

## Preserving Mine Timbers.

On a recent visit to Rossland, B.C., Prof. John Macoun, naturalist of the Canadian Geological Survey, visited a number of the mines of the place, with a view to studying the cause of the rotting of the mine timbers and possible means of preventing it. In the Central Star mine he obtained specimens of four species of the genera *Polyporus* and *Trametes*, which include many of the fungi most injurious to wood above ground.

Of the means to be adopted to preserve from decay timber used in the mines, Prof. Macoun writes as follows:—

In conversation with the manager of the mine, I suggested painting the posts, as the spores of the fungus must enter the wood to produce injury. I mentioned the methods adopted in the United States, and spoke of creosote, but really all these methods mean the same thing, the keeping of the spores out of the wood, because there can be no rot without fungus or algoid spores.

Since my return, the Director has mentioned a statement made by Mr. Watson, one of the mining engineers from Europe, that timber used in mines there has been preserved by immersing for a time in a strong saline solution before being used under ground. This I consider a complete solution of the difficulty, as no fungus is known by me to grow on trees or other woody matter which is found lying on the seashore. All wood on the seashore is sound, and all wood on the borders of lakes or rivers is rotten. A detailed description of the method referred to above follows:—

A method of treatment of timber, known as the Henry Aitken method, is now used at many collieries. In this process the idea is to soak the timber in water, raised to a temperature of from 190° to 200° Fahr., containing enough common salt to form a thoroughly saturated solution. The timber should be free from bark, fairly well seasoned and thoroughly dry. Any tank, either wood or iron, of a size suitable to contain the timber to be treated will do and the water should be heated. The time necessary for completing the process depends largely on the nature and size of the timber, but two days will, in general, be sufficient. By sawing off a small part of the timber being treated, it can be seen whether thorough penetration by the salt has been obtained. When the timber is removed from the treating tank it is soft and not in a condition for immediate use. It is dried by being put into a covered shed or stacked in the open air. The cost for treating timber by this

process averages, in Great Britain, about one penny per cubic foot.

Some of the managers of the largest collieries in Scotland, who have adopted the process, write as follows:—

Mr. Maevie, manager Cadzow collieries, Hamilton, regarding the Aitken process for treating the timber for use in mines, states that in his five years' experience he had never seen the least indication of decay in any timber so treated. About four years ago, gears (every alternate one treated) were put in the main return airway of the No. 3 Pit Ell coal seam, Cadzow colliery. About a year ago all the untreated gears were replaced, owing to decay. The treated timber is still in use and in good condition. As regards the contention that the Aitken process reduces the strength of the timber, he had never seen anything to make him think that this was the case. Indeed, he had stopped using larch timber, and now used treated Scotch or foreign fir.

Mr. Ferguson, manager Benarty colliery, Fifeshire, writes that the Aitken process has been in use at the Lochore and Capeldrae collieries for upwards of six years, and during that time it has proved a great saving, not only in wages renewing broken timber, but also in the price of wood used, which is now nearly all foreign timber. The treated wood had stood in the return airways for six years and was quite sound. If this wood had not been treated it would have been replaced twice during the above period. No tree which had been treated had shown the slightest decay during the six years.

Mr. Carlow, managing director Fife Coal Company, Leven, Fifeshire, writes that the Aitken process had been in use for four years.

The following experiments have been made with the process: Two pieces of ordinary fir, three and one-half inches in diameter and three feet long, both weighing ten pounds before treatment, were selected. One of the pieces was treated by the salt process and the other was not. After being treated, the former weighed twelve pounds. Both were taken underground and placed in a return air-course, and after eleven months were examined and re-weighed. The untreated timber then weighed five pounds only, whereas the treated one weighed twelve pounds, being exactly the same weight as when it was put in. They were put back into the mine and allowed to remain eleven months longer, with the result that the untreated timber weighed six pounds and the treated timber weighed eleven and three-