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The Editor is always glad to receive for examination illustrated articles on subjects of timely interest. If the photographs are sharp, the articles short, and the facts authentic, the contributions will receive special attention. Accepted articles will be paid for at regular space rates.

## POSSIBILITIES OF A STEEL PANIC.

Of all our industries the manufacture of steel affords, perhaps, the most striking evidence of the unrivaled run of prosperity that the country is now enjoying. In spite of the fact that our production, both of pig iron and finished steel, greatly exceeds that of any other country in the world, the demand of the home market is such that it has overtaken our production, and even gives promise of exceeding it. One of the leading officials of the largest bridge company in this country considers indeed that we may shortly be confronted with a steel famine of serious proportions. So greatly has the home demand increased, that no contracts are being made for export, and importations from abroad are looked upon as inevitable. As illustrating the condition of affairs, the case may be mentioned of an important southern road which has been unable to secure delivery of a much-needed order for 25,000 tons of steel rails, and in consequence is now driven to the consideration of the question of immediately importing 10,000 tons from abroad. It has been customary to speak of the recent remarkable development of our export trade as the overflow of an industrial development which had exceeded the demands of the home market. We very much doubt if the ablest prophets of finance ever expected to see the day when the enormous and rapidly-increasing output of our steel industry would be overtaken by the demand for home consumption.

## GERMANY'S EXPORT TRADE IN HER HOUR OF NEED.

Apropos of the question of export trade, we notice that in a report to the State Department on the business depression of Germany, by Consul-General Frank H. Mason, attention is drawn to the fact that it is to her splendid export trade that Germany owes her salvation during the period of financial depression through which she is passing. Mr. Mason would have American manufacturers keep this fact carefully in view. Says the Report: "If there is in the history of the present crisis in Germany one definite, pertinent, object lesson for the study of other nations—especially the United States—it is the manner in which many of its industrial commercial interests have been sustained and carried through this period of stagnant and inert local markets by a well-established and skillfully supported export trade. During the years of her prosperity Germany had laid the foundations of her foreign commerce broad and deep. She has trained her young men for efficient commercial service in foreign lands, has subsidized new steamship lines, and has sent her ships, bearing not only her manufactured goods, but her banking capital, her engineers, and her constructors, to the remote regions of the earth. The reward of all this wise foresight and careful preparation has already come." During the recent awful depression in which some of the oldest and most wealthy banking institutions and industrial corporations have suffered shipwreck, the extensive export trade of the country has been remarkably steady and shows, indeed, to-day signs of an increase. Foreign orders have served to keep going many an industrial establishment which, had Germany possessed only a home market, would have had to close its doors. As regards our own export trade, and especially that major portion of it which has been developed during the past three or four years, it must be admitted that in its inception it consisted largely of overflow production, and that its very existence may therefore be regarded as, in a sense, accidental. Hence there is a valuable lesson to be learnt from the experience of Germany as to the steady effect of a well-established export trade. If, as a nation, we lay that lesson to heart, we shall make redoubled efforts, and efforts that have something of the German system and persistency in them, to cover new territory and strengthen our hold upon that which we have already entered.

## DOUBLE-DECKING THE BROOKLYN BRIDGE.

After so many years of positive ineptitude on the part of the officials who were supposed to look after the interests of the Brooklyn Bridge, it is decidedly refreshing to note the very practical way in which Bridge Commissioner Lindenthal is taking hold of the very serious problem presented by the overcrowded condition of the Brooklyn Bridge. While the motive of his attempt to divert a portion of the traffic from that thoroughfare to the ferries is commendable, nobody knows better than himself that it is only a temporary expedient, or one from which we can look for only a temporary relief. The Bridge is frightfully overcrowded, and thanks to the incompetence or indifference, or both, of the late Bridge Commissioners, and the altogether inexcusable dilatoriness of the firm that is building the cables, there is no likelihood of any diversion of a portion of the Brooklyn Bridge travel to the new bridge for two or three years to come. And even when the new structure is opened, the Brooklyn Bridge is likely to be about as crowded as ever, for the reason that the increase in the volume of travel within the interim is likely to be as large as, or larger than that portion of the traffic now passing over the Brooklyn Bridge, that will seek the new East River Bridge. Hence we think it is altogether advisable to consider at once the question of the enlargement and strengthening of the Brooklyn Bridge. The proposal which has been made to double-deck the Bridge is quite practicable, for the reason that the additional load imposed could be taken care of by four supplemental cables lying above the present cables and in the same vertical plane. The towers are the one portion of the Bridge that can carry considerably more than its present load without any strengthening; and it would be a simple matter to add, if necessary, to the weight of the anchorages by building an additional mass of masonry. The provision of trolley tracks on an upper deck of the Bridge would necessitate a loop at the level of the present overhead foot-passenger platforms. This would probably involve some rather costly structural alterations at either terminal, as the present headroom would be insufficient. The cost and inconvenience would have to be faced, for the whole bridge problem has reached a stage at which it is a case of "needs must when the Devil drives."

## THE TORPEDO-BOAT FIASCO.

In our last issue we described the great difficulty which the British builders are having in getting out of the latest torpedo boats the guaranteed speed; this week we have to record the fact that American builders are having trouble of the same kind and, if anything, more of it. In both cases the difficulty is due to the tendency to sacrifice strength in this class of vessels to speed. The "speed craze" of which we hear so much just now is no mere fiction. Not merely in the design of torpedo-boats, but in the largest battleships and armored cruisers there has been a disposition of late years to exaggerate the importance of speed. Admiralty boards, boards on construction, and naval designers in general, have been adding knot to knot, and in the case of the "Novik" class of cruisers in the Russian navy, the speed has been raised no less than five knots at a single jump.

