

THE
MECHANICS' MAGAZINE.

LONDON: FRIDAY, JUNE 14, 1861.

THE AUSTRALIAN SOVEREIGN.

WE were much gratified to find that before the last week's issue of the MECHANICS' MAGAZINE—wherein such a course was recommended—had been distributed among its subscribers, Mr. Alderman Salomons had further questioned the Government as to the colonial gold coinage. We congratulate the hon. member upon having obtained from the Ministry more explicit, and, we may add, satisfactory, information with respect to the Australian sovereign and half-sovereign than had been previously vouchsafed to the public.

Although the reply of Mr. Gladstone is not of that decisive character which might be wished, yet we feel a confidence in the result of such a ventilation of the subject as the publication of the correspondence referred to will produce. Neither the Treasury, the Bank of England, the Colonial Office, nor the Mint, will be in a position to show that the imperialization of the colonial gold coinage will be fraught with other than good both to colonists and inhabitants of the mother country. As we have previously shown, however, the simple method of overcoming the evil so much complained of at the antipodes and at home is to furnish the Sydney Mint with dies identical in design with those used at Tower-hill. The ornamentation of the Sydney coins, either from defective engraving or some other cause, is inferior in an artistic point of view to those of the London Mint, and hence arises another reason for supplying them with dies of the same stamp as those of the latter place.

The inconvenience and expense attending the existence of the two varieties of gold coins in circulation in Australia are only known to their full by those who have sojourned in that country. New emigrants arriving in the colony are very probably unaware till that moment of the fact that gold coins of a different impression to those circulating in England are in use in Australia. Consequently, when payment for labour is made them in those coins, they regard the money with most suspicious eyes, and frequently refuse it altogether. The new emigrant in Australia is, as it were, naturally doubtful of everything and everybody, and especially is he suspicious as to money matters. He misses on the sovereigns tendered him the well-known devices of the imperial coin, and straightway regards them as counterfeits. In the colony of Victoria police cases have frequently arisen from the refusal of emigrants to receive other than British-minted sovereigns, and quarrels and litigation on the same ground are common.

Emigrants, too, on returning from the colony are subject to considerable annoyance. They remember, only, when on board the homeward-bound ship that the sovereigns in their "lockers" are Australian. Sharpers on the look-out for such cases are in attendance to exchange colonial for British money, but only on payment of a discount of 1s. 6d. or 2s. in the £1, and this extortion the unhappy victim must submit to, or bring his Sydney sovereigns home, and be fleeced on his arrival in a similar manner. It is unnecessary to accumulate evidence in favour of the change proposed; and when the papers promised to Alderman Salomons are published, we shall examine them carefully to return to the subject.

THE FOULING OF IRON SHIPS.

LORD PALMERSTON stated a few weeks since, in the House of Commons, that iron ships cannot "keep the sea for any length of time" where they cannot clear their bottoms of the "incrusting and the vegetable matter that impede the steering and management of the vessel." We quote the language of the Prime Minister as evidence of the deep interest which has been universally taken in the question, and of its commanding importance. This vegetable matter, that tries so severely the patience of our seamen and passengers on long voyages—that tries also the patience of thousands on shore waiting for expected friends, and that is most of all troublesome to our shipowners, who have to pay for its removal, has become an imperial question. Private individuals, public companies, even the Government, wants to get rid of the nuisance. It costs us millions annually. We hesitate to build an iron navy, because iron ships are not so serviceable on long voyages as wooden ships, and on distant stations, where there are no docks for cleaning them. We know that iron is more durable, and in many other respects superior, to wood for ships of war; but this vegetable matter is an obstacle in the path of progress.

