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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.

THE TRANSATLANTIC RUN OF THE "KEARSARGE."

The notoriety given by the public press to the recent run of the battleship "Kearsarge" across the Atlantic at an average speed of 13.1 knots an hour, and the mutual felicitations indulged in thereat, must have proved somewhat puzzling to the average layman, who is accustomed to read on any day of the week that such and such a transatlantic liner has come into port after making the same transatlantic run at an average speed of 23 knots an hour or over. "Why," he must have said to himself, "all this jubilation because a first-class battleship has sailed the seas at a speed which would be only respectable for one of the better class tramp steamers?" Not only must the average speed seem to be in itself very low, but he will probably have in mind the fact that four years ago, when the "Kearsarge" underwent her official trials, she maintained for four hours an average speed of 16.84 knots an hour. "Why, then," he will say, "must we have all this mutual congratulation over a United States battleship which, on a specially-ordered sea voyage, cannot come within four knots per hour of the speed she made on her acceptance trials?"

And yet, in spite of the apparent discrepancy, this run of the "Kearsarge" was a really creditable performance, since it was made entirely under natural draft and at an average speed only one knot lower than her natural draft speed at the time she was built. Battleships and cruisers are designed to steam at varying rates of speed according to the particular needs of the occasion. For cruising purposes and making such long runs as that which she has just completed, the "Kearsarge" was given sufficient motive power to enable her, when steaming under natural draft, to maintain a speed under favorable conditions of 14 knots an hour; and in order to give the vessel a reserve of speed which she can call upon when she is chasing or being chased by an enemy, or when she wishes to avoid torpedo attack or to make some sudden change of position in a naval engagement, she carries a set of blowing engines by which the rush of air through the furnaces can be speedily augmented, and the steam-raising power of the boilers and the horse power of the engines proportionately increased. Under the latter conditions, the speed increases nearly three knots an hour; and as a matter of fact, on her trials carried out in 1899, the "Kearsarge" during a forty-hour continuous run under natural draft, maintained an average speed of 14.1 knots an hour, and during a forced-draft trial of four-hour duration, she showed an average speed of 16.84 knots per hour. It will be seen, then, that on the recent run across the Atlantic, the performance of the ship was within one knot per hour of the speed achieved under natural draft during the highly favorable conditions of an official trial.

Unfortunately for the subsequent reputation of battleships and cruisers, the maximum forced-draft speed achieved under exceptionally helpful conditions is invariably taken as being the speed of that ship; that is to say, she is credited, not with the speed which she will show for 360 days out of the 365 of the year, but with a speed which she may not use more than two or three times in the year, and which she can only reach when she has the best of coal in her bunkers, and when the boiler-room crew is in a state of first-class efficiency.

Hence it is misleading to talk of the 18-knot "Maine" and the 17-knot "Kearsarge." It would be nearer the truth to call them respectively 15-knot and 13-knot vessels.

Furthermore, the wide difference in speed between naval and merchant vessels, or say between a "Kearsarge" and a "Deutschland," is not in any sense due to imperfect design or poor handling in the former. For we must remember that while the "Kearsarge" required during her transatlantic run only about 6,500 horse power to drive her at 13.1 knots, the "Deutschland" in making her record trip at 23.5 knots, required over 37,000 horse power, or nearly six hundred per cent more power. Moreover, the model of the transatlantic liner is designed specially for high speed; for with a beam of 68 feet she has a length of over 680 feet, a ratio of beam to length of 1 to 10; whereas the "Kearsarge," with a beam of 72 feet, has a length of only 368 feet, a ratio of 1 to 5. The finer lines of the merchant vessel and her high freeboard are not only conducive to speed in ordinary still water, but they are especially helpful when driving into a head sea. We have traveled on the "Deutschland" when with 35,000 horse power she was maintaining 21 knots an hour in the teeth of a heavy southwesterly gale. The "Kearsarge," on the other hand, was obliged to slow down at times to 10 knots an hour on the same western trip, because she was taking green water over her forward turrets.

The run of the "Kearsarge," therefore, was highly creditable, and had it not been for obstructions of fogs, icebergs, and heavy weather, it is likely that the vessel would have about maintained her trial speed of 14.1 knots per hour.

THE BEHRING STRAIT TUNNEL AGAIN.

Once more the chimerical scheme for building a railroad from the Pacific coast terminus of the transcontinental railroad systems to Alaska, and carrying the road beneath the Behring Strait by a tunnel to connect with an extension of the Siberian Railroad, is being agitated. The improbability of such a railroad being built, or if built, being made financially successful, can only be understood by taking a map of North America and tracing the proposed course of the line. It will then be seen at a glance how vast are the distances which this proposed road must cover. From Vancouver on the Canadian Pacific line to Behring Strait is at least 2,500 miles. The Behring Strait would involve a tunnel nearly sixty miles in length, that would have to descend several hundred feet below sea level to find a stratum suitable for tunnel operations; then on reaching the Asiatic shore, there would be another stretch of about 2,700 miles to be surveyed and constructed before connection was made with the present Trans-Siberian system. The difficulties in locating and building such a line can only be understood by engineers who are familiar with the physical and climatic obstacles to be overcome. No mere hasty reconnaissance would be sufficient to give even an approximate estimate of the cost of the Trans-Alaskan portion of the route. As to the construction of the tunnel, the mere preliminary borings to ascertain the character of the material to be encountered would be an enormously formidable task in itself, and when this was successfully completed, there would still be a grave element of doubt as to the practicability of keeping the tunnel free from an inrush of water which, if it should occur under the pressure due to the great depth, could not fail to be disastrous.

