

THE COMPASS IN IRON SHIPS.

The Philadelphia *Times* gives an interesting account of a curious industry—adjusting the compasses of iron ships. The business, it says, is monopolized by three persons in the United States—two in New York and one in Philadelphia. An iron ship, said one of these professionals, is a great magnet. The Magnetism of such a ship is technically known as "permanent," from having received the same from some other magnet itself styled permanent. The position the vessel occupies in the shipyard while in course of building is the principal feature in the shaping of her magnetic influence. It may seem incredible, but a vessel lying due north and south on the stocks will be highly charged with magnetism—so highly, in fact, that the nicest calculations and most skillful adjustment of neutralizing magnets is requisite to correct its influence on the compass, and with the greatest care errors are made, which involve more or less trouble in the directing of the ships' course.

Every blow struck upon the iron plates of the sides, upon the rivets, or even by the calker, has a pronounced effect upon the ship's magnetism. It is well known that in certain processes of iron working, workmen, after striking the metal in one direction for a few minutes, are compelled to reverse the direction of their blows so as to change the polarity in order to prevent the fine particles of loose metal from adhering to their tools. In ship building it is impossible to reverse the manner of striking, and the result is that the magnetic currents are not equalized.

If a vessel that was built north and south in the yard travels generally north and south she loses a great portion of her magnetism, and a corresponding change is noticeable in her compass.

The lines of magnetism always run in a contrary direction to the position the ship occupied in building. It is said that the quality, ductility and grain of the metal used in the construction of the vessel have a great deal to do with the magnetic currents. It sometimes happens that the greatest accuracy that can be secured will not prevent a variation of three or four points from the true point. Occasionally it happens that, for illustration, a variation of but one point will be noticed when the ship is headed northeast, but when headed southeast five or six points of variation exist. The magnets used to neutralize the ship's magnetism consists of large bars of iron, spheres, spheroids, coils and, in fact, iron of almost every shape. These are placed in different portions of the vessel and exert a greater permanent influence the further away they are placed. When placed near the compass they "make the needle wild." If the engines are changed during the trip, if new boilers are shipped, iron taken aboard or "patches" put on the sides, the magnetism of the ship is proportionally disturbed and a readjustment is necessary. Usually an adjustment for all practical purposes will secure safety, so far as the compass is concerned, for a year or probably longer; but cases are reported where iron ships but forty-eight hours out from port have been wrecked in consequence of a change in the ship's magnetism producing a variation of the needle not calculable. These are rare, however.

ELECTRIC LAUNCHES IN THE RUSSIAN FLEET.

As a result of experiments made by the Russian War Department last summer at Cronstadt with electrical launches, a part of the Russian cruising fleet has been supplied with these vessels, to be used for night attack. The design is by Lieut. Terentineff. Each launch carries an electric battery of 200 accumulators, which, section by section, are capable of furnishing propelling power for from 15 to 20 hours, and, with a velocity of from five to six knots the launch is good for from 75 to 100 miles.

These launches have been found peculiarly adapted for carrying an armed crew on warlike expeditions at night, because, unlike the steam launch, they make no noisy puffing and are good for a long distance. Boats, even with muffled oars, are more or less noisy, and, besides, are very slow. Here, then, is a case where the electric launch is invaluable, because economy, of course, is not a requirement, speed and silence being the requisites.

We are not told how many men these launches will carry, nor how many are assigned to a single vessel. They can be swung over the side and launched from davits like ordinary boats, the men boarding after the launch is safely afloat.—*Bulletin des Telephones*.

THE CAUSE OF DEPRESSION IN ENGLAND.

At a time when the government of the country is taking in hand an inquiry as to the causes of trade depression, with a view to see if any thing can be done in the way of legislation to remedy this trouble, it may be well to see if any such inquiry is necessary, and whether the cure is not very much within our own reach. The causes of depression are not difficult to trace. During the last five years capital and enterprise all over the world have stimulated production in a ratio greater than the increase of population, and the consequence is seen in low and unprofitable prices. This country has suffered in several ways in consequence of the active competition of our continental neighbors and our enterprising American cousins. To meet this some would place a duty on all manufactured articles imported into this country; but this would not relieve us from this competition, as it would only break out in another place. It is well known that we are suffering from this competition in foreign markets, where we do a large trade, and any impost such as is proposed, whilst increasing our trade for home consumption, would raise prices, and thus the better enable our competitors to take larger share of our foreign trade, whilst at home we would be paying higher prices in consequence of the duty which would be imposed; so that, all round, we should be considerable losers by such an operation. The cure is in our own hands. This competition must be met and overcome in a fair fight with our opponents. As regards America, the difference is due more to that talent and skill of inventors who are always designing something new and attractive, and if our manufacturers would only get out of their old-fashioned ways and allow skill the same play here, there is no doubt we could meet this competition easily, for it is no secret that the English article, if not so attractive, has the element of durability about it. The continental competition is more serious we fear, as it is based on the decided advantage which they enjoy in the matter of wages as well as the wonderful energy and push which they show in all foreign markets. It is not to be expected that English workmen will accept the low wages ruling on the continent, and fortunately it is not necessary, as it is generally admitted that our labor is considerably the more efficient of the two, still there is no concealing the fact that even after all due allowance is made for this difference wages in England are relatively higher than on the continent. Although we cannot but rejoice in the higher standard of comfort attained by our working classes during the last few years we must also recognize the fact that if absolutely necessary they may have to submit considerable reduction in wages to meet that competition which is now being seriously felt in all branches of trade. It is fortunate for them that all articles of prime necessity are now so low in price and there is little doubt, if present hard times continue much longer, they will make their mark on rents, prices of clothing, etc., etc.

Another serious matter affecting our staple trades is the question of railway rates, rents, and royalties. These will have to be dealt with sooner or later in accordance with the spirit of the times. It is absurd to suppose that whilst everything else suffers a serious reduction these important changes are to remain fixed and unchangeable. To bear fairly on trade the principle of the sliding scale ought to be introduced, so that all may bear their fair share of bad trade and benefit when the good times come. There is little doubt, with a slight readjustment of wages, railway rates, and royalties, all the great industries of this country would be able to hold their own in the great struggle which is now going forward, and the end of which does not seem very close at hand.—[*London Iron Trade Exchange*].

STRANGE BUT TRUE.

This is one of the curious things floating about: take a piece of paper, and upon it put in figures your age in years, dropping months, weeks, and days. Multiply it by two; then add to the result obtained to the figures 3,763; add two, and then divide by two. Subtract from the result obtained the number of your years on earth, and see if you do not obtain figures that you will not be likely to forget.—*Sc. Am.*

A varnish compound of 120 parts of mercury, 10 parts tin, 20 parts green vitriol, 120 parts water, and 15 parts hydrochloric acid of 1.2 specific gravity furnishes a good coating for iron exposed to the wet.