

7 OCT 1834

CP 31st July, 1838

NEW SHEATHING FOR VESSELS.

There has been delivered to the Dock-yard at Plymouth, a quantity of the *Patent bronze sheathing*, and directions have been given by the Lords of the Admiralty to sheath two of the Falmouth Packets that may next require coppering, one side with the patent bronze, and the other with copper, so that a comparison may be fairly established of the duration of the two substances.

The bronze, certainly is a most beautiful specimen of manufacture. But notwithstanding its density and polished surface, it is at the same time quite malleable and pliant.

The subject we are aware is one of great interest to many of our readers connected with the Royal and Commercial Navies, and we have therefore collected the following details relative to this new invention, which, we understand, originated with a French engineer, and was first tried in the French navy in 1829; since which, on account of its superior durability, ascertained by repeated experiments, the French government has contracted for several tons a-year. In every instance it has been found to keep quite clean, a point of paramount importance, whilst from its superior hardness, it is not so liable to be rubbed, in case of a vessel taking the ground, or running foul.

The durability of ancient bronze coins, medals and utensils, has long excited attention; numerous specimens are found in Egypt, Greece, and Italy. The famous horses of St. Mark, at Venice, are a remarkable instance of preservation; but it was never thought practicable to render such a hard and dense metal malleable, so as to convert it into sheets. The beautiful specimens we allude to proves that this difficulty has been overcome. We are informed that the usual composition of the bronze of antiquity, was copper combined with six to ten per cent. of tin. Bronze is in fact copper hardened, and rendered less liable to oxidation, by the addition of tin.

The wear of copper on ship's bottoms, is a mechanico-chemical action, inasmuch as its waste at sea is five times greater than in harbour. We should conclude, therefore, *a priori*, that a hard metal like bronze, would waste less by the friction of the water, than a soft metal like copper; and the greater duration of ancient bronze, proves that it is less oxidizable. There would thus be established a superiority in resisting mechanical as well as chemical action in favour of the bronze. The result of the experiments made in the French navy on bronze sheathing *very imperfectly manufactured*, as stated in the "Annales Maritimes," for 1830—31 and 32, go to prove that when applied to ship's bottoms, the loss in weight of the bronze is less than half that of copper.

It appears now established, that a continued and unceasing wasting of the metallic sheets alone secures a clean bottom, and that no galvanic protection is compatible with it, fresh surfaces of the metallic sheets must constantly be presented by the washing away of the scale or oxide: everything that attaches to the bottom in calms or in harbour, whether seeds of marine plants or spawn of animalcules, is thus undermined and carried off, leaving the sheathing bright and clean. With the bronze, as with copper, the same continuous wasting is going on, but with *one half the loss in weight*, owing to its greater hardness and density, and its inferior oxidability. Lead, zinc, &c. foul on ship's bottoms, not because their oxides are less poisonous than that of copper, but because, instead of being washed off, their oxides are *adhesive*, and eat (if we may so express ourselves) into the sheets, thus allowing whatever fastens on the bottom to remain and increase. Sir H. Davy's protected copper failed for the same reason—there was no oxide formed; the copper did not waste at all, and thus became foul.

There is, however, one obstacle to the general use of bronze, which those who like cheap articles will hardly get over, viz.: it is 2d. per lb. dearer than copper, which the English patentees, Messrs. Vivian and Sons, state they are obliged to charge to cover the great extra expense of rolling so hard and dense a metal into sheets, and the patent right; but, we apprehend, if on trial the bronze, instead of giving double the wear of copper, gives only one-half more, or as four years and a half or three years, this additional first cost will be treble repaid to the ship owner, as nothing is so vexatious and expensive as putting a ship into dock to get her re-coppered when she does not require other extensive repairs. On whaling, and other distant foreign voyages, the longer duration of sheathing is a great desideratum. Even the first outlay may be eventually reduced by the use of bronze sheets eighteen or twenty ounces to the foot, instead of copper sheets of twenty-eight or thirty ounces per square foot.

Nearly the whole of the whaling and India ships from Havre are sheathed with bronze, and several have returned from these long voyages with their bottoms perfectly clean and the sheathing very little worn. It is now extensively in trial on ships from London, Liverpool, Greenock, &c. so that the results obtained in France will soon be severely tested in this country.

