.

Protection in Germany is the result of several co-operating forces. The chief of these in their order of importance seem to be:

- Continued period of high relative humidity.
- An adequate force.
- A large permanent labor force.
- A completely developed transportation system.

The sense of individual ownership.

The utilization of the litter.

In the Black forest, Odenwald, Bavarian Highlands, and Rhine, there were few days during the whole fall when a fire would have been possible. From what I could learn it was not an exceptional fall, nor was the actual rainfall heavy. The air seemed always damp and foggy or actually misty. To this cause may be attributed the success of the plantations of the Pacific Coast species in Germany.

Then we have the important fact that every inhabitant, peasant or prince, has a more or less concrete sense of ownership in the forest. Whether he is merely entitled to a yearly amount of firewood free or whether he is in a community whose taxes are greatly lessened because of the communal forest, he has the individual sense of 'pocketbook' interest which impels him to protect his own property. What a difference this alone would make in Pennsylvania!

As to the roads, praise cannot be too great. Whether on the sands of the Rhine Valley where roads cost little or in the Saxon Erzgebirge, fully as rocky as the mountains of Central Pennsylvania, there is present the same intensity of the road system. At Tharandt where Cotta in 1811