

because in certain circumstances, which led them to anticipate no action, they nevertheless found lead in water, but only in extremely minute and unimportant proportion. The test for lead, the hydrosulphuric acid, when employed in the way now usually practised, is so delicate as to detect that metal dissolved in ten million parts of water, and even more. But facts warrant the conclusion that the impregnation must amount to at least ten times as much before water can act injuriously on man, however long it may be used.

2. On the Preservation of Iron Ships. By
James Young, Esq., of Kellie.

My attention was called in January last year to the rusting of iron vessels by observing that the bilge water of my yacht (the "Myanza," 214 tons) was much discoloured by red oxide. Knowing that bilge water is apt to become acid, and thus to attack iron, the result was easily accounted for. Even when the water does not become acid, we may expect some action on the iron to take place when sulphuretted hydrogen exists, as it frequently does there, in which case, first a sulphide, then an oxide, and some sulphate, are formed. The remedy seemed to be easy, because the acid can be neutralised by lime. This earth would also prevent the formation of sulphuretted hydrogen.

I put this immediately into practice, adding lime until the bilge water was alkaline; and samples were taken every fourteen days, which showed the amount of rust to be rapidly diminishing. After six months the liquid became perfectly clear, so that the cure is complete. The yacht is a composite one, and the action is therefore greater than in iron vessels generally, because of the copper or cupreous bolts which are used. These bolts cause galvanic currents with the iron, and greatly assist in its oxidation and solution.

As a very little lime will last a long period, the plan causes neither trouble nor expense. Seeing in the newspapers that the destruction of the "Mægara" was attributed to the action of bilge water, I thought that my experience might be of some value.