We are aware that the enthusiastic promoters set down the cost of the 60-mile tunnel at twenty million dollars; but when we consider that the twenty miles of subway tunnel in this city are to cost thirty-five million dollars, it is pretty safe to say that the twenty million dollars would not be sufficient to cover the cost of the tunnel and the surveys, to say nothing of the 5,000 miles of connecting railroad that would be necessary. Even if the engineering difficulties could be overcome (as undoubtedly they could with sufficient time and capital), where is to be found a body of financiers to put through an undertaking which could not possibly render any return on the investment for many a decade to come, if ever it did?

Moreover, even if the road were built, it is pretty safe to say that it would have to depend almost entirely upon the passenger and local traffic for its development; for it could not possibly hope to compete in the carriage of freight with the large merchant steamships that are being built for the Trans-Pacific trade. The idea of an all-rail route from Paris to New York is picturesque, sentimental, and quite impractical. It is certain that in the present stage of development of Northwestern America and Northeastern Asia, the scheme will never get beyond the paper stage.

THE SPEED OF THE AUTOMOBILE.

There is something in high-speed travel that appeals, with the strongest fascination, to the general public. Just why a record-breaking run should have such fascination, it is difficult to determine; but perhaps it is that, unconsciously, we realize that every mile per hour added to our high-speed records is another evidence of the gradual victory of man over that all-pervading inertia which it is his constant effort to overcome.

The present year has witnessed some remarkable feats of speed, particularly in the field of the automobile. Unquestionably, the most astonishing performance was that of Gabriel, the winner of the first stage of the Paris-Madrid race, who covered a stretch of 331.2 miles at an average speed of 56.25 miles per hour. To maintain such a high average over roads that are more or less hilly must necessitate extremely fast running over certain portions of the road.

Although the meet for the Gordon Bennett cup, recently chronicled in this journal, did not witness any such high average speed as was achieved in France, the speed trials for short distances were the most successful ever held. Although it is true that the course in Phœnix Park is an ideal one for speeding, we must admit that the performance of Baron de Forest, when he lowered the world's record for a kilometer to 26 3-5 seconds, which is equal to a speed of 86½ miles per hour, is truly astonishing. No less astounding, either, is the record of Barney Oldfield, made recently on an oval track, of a mile in 55 4-5 seconds, or at a rate of 64½ miles an hour.

As far as we are able to ascertain, the highest speed attained by a railroad train on a trial that was properly tested by competent time-keepers, was a fraction of over 90 miles per hour, so that the automobile is to-day practically as fast as the locomotive. Of course, it is a very different proposition to run a single machine capable of carrying only two persons at high speed, and to do the same thing with a train capable of carrying three or four hundred people. The fact that nearly 90 miles an hour has been achieved by an automobile proves that it is merely a question of weight and horse power before these machines will be running a trial mile at the rate of one hundred miles an hour or over. Such performances, however, are merely sensational and spectacular; they have no practical value, except so far as they may afford data to the automobile makers on the action of the more delicate and sensitive parts of the engines when they are pushed at their utmost limit.

MARVELOUS PRODUCTION OF IRON AND STEEL.

In spite of the fact that during the past twelve months the iron and steel industry has been hampered by a long coal strike, and by something of a deadlock in transportation facilities, the total production of iron and steel in the United States has grown to truly enormous proportions. Probably in the whole history of the world there has never been a period when a single industry witnessed such a phenomenal development as that of the American iron and steel trade. We have been accustomed to regard the great industrial establishments of the country, and particularly those identified with the steel industry, as more than equal to any possible demands of the home market, yet so great has been our prosperity that our great blast furnaces and steel mills have been unable to cope with the demand, and it has been necessary to import a certain amount of pig iron from abroad.

During the last year the total production of pig iron was 17,821,307 tons, an increase of over two million tons on the preceding year and a gain of four million tons over the year 1900. Perhaps these figures are best understood when it is stated that last year's production was nearly double that of the year 1897.

THE SLAUGHTER GOES ON.

The rate at which our railroads are killing and maiming people continues steadily to increase. According to the report of the Interstate Commerce Commission on Railroad Accidents in the United States, within the three months ending March 31 last, 300 people were killed and 2,834 injured in train accidents. Other kinds of accidents, including those sustained by employes while at work, run up the total casualties to 827 killed and 11,481 injured. That these accidents cannot be put down entirely to the fault of the passengers and employes themselves is shown by the fact that during the quarter under consideration, 1,650 trains were in collision and 1,181 trains were derailed.

MORE NEWS ABOUT EDISON'S STORAGE BATTERY.

The latest authentic data concerning Mr. Edison's storage battery are found in the following interview published in the New York Times:

"The popular impression seems to be that my new storage battery was more or less a possibility, but that it began and ended there. That is not so—one of them has been in operation for the last three weeks in one of Altman's delivery wagons, and is doing all that I expected and claimed for it.

"There is a great deal to be said for the new battery, and all in its favor. It will average more than a third greater mileage for half the weight than will the old lead battery. It has an additional advantage inasmuch as it can be recharged at a much faster rate than the old battery. As much electricity as will send the motor forty miles can be put in it in less than an hour.

"Ever since I took up this problem of the greater capacity battery I have worked with the idea of using it for street locomotion—in automobiles and trolleys. And now the auto battery is finished. Last Monday three friends and myself took a trial run to Atlantic City in a car consisting of a Mors frame and one of