

properties of carbolic and other tar acids are carried through the heart and the innermost pores of the largest log, by means of superheated steam, and chemically combine with the component parts of the wood, so that their preservative action is complete. All the free water and fermentable sap are extracted during the above operation, which is prolonged while there is any outflow of them. A tree felled one day can be treated the next, and then needs only to be allowed to cool down, carefully protected from draught for a few days, and thereafter there will be no contraction, warping, or decay. The fibre is strengthened; the colour not injured, often improved; no smell is given off; the wood is not made more combustible; it will take paint or varnish as readily as before; the sapwood is made as good as the heart. Newly imported timber, thus not only seasoned but preserved from dry rot, can be sold at the same price as weather-seasoned timber, and delivered on any work in one-twentieth of the time usually taken; and architects and surveyors will readily perceive the advisability of specifying in future for beams, joists, flooring boards, rafters, &c., to be carbolized by Blythe's process; while joiners will appreciate the great benefit of working up wood that can be relied on not to shrink, warp, or crack. An elaborately-carved sideboard, made from fresh oak so prepared, was shown in the Austrian department of the last French Exhibition, and obtained a high prize. Oak, American cherry, walnut, and other fine woods intended for cabinet work, joinery, panelling, and parqueterie, have been successfully prepared. Hornbeam and apple-tree have been made fit for millwrights' purposes in a few weeks. Beech has been made as hard and as rich in colour as exotic woods. Poplar, Scotch fir, and other trees of quick growth, can be applied to purposes at present unthought of; they have been pressed into shapes and made as dense as boxwood. Carbolising has been proved to be a better preservative for sleepers than creosoting under the old system, kyanising, or any other method of protecting them. Beech in moist ground is very perishable, but some beech sleepers thus treated in 1872, and subjected to the very heavy traffic on the main line of the Northern of France Railway between Amiens and Paris, still show no signs of wear under the seat of the rails, nor of decay; and the very general application of Blythe's process throughout France, now extending to many millions of sleepers annually, proves the appreciation of its superiority by the engineering profession in France. Wood, thus treated, is especially adapted for foundlers' patterns and such like purposes. Paving-blocks would thus be made much more durable. Ash and elm, prepared for railway carriage and wagon building, will be found superior to the same wood otherwise treated, and equal to good oak.

*Creosoting for Dock and Harbour Piles, Railway Sleepers, Telegraph Poles, Paving Blocks, Park Fencing, &c.,*

Timber intended to be immersed in water, or buried in the soil like railway sleepers, and piles under buildings, may with advantage be subjected to a supplementary bath of creosote, which, under Blythe's system, is mixed with tar. This is applied in the same cylinder, while the wood is hot and soft from the carbolizing process, and it is forced in by steam at a high pressure, diffusing itself through the sapwood, and leaving a varnished surface more impenetrable than mere creosote, which exudes when in excess. The old process of creosoting depends for its partial efficacy on the wood being thoroughly seasoned—under the contract system this is rarely effected. By sealing up the unextracted sap juices, and free water, their liability to ferment and cause the growth of fungi is increased, and then the surface of the wood that has been impregnated is found to be the only sound portion. Whenever that surface is adzed or worn away the exposed parts are open to the attack of fungi or insects. These defects in the old system have caused it to be altogether discarded by many, who are now adopting Blythe's double process; as by it the wood is made so much harder, that the hammering of the traffic does not destroy the chair seatings, nor the holes for the fastenings, and the life of the sleeper is therefore prolonged considerably. One most important feature in the Blythe process calls for special remark. The preserving plant can be carried to the spot desired, instead of the timber being brought to the plant. Thus time may be saved as well as outlay, and the finished pile, plank, or sleeper, drawn in convenient quantities to the place, and at the time it is wanted. Mr. Blythe employs in France several such sets of ambulant apparatus, which, being built on trucks, move from station to station, wherever there is a sufficient number of sleepers to be creosoted. The cylinders can be joined to admit also of long timber being treated in the same way. Sets of apparatus on this principle will be ready for such service in England. Parties interested in the above are invited to pay a visit to the works, which will give them the advantage of seeing for themselves the results and obtaining all further information on the spot.

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No. 6.

Mr. W W EVANS, New York, to the UNDER-SECRETARY for PUBLIC WORKS, New Zealand.

SIR,—

New York, 27th February, 1881.

I had the honor to receive your communication of the 8th November, in reference to the Thilmany process for preservation of timber.

Since writing to you I have had a correspondence with Mr. Young, General Manager of the Wood Preserving Company under the Thilmany patents. I have sent to you one of their circular pamphlets. I have not yet been able to see him, as he went to Boston, and has not yet returned or answered my inquiries as to cost of apparatus and cost per cubic foot for preserving timber. I have no doubt but that this Thilmany process will preserve timber: chemically it is correct; mechanically it is wrong, and not, in my opinion, the equal of the Hayford or the Boucherie process. The latter has been in successful operation for nearly thirty years, and is the most philosophic of any ever invented. I have used it in the preservation of sleepers in Chili, South America, and speak knowingly. I will explain it: but, first, allow me to explain the philosophy of the preservation of timber; second, to describe some of the various processes that have been patented; third, to specify the objections to the Thilmany process; and, fourth, to describe the Boucherie process.