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Preserving waterlogged wood with sugar

Ed Jarzembowski

Prof. Dr; Keeper of Natural History, Maidstone Museum & Bentslif Art Gallery

There is one kind of enquiry I dread - people bringing in a moist bone or a piece of wood found outdoors and then leaving it with me: it inevitably dries out, distorts and cracks up. Such specimens tend to be of public rather than specialist interest and do not warrant costly laboratory conservation.

However, any losses are discouraging. Some woods are more robust than others such as lignum vitae (an ironwood: *Guaiacum*) which will survive slow air drying with only some small cracks developing (Fig. 1). The figured item, a circa one-hundred-year old recent beachcombing find, was kept in a non-centrally heated room inside a recycled, cotton coffee-bean bag. Drying can also highlight features, e.g. growth rings (Fig. 2). By comparison, a freeze-dried example (Fig. 3, left) fared no better. (I should explain that these worn sheaves are the last remnants of wooden pulley blocks from the age of sail and attractive because of the cut-out pattern for the metal bearings on which they spun.)



Fig. 1. Air dried, lignum vitae (*Guaiacum*) sheave from the English Channel.. (Scale: 20p UK coin, 21 mm diameter)



Fig. 2. Regular growth rings in sheave fragment.

Last winter, the southwesterly storms presented me with a challenge- an actual block of elm (*Ulmus*) with lignum vitae sheaves cemented by concretionary limonite due to oxidation (rusting) of the former spindle and bearings (Figs. 4a,b). This was bound to crack up on drying because of the mixture of materials. At the suggestion of Peter Marsden (Hastings), I prepared a saturated solution of table sugar in boiled warm water, poured this into a lidded plastic box, and immersed the block for three months. The only visible change was a slight reddening of the solution due to a fine suspension of rust. I left it for another month to be on the safe side and then took it out, wiped off the excess sugar with a damp cloth, and slowly air dried it in the usual way for three weeks. The major observable difference was that the wood had lightened in colour; only one previous crack showed any sign of expansion (Figs. 4c,d). Sufficient sugar had clearly crystallised inside the cells to preserve the original waterlogged morphology. I do not know if this would work with larger pieces of wood, but 3-D preservation of hand-size specimens is possible with patience on a petty cash budget.

All images can be seen in colour on the online journal:

www.nhm.ac.uk/hosted_sites/natSCA/



Fig. 3. Freeze-dried sheave



Fig. 4.a



Fig. 4b



Fig. 4c



Fig. 4d. Composite pulley block. a, b waterlogged as found; c, d air dried after prolonged immersion in aqueous sugar solution