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ANOTHER "INVENTION"—A 70 KNOT SUBMARINE BOAT?

The editor frequently receives communications from correspondents who evidently have a taste for matters of scientific and mechanical interest, asking that the SCIENTIFIC AMERICAN take up for discussion subjects which the correspondents have found treated in flamboyant style in the columns of the daily press. As a rule, if the subject has not been taken up for discussion in the SCIENTIFIC AMERICAN, it may be assumed that there are good reasons for silence on the part of the editor. So many startling scientific items appear in the columns of the daily press that are utterly fabulous in nature that it is quite impossible for the editor to take up all subjects therein treated for consideration. One of the most flagrant instances of this character has recently come to our notice. In the columns of a daily contemporary recently appeared an article descriptive of a "disappearing" submarine torpedo boat, said to have been recently added to the navy. An elaborate engraving accompanied the article, showing in detail the interior construction of the boat.

It was stated in the article that "for two years a force of workmen specially selected from the government yards has been engaged in the construction of this model boat. The main difficulty encountered has been a device for stopping and slowing the boat when running at high speed. Even the 'Turbinia,' which yields a speed of 37 knots, is slow by the side of this boat, in which a trial shows it to be easy to develop 70 knots an hour. The amazing speed obtained under these tests has caused the utmost surprise, not only to the people in the Naval Bureau of Construction, but also to the inventor himself, who did not expect more than 40 knots at the utmost."

The picture of a submarine boat being driven at the rate of 70 knots an hour naturally caused the editor some uneasiness, but the description of the boat was so circumstantial and the medium in which the article appeared was of so high a character, it was thought that the subject at least should be examined into. With this object, a representative of the SCIENTIFIC AMERICAN called at the Bureau of Construction in Washington and innocently asked for full details of the construction of the boat, with a view to verifying the published description and also to substantiate the tests alluded to. The Chief Constructor informed our representative that he had never heard of the submarine boat in question and that the newspaper article was absolutely false. Other inquiries brought out the fact that the boat was quite unknown in Washington.

This case, of course, is a flagrant one, but it is by no means an unusual occurrence, and should serve as a warning to the general reader not to place too much confidence in technical articles appearing in the lay press.

The article that we have been discussing differs in one important particular from those which ordinarily come within our ken. As a rule, articles of this character set forth in rather glowing colors achievements which are, at some future time, to be attained, but in the present case the writer has been dealing with cold facts, and the figures that he gives and the tests that he quotes are put forward as having been actually accomplished. The effrontery of advancing statements of this character appears to be more brazen than the usual method of forecasting the wonderful achievements that are to be attained at some future time. We are glad to learn that the inventor of this extraordinary production has succeeded finally in discovering some means by which the enormous speed attained may be reduced and controlled, and that it is possible to slow the boat down to a full stop. In this respect he is far more successful than the late lamented Keely, whose chief difficulty, it will be remembered, in obtaining final success with his motor, was the difficulty of controlling the powers which he, through the conjuring touch of his genius, had created.

THE GALVESTON DISASTER.

Not since the Johnstown disaster has the country been more horror stricken than over the destruction, or partial destruction, of Galveston. The sympathy aroused has been well nigh universal. That this sympathy is more than a mere sentiment is shown by the generous contributions that have flowed in from all sections of the country. The accounts describing the conditions preceding and following the terrible disaster have been fully described in the contemporary press and need not be dwelt upon now. The civic authorities have had a very serious problem to deal with in addition to the immediate horrors with which they were surrounded, namely, the policy to be adopted with reference to rebuilding the city. The frequent visitations of floods to the city of Galveston render this problem a very difficult one to determine. Galveston is situated at the extreme end of an island some thirty-five miles long, which varies in width from one to five miles. The part of the island upon which the city is located is almost flat and its highest point is only about eight feet above mean tidewater. The bay, which is known as West Bay, separates the mainland from Galveston Island and extends about eighty miles inland. The harbor itself was an important one, the United States government having expended some six millions of dollars in building jetties and wharves for the purpose of providing the city with a deep-water sea port, and its facilities for handling commerce were unsurpassed. The importance of the city may be determined from the fact that the exports have amounted to as much as a hundred million dollars a year.

Once before has the city of Galveston been visited by a most destructive flood, and many times has it been seriously threatened. It is no wonder, therefore, that the question of abandoning the present site was seriously contemplated. It has been determined, however, to rebuild the city on the present site. In the first place, one of the prime influences which tended to this was the feeling of civic pride and the love of home which is implanted in every one's breast, and the immense value of property still remaining comparatively intact. Then, again, the possibility that additional defenses can be erected against future storm inundations is probably a controlling factor.

From an engineering point of view the question which presents itself is whether it will be possible to provide any means for the protection of the city against a recurrence of this dreadful visitation. In these days of progress we are inclined to regard scarcely any object as beyond the reach of attainment from an engineering or mechanical point of view; and although the physical conditions in the present case seem to render the problem almost hopeless of solution, it would seem that some method would be devised by means of which at least the lives of the inhabitants might in the future be vouchsafed. The late storm, of course, was an exceptional one, but the cruel fact must be faced that the city lies in the pathway of tropical storms, and that similar conditions will probably again arise.

What course will be taken by the authorities in obtaining protection against the loss of life and property in the future remains to be seen, but there is no doubt that some practical methods will be suggested by engineers which will at least lessen the dangers that in the past have so frequently afflicted the city.

NEW TORPEDO DESTROYERS FOR HOLLAND.