All warship design is a matter of compromise, and it is inevitable that where so much weight is put into motive power, a corresponding amount of weight has to be deducted from some other elements of the design. Not even the steadily-increasing size of the modern warship, whether in the torpedo-boat or battleship class, has been able to stave off the inevitable reduction of weights in elements of the ship, other than those which conduce to high speed. Generally speaking, it is the accommodations and conveniences necessary to the adequate berthing and comfort of the ship's crew that have suffered. When it has not been these, the structure of the vessel itself has been called upon to pay the "pound of flesh," and scantlings have been cut down to a limit, which recent events have shown to be altogether impractical.

While there has been no visible evidence of a reduction of structural strength in the larger vessels, except where they have chanced to touch bottom, or run afoul of each other, or ventured to train the larger guns across the deck, as was possible in some of the older ships like the "Texas," on which the main battery was arranged *en echelon*; in the smaller types, and particularly in the torpedo-boat class, the lack of structural strength has produced unending trouble and occasional disaster. Hulls have been lightened and engine weights increased, until in the case of a boat like the "Cobra" we have engines of the indicated horse power of an ocean liner, carried within the frail shell of a craft of only 450 tons displacement.

The torpedo-boat question has been revived in this country by a most extraordinary request which has been made to the Navy Department by the builders of the torpedo boats and torpedo-boat destroyers which are now under contract for the navy. These boats have

been so costly in construction that, with few exceptions, they have proved a loss, and in some cases a very heavy loss, to the contractors, who have therefore petitioned the Secretary of the Navy for additional payments, that will amount to an increase of over 40 per cent of the price named in the contract. As a commentary upon this curious condition of things, it should be mentioned that the bids for the construction of these boats were so low that the department, at the time the tenders were made, gave warning to the contractors that they would probably lose money on their contracts. Already two of the firms concerned have failed, and it begins to look as though the holding of the other builders strictly to the terms of their contracts might in some cases precipitate further disaster.

The Board reports that of the sixteen torpedo-boat destroyers, it is not likely that any one will attain the minimum speed which is necessary for acceptance, and that "not one of them is likely to be an entirely satisfactory vessel." This is news indeed. It will produce a sting of disappointment and chagrin throughout the country for which the public is but little prepared. Those who are conversant with naval matters, and who follow the development of our new ships with any attention, have been aware that the builders, both of torpedo boats and of torpedo-boat destroyers, have been having considerable difficulty in securing the contract speeds; but we must confess that we had no idea that these troubles were any greater than those that ordinarily attend the acceptance trials of torpedo craft. It begins to look as though in this matter of torpedo-boat construction, as in that of some other special lines, such for instance as the construction of automobiles, it is necessary that the builder should have behind him years of practical experience and a whole mass of slowly acquired data, before he can hope to turn out a really first class product. In Europe the only torpedo-boat builders that seem to be able to accept a contract with absolute certainty that they can live up to it, are those whose establishments are as old as the industry, and who, like Yarrow and Thornycroft in Great Britain and Normand in France, have twenty or thirty years' experience to go upon. Evidently this is the view of the question which is taken by our Naval Board, which says: "The building of successful torpedo vessels having the 'highest practical speed' is an occupation that requires designing talents of a high order and prolonged experience in construction. There are comparatively few successful builders of torpedo vessels in the world, but the attempt was made in this country to rival the best results obtained abroad with designs which were not based on the known results of a large number of previous vessels, and by builders whose knowledge and experience were of a limited character."

One lesson of the recent failure, both here and abroad, is that too much has been attempted. It is doubtful, we had almost said certain, that in the practical uses of war these sensational speeds of 27 to 35 knots will never be approached nor even attempted. If the destroyer were made about 50 per cent larger, her displacement being raised to say 600 tons; if her scantlings were strengthened to a point at which the craft would be able to stand the stress of hard driving even in a nasty jump of a sea; and if the trial speed conditions were to consist of a six hours' run at a full speed of 25 knots, the torpedo fleets of the future would be staunch, fast under service conditions, and thoroughly serviceable, neither of which qualities can be claimed for them under existing conditions.

## RECLAIMING OUR COAST LANDS.

Holland presents the best example of a nation's attempt to reclaim valuable land from the sea, and France and England have followed suit in some notable instances; but the United States has, by virtue of its extensive coast line, possibilities and promises in this direction that must eventually eclipse anything heretofore attempted in Europe. Public and private interests are being awakened to the necessity of reclaiming coast marshes and in shutting out the sea permanently from beaches which offer excellent building sites for summer homes. The fact that coast marshes harbor and breed mosquitoes and poisonous fever germs is another reason for developing the lands so that such nuisances will be forever abolished. Tidal swamps and salt marshes are numerous all along the Atlantic and Pacific coasts, and their value as farming land has been repeatedly demonstrated, and their reclamation is a matter of great monetary importance, fully as much as the irrigation of the semi-arid lands of the West.

If at the same time the mosquitoes and malarial germs which lurk in these marshes could be abolished, the reclamation of the low, worthless seacoast property would prove of inestimable value to all who reside near the sea or go down to it for summer vacations. The investigations of the Department of Agriculture have been conducted for years with special reference to reclaiming the marshes economically and