A new era in the history of naval architecture has lately commenced. For many centuries wood was the only material used for the hulls of ships. By the discoveries of successive generations, we had learned the means of preserving it from the destructive action of the elements. This result, however, was not attained until after the introduction of the compound of copper and zinc, called "yellow metal," in 1823. But just when the old material—wood—was perfectly adapted for our use, a new material—iron—was discovered to be superior; and for the last twenty years the substitution of iron for wood, in the construction of merchant steamers, has gone on with a rapidity astonishing even to those who were its earliest and warmest advocates. "Twenty years ago," says Mr. Scott Russell, "not a twentieth part of the steamers of England were of iron; and at the present time not one steamer in a hundred of our sea-going merchant vessels is of wood." By experience we have learned that iron can be made to swim better than wood, and that vessels built of it are stronger, lighter, will carry heavier burdens, and are safer against fire and the perils of the sea than wooden ships of equal size. The prejudices of our sailors, and others connected with our merchant shipping, have gradually given way, and at last vanished.

The fouling of the bottom of iron ships cannot be regarded as a sufficient reason for either refusal or delay in employing iron in the construction of vessels of war. It is a difficulty to be overcome—not a barrier to stop improvement. The material which has been found so valuable in merchant vessels, and in a very large proportion of our vessels of war, may be expected to prove no less useful in the construction of ships designed for long voyages and for stations, where there are no facilities for docking. The disadvantage is trifling, especially at a time when the construction of docks and harbours is becoming a local question in our colonies, and is daily attracting greater attention in foreign countries. Even if the discovery of some method of preventing fouling were unattainable or uncertain, we might discuss the question whether it was better to build iron ships for colonial and foreign service, and provide convenient docks for them abroad, or to continue the construction of wooden vessels of war. Would it be cheaper to employ wooden walls for the defence of our possessions and

property abroad, or to build iron ships of war, and prepare docks in our colonies for their cleaning and repair? The latter course, if not the most economical, which is very doubtful, would certainly, considering the interests of commerce and our merchant vessels, be the wiser policy.

But the supposition that it is impossible to discover some method of preventing fouling cannot be seriously entertained. The fouling of wooden ships has been prevented, and why not also the fouling of iron ships? The two problems are similar, and the solution of the former may be regarded as a step to the solution of the latter. A composition of sixty parts of copper, and forty parts of zinc, rolled hot, has been found to afford protection to the bottoms of wooden ships; and we now require a new compound for iron vessels. The sheathing upon the Sans Pareil, which lasted thirty years, and which lost only one and one-twentieth ounces per sheet per annum, was a compound of copper, zinc, tin, iron, and silver. The iron in this instance formed part of the sheathing, proving clearly that we require only some metal, or metals, to be either incorporated with the iron hull, or attached to it, which will serve the same purpose as the copper, zinc, and tin in the case of the Sans Pareil. So near have we approached the required compound; so well-known are the galvanic properties of these metals, and their reactions when in contact with sea-water; and so easy is it to conduct experiments upon them, that we cannot long remain in ignorance of the method of preventing the fouling of iron ships. Some persons have already supposed that they had solved the problem, but their inventions have not yet stood the test of time and experience.

So important is this question at the present time, that we think some means should be adopted to stimulate our chemists and metallurgists to greater efforts for its solution. Probably, one reason why it has remained so long an unsolved problem, is because so few men have been engaged in its study. Only in this country has it attracted any considerable degree of attention. Foreign nations can scarcely be said to have commenced the building of iron ships. In France, a few iron-plated ships have been built, but so lately, that the difficulty has not yet been felt, and cannot soon attract the notice of a nation without many foreign possessions or a large mercantile marine. The United States has only commenced to build iron vessels, and know nothing by experience of the chief objection to their use. We must, therefore, rely for the discovery of a method of preventing fouling upon native genius, unaided by our neighbours, or by the stimulus of foreign competition. It becomes, therefore, a serious question for us, considering our present position, whether we should employ extraordinary means to hasten the discovery, or rely upon the ordinary stimulus afforded by our present system of patent law. Two parties are chiefly interested in this question—the Government and our shipowners. Should either of them offer a reward for the discovery of a means of preventing the fouling of iron ships?

A few weeks ago we suggested that Government should offer a reward, and as the suggestion has been generally approved, we may again refer to it. First, we may state that we have not the slightest expectation that the suggestion, however strongly backed, will ever be acted upon, as such a method of stimulating inventive genius is not in accordance with the settled policy of our Government. Exceptions may be made, as in the case of the discovery of a means of ascertaining longitudes, when Harrison was encouraged to labour for half a life-