ROUND MINING TIMBER DURABILITY TESTS

by R. I. Button

The durability of different species of timber vary we know under normal circumstances. Jarrah is more durable than Yarri and Marri, but it was not known how these species, treated and untreated, would stand up to the varied conditions found down the Collie coal mines.

In November 1964 samples of treated and untreated round timber of Jarrah, Marri and Yarri were installed in each of the following four locations which represented a good range of conditions, found in any of our local coal mines.

Zone 1

Depth 60 ft. below the surface. In the main air intake, where the air is fast flowing, and dry air temperature is approximately 70° F.

Zone 2

Depth 60 ft. below the surface. Inside the main air outlet of the return air way, where is air is fast flowing, cold and damp, air temperature is approximately 67° F.

Zone 3

Depth 300 ft. below the surface. In an unused portion of the mine, where the air circulation is almost stagnant, the air is cold and damp, and the approximate temperature is 70°.

Zone 4

Depth 200 ft. below the surface. In the main inlet tunnel where the air is moist and fast flowing the approximate temperature is 70° F.

In April 1966 an inspection of these Zones was made and the following results up-to-date were noted.

Zone 1

All treated and untreated samples showed no visible deterioration , and no fungus growth present.

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Zone 2

All treated Jarrah, Marri and Yarri had no visible deterioration.

Some untreated Jarrah, Marri and Yarri had signs of sap deterioration beginning. No fungus growth present.

Zone 3

All treated samples of Jarrah, Marri and Yarri showed no visible signs of deterioration.

The untreated Marri and Yarri had sapwood deterioration to the extent that tissue structure was no longer apparent. No signs of deterioration in the true wood.

The untreated Jarrah had sap deterioration which had penetrated 1/16 of an inch. Fungus growth on a few samples of Marri and Yarri.

Zone 4

There were only treated Jarrah, Marri and Yarri placed in this part of the mine, and all these samples showed no visible deterioration. No fungus growth present.

Conclusions up to date.

From the results, at present we find there are three ways in which round mining timber can be used down the mines over one year.

The First Method

All round timber could be treated. All the treated samples have not deteriorated in these conditions up to the present. This method will be expensive, raising the price of coal at least 2/- per ton.

The Second Method

To use untreated round mining timber with a crown diameter of $4\frac{1}{2}$ inches across the true wood, this being the minimum diameter required. Any sap wood deterioration would not affect this requirement. This method is much too cumbersome and handling costs would rise and make the operation uneconomical.

The Third Method

To air condition the working part of the mine, keeping a constant flow of dry air, at approximately 70° F in fast circulation.

This method seems expensive, but the outlay and maintenance would be more economic than the first method.

There has not yet been any research into the climatization of round mining timber down the mine, and this should be thoroughly investigated, as there is a great difference between the conditions, in the working face of the mine where the timber will be placed, and the other portions of the mine.