In a recent issue of the SCIENTIFIC AMERICAN appeared an article relative to the consumption of petroleum for the propulsion of vessels. Tentative efforts have been made by one or two of the powers to avail themselves of this fuel, but the experiments have not been sufficiently exhaustive to prove the efficacy of the oil for this particular class of work. That petroleum is an advantageous, economical and powerful fuel has been amply demonstrated by the utilization of it for the propulsion of the express locomotives of the Great Eastern Railway in England. Many of the fleetest express trains upon this system consume oil, and so satisfactory have been the experiments, that several other engines are being equipped with the necessary apparatus.

The Dutch government are also determined to prove the efficiency of oil for marine purposes. Messrs. Yarrow & Company, Limited, the well-known shipbuilders of Poplar-on-Thames, England, have just constructed two first-class topedo boats, "Hydra" and "Scylla," for the Dutch government, and they are intended for service in the Dutch East Indies. They are each 130 feet in length over all, with 13 feet 6 inches beam, and have a displacement of about 90 tons.

The machinery for propelling these crafts consists of a set of inverted triple expansion surface condensing engines of 1,200 I. H. P. The air and feed pumps are driven off the forward end of the crankshaft. There is one very important feature, however, which has been introduced into these engines, which causes them to differ from the machinery supplied to torpedo boats. That is the introduction of the system of forced lubrication, analogous to that which is sometimes adopted in certain land engines. By the utilization of this principle the working parts of the engines are completely inclosed. The great advantage accruing from this principle is that the engineering staff need not evince the least anxiety regarding the lubrication of the engines, which is most essential to insure smooth and perfect running. Consequently, if the exigency arose, the engine room staff could be decreased, as the lubrication being practically automatic does not require attention.

Water tube boilers of the Yarrow pattern have been adopted. The tubes are naturally straight. This type of boiler, by the way, as the result of continued practical experiments, has been proved by the naval authorities of the various powers to be eminently satisfactory, and it is being widely installed in a large number of battleships.

Both vessels have been supplied with Holden's oil spraying apparatus, which is the same as that employed upon the Great Eastern Railway, since the government intend to burn astatki. This oil is plentiful in the Dutch possessions in the East Indies, and, therefore, as its cost will be very small, there is no doubt that the Dutch naval authorities will be able to effect a very appreciable saving in their coal bill. Both the vessels went under a full speed official trial to test the possibilities of this oil spraying apparatus, and it worked smoothly and without the slightest difficulty.

In the official speed trials, which were carried out under the superintendence of Mr. Loder, the chief constructor of the Royal Dutch navy, the vessels attained a mean speed of 24·37 knots per hour for three hours, with a pressure of 160 pounds, imparting about 400 revolutions per minute to the propellers.

The armament of the vessels consists of three 18-inch swivel torpedo tubes and two 6-pounder quick-firing guns.

HAND-LABOR IN CHINESE MINES.

According to a report presented by M. Levitoff to the Russian Society of Encouragement, it appears that Chinese hand-labor has made its appearance in the Trans-Baikal region since the construction of the railroad, and the influx of the Chinese element is becoming more considerable every day. Hand-labor, which has been scarce ever since the construction of the Trans-Siberian, is now more abundant, and its cost has been considerably reduced. On the Amoor River, the unloading of boats, which was paid only a few years ago at the rate of $1.60 per ton, is now paid at $0.80 per ton, or one-half. In general, the Chinese workman, on account of his smaller productiveness, is paid only one-half the wages of a Russian workman. As an example, in the cement works of Siberia, $0.80 per day is paid to a good Russian workman, and only $0.40 to the Chinese workman. Generally these are engaged for $2.50 to $3 per month by the Chinese contractors, who supply the food and lodging. Even on this small pay, the workmen contrive to save money and send their savings to China. The Chinese excel in certain kinds of labor, such as gardening, shoemaking, etc., where the Russian cannot compete in price, but, on the contrary, he is not good for all kinds of work, and especially refuses to work in the water, or even in damp places. For masonry work, it is estimated that a Russian workman, himself inferior to an Italian, equals four Chinamen. Among the Siberian industries, it is the gold mines especially which have adopted Chinese labor. Formerly, in the mines belonging to the Czar, it was forbidden to employ the Chinese; but when on account of the scarcity of hand labor the price had reached $0.25 per pound of gold, the government decided to let out the work to contractors. The Chinese were engaged by these for $0.13 per pound, which reduced considerably the price of the gold extracted. M. Levitoff remarks that the Chinese carriers in the region between Irkutsk and Khabarovsk have the habit of stealing the gold and sending it to China. Another thing to be deplored is the clandestine sale of Chinese brandy, called khanchine. In spite of the advantages enumerated, the writer says that it is urgent to stop the invasion of the Chinese element, and he recommends emigration from the rural population of European Russia.

TRAFFIC IN EUROPEAN PORTS.

The figures have been recently given for the maritime traffic in the principal European ports for the year 1898, according to the official statistics. The port of London comes first for the number of ships as well as the tonnage; it received, in 1898, 11,306 vessels of a tonnage of 9,400,000. After London follow, in the order of tonnage, Hamburg, with 7,990 vessels and 6,700,000 tons; then Antwerp, with 5,358 vessels and 6,500,000 tons; Liverpool, with 3,652 vessels and 6,200,000 tons; Rotterdam, 5,881 vessels and 5,400,000 tons; Marseilles, 4,141 vessels and 4,400,000 tons. Genoa has 2,339 vessels and 2,500,000 tons; then come Havre, with 2,375 vessels and 3,300,000 tons; and Trieste, with 8,708 vessels and 2,100,000 tons; then Bremen, 2,494 vessels and 2,100,000 tons; and Amsterdam, 1,734 vessels and 1,400,000 tons. Since 1871 the tonnage has almost doubled at Liverpool. It has more than doubled at Bremen, Trieste, Genoa, Marseilles and Havre; tripled at London, and more than tripled at Antwerp, Amster-