We find we have omitted to notice a point of great importance in a sheathing for ships' bottoms, which is that the wear should be uniform over the whole surface of the sheets. It is well known that copper sheathing is greatly subject to be corroded into holes, and this especially happens when a vessel has been for some time in ordinary at her moorings, so that the sheathing often becomes unserviceable from this cause, although its total loss in weight is very small. This occurred in two instances in the trials made by the French navy, where one side was covered with copper and the other with bronze. Although the vessels had not got out of harbour, they were obliged to take off a considerable part of the copper, whilst the bronze sheathing was quite perfect, having worn uniformly over the whole surface.

ANTI-DRY-ROT COMPANY, KYAN'S PATENT.

PUBLIC TANK YARDS,
Scotch Street, Whitehaven.—Windmill, Maryport.

It is particularly recommended to all who purpose Kyanising TIMBER to be used during the Winter Months, that they have it done at a season when the Solution can be completely dried in the Wood, as that once effected, it will then shrink no further.

By this Patent process all sound Timber is effectually preserved from Dry Rot, and, if partially attacked, it will stop its spreading; Canvas, White Cordage, Fishing Nets, &c. are Articles to which also it is peculiarly advantageous, as well as to Woolens, by rendering them impervious to Mildew, Rot, Moths, &c.

High Street, Reading, Dec. 7th, 1837.

Sir,—I am happy to inform you that the beech-posts, rails, & raling, I fixed near Reading, about two years ago, are in a perfectly sound state. I have had use of the posts taken up, and it does not anywhere evince the slightest indication of decay, nor does it appear in the least shrunk or warped, whilst some oak rails fixed about the same time, are so twisted and shrunk as to require refixing, several of the panels having given way. I much regret that some unprepared beech was not fixed at the same time; but it is of such a perishable nature that I am certain it would have decayed before this. I send you with this a piece of the bark from one of the posts, stripped off just at the surface of the ground; it adhered as firmly to the wood as when the tree was just cut.

I am so convinced of the efficacy of the Corrosive Sublimiate in preserving timber, that I would prefer using (in a damp situation) prepared beech, poplar, or fir, to the best yellow deal, or other foreign timber.

I am, Sir, your obedient servant,
W. Morgan, Esq.
J. B. Clark,
Sec. to the Anti Dry Rot Co. Architect.

250, Bristol Street, Birmingham, May 14th, 1838.

Sir,—We think it right, and in justice to the Anti Dry Rot Company, to express our opinion as follows:—We have tried your preparation of oak planking for our own use, for the last eighteen months, and we certainly much approve of it; inasmuch, formerly we were obliged to keep timber upwards of three years, before properly fit for use; and now, with your process, it may be used in six months, which we have done; and it does not in the least injure the strength of the timber, but, on the contrary, it hardens the wood; and, we should say, it has every chance in its favour of durability.—We are, Sir, yours very respectfully,
Francis & Edward Arvill, Coach Makers.

Birmingham, May 12th, 1838.

Sir,—We have made use of Gun Stocks after having gone through the process of seasoning in Kyan's Patent Liquid, and we are of opinion that there are two advantages in adopting such a process; viz., first, that they are not subject to be injured by the grub, or fly, after seasoning; and secondly, that they dry much faster, and thus save considerably, enabling a manufacturer of guns to do with a smaller stock than he has hitherto been obliged to keep.—We are, Sir, yours respectfully,
Jn Francis Lloyd, Esq.
H. MERRITT & SON.

London, March 24, 1838.

Sir,—At the commencement of the year 1836 I surveyed and accurately examined the posts and piling in the Regent's Park, for the purpose of ascertaining the comparative states of those timbers which had been prepared by Kyan's Patent, and those which had not been submitted to the process of solution. In my report of that period I stated that indications of decay were already perceptible in most of the unprepared timbers, both at the bottom of the posts, and at thosearris edges and ends of piling which were placed in or had come at all in contact with the earth, while those timbers which were marked as having passed through the solution, were quite free from any such symptoms. I now beg leave to state, that I have this day, after a lapse of two years and a quarter from my previous survey, again accurately examined several of the same posts and piling, digging away the earth from the foundations for that purpose; and I find that the symptoms of decay, mentioned in my preceding report, as having commenced in the unprepared timber, have so considerably increased as to have rendered the bottom of the posts completely rotten, to a depth of from one to two inches, and that, in several instances, fungi have been the consequence of the decay; while I find the prepared timbers which are in the earth, sound and in the same state, with the exception of mere discoloration upon the surface, probably arising from the damp state of the earth at the time of its removal. As a further proof of the difference existing between the unprepared and prepared timber, we shall cut, with the greatest care, large pieces from the former with the spade, without using any force, while it required great exertion to chip off very small pieces from the latter. I have the honour to be, &c.

To Wm. Morgan, Esq. SAMUEL BEAZLEY, Architect.

