

THE FRENCH DISPATCH TORPEDO BOAT LA BOMBE.

According to the new classification adopted by the French navy, the torpedo boats are divided into several classes, viz. :

1. The torpedo cruisers of from 1,240 to 1,260 tons.
2. The dispatch torpedo boats, of from 320 to 380 tons.
3. The torpedo boats for deep water, of 50 tons and upward.
4. The torpedo coasters, which are again divided into two classes, those of the first class being of 30 tons and those of the second class 25 tons.

Finally, in the fifth class may be included the vedette torpedo boats, of 25 tons, which, in spite of their slender build, or rather because of their slender build, can render great service for the defence of the coasts.

The annexed cut represents La Bombe, which has just been launched at Havre, and which belongs to the second class, that of the dispatch torpedo boats. It was built at Havre by the "Societe des Forges et Chantiers," which firm has just built, for the Ottoman Government, two torpedo boats which are really remarkable.

Eight torpedo boats similar to La Bombe, are now included in the official list. They are : La Couleuvrine, La Dague, La Dragonne, La Fleche, La Lance, La Salve and La Sainte-Barbe. But of the eight, only La Bombe has been completed. This vessel measures 196 feet 10 inches, from stem to stern, and draws 5 feet 10 inches of water. It is made entirely of steel, and care has been taken to make the hull as light as possible, and at the same time strong enough for the navigation of the high seas. The dispatch boats of the Bombe type are furnished with two engines, each acting upon a screw, and developing 1,800 horse power. The speed attained is almost 18 knots. They have three masts, and are provided with all the latest improvements for handling torpedoes, with apparatus for electric lighting, etc.—*L'Illustration*.

AMERICAN vs. ENGLISH-BUILT IRON SHIPS.

In an interesting interview with a reporter of the N.Y. *Evening Post*, a member of the iron shipbuilding firm of Cramp & Sons, Philadelphia, says he does not think the iron shipbuilding business in this country is more depressed than other manufacturing interests. Being asked if his firm would accept a contract from the Government after the recent opinion of Attorney-General Garland in the Dolphin case, he replied that they would, without the least hesitation, but that they would not guarantee anybody's work except their own, meaning that they would not agree to build vessels on plans, specifications and models furnished by the Navy Department, and guarantee a certain result. They would guarantee results, but must be left free to build according to their own plans—of course under reasonable conditions as to size and class. Under any conditions of divided responsibility, they would not make any guarantee whatever, and would refuse a Government contract, or any other.

Mr. Cramp accounts for the present status of the shipbuilding trade in this country by saying that capitalists have thought it better to put their money into railroads, than into the construction of ships. He further says that his own firm (and presumably any of the six large shipbuilding concerns situated on the Delaware river) would guarantee to build iron ships, *quality for quality*, for the same money they would cost in England, or anywhere else. He says the idea that American ships cost more than English-built vessels, comes from the fact that when an American wants a vessel built, he gets a price from the shipbuilders on the Tyne for what is called "a tramp"—the very poorest sort of boat that can be turned out, and such as the best builders of England do not attempt to build. The price is 20 per cent. below what a first-class boat would cost here, and consequently it is said that ships can be built there just that much more cheaply. He also says the crack boats of the lines running between this country and Europe are not equal to boats that could be had in this country for the same money. The boats are owned abroad, and, therefore, foreign-built boats are naturally given the preference in buying, though boats could be had here that would run more economically and cost no more. A number of the Inman, Cunard, and White Star boats, built abroad at enormous expense, have either proved to be failures or enormous coal-eaters.

Mr. Cramp's remarks suggest the supposition that perhaps, one of these days, some of the crack transatlantic lines will be

willing to try what American iron shipbuilders can do for them.

TECHNICAL EDUCATION AND APPRENTICESHIP.

In a paper read by Mr. Robt. Cunynghame before the Society of Arts, on Technical Education, the writer said :

"It is, therefore, incumbent on the friends of technical education to consider how it may be most economically carried out ; and I believe it will be found that the solution of this question lies, not in attempting to replace workshop training by classes or lectures, but rather to supplement it by theoretical instruction. * * *

"Now, I think that all attempts at technical education will be imperfect that do not, to a certain extent, deal with the apprenticeship question. It is in the workshop that the artisan must be really formed—just as the barrister must be trained in chambers, or the doctor in a hospital. At the same time, what the university is to the advocate or medical man, the technical school should be to the artisan ; only, however, with this difference, that it is generally necessary that while he is learning, the artisan should be also working, and that his technical instruction should go on contemporaneously with the workmanship employment."

Speaking of the bad influences brought to bear upon apprentices the author says :

"To counteract the evil I have spoken of, there appears to me no more useful plan than to form youths' institutes. The duties of the officials of these institutes should be to see to the apprenticing of boys, encouraging them to enter such trades as offer good prospects, and endeavoring to guide their choice. In all cases a month's trial without pay should be insisted on, and free liberty given to master and boys to refuse the proposed contract at the end of the time. There is no fear that under such conditions a boy will desire to change too often. At such institutions lists should be kept of masters desiring hands, and of boys desiring to learn trades. The character of the masters should be carefully investigated with a view to ascertaining whether they are fit and proper persons, or whether they have lately been bankrupt, and are likely not to be able to fulfill their engagements. Moreover, the boys should be periodically inspected, a monthly report being given by the master respecting their conduct ; and, on the other hand, steps taken to compel the masters to stand fairly by the contract."

INVENTORS AND MANUFACTURERS.

Sometimes a really meritorious invention is brought too soon, that is, before conditions are favorable, for its reception. It used to be extremely unpopular, and equally unpleasant, to express a belief that the earth was other than a stationary body. Because it was true did not count anything against the fact that people did not believe it. So sometimes an inventor sees further than he can bring others to see, and suffers by finding his invention fall flat. Men's minds move faster than formerly, and there is some hope that the unfortunate inventor may live to see his views adopted ; otherwise his invention will, in the future, be re-invented and some one curious in such matters, or particularly interested in this especial one, will establish a clear case of piracy against the last inventor, who probably never heard of it before.

Again, an invention may be good and needed at the time, but for lack of ability, financial or otherwise, it may not be pushed before the public as it should be. It does not follow because an invention that is not rejected outright does not become prominent or popular, that it is worthless, or even because it does become prominent, that it is of much value.

What is true of inventors is true in some degree of manufacturers of machinery. Machines that in time become popular are often introduced at a good deal of trouble and expense. Many become discouraged trying to bring something meritorious into use, seeing its utility themselves but unable to make others see it. Just how far to go in the direction of trying to create a demand is not easy to decide upon. Sometimes in the case of something altogether good, it may be created quickly ; sometimes only at the end of discouraging waiting, and much trouble and expense.

— THE contract for stonework on the new public building at Council Bluffs, Ia., has been awarded to J. M. Rice of Austin, Ill., at \$49,893.