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MORE ENGINEERS NEEDED FOR THE NAVY.

The annual report of Geo. W. Melville, Engineer-in-Chief, Chief of Bureau of Steam Engineering, shows that the repairs of machinery and steam vessels during the past year have cost something over \$600,000. The lack of competent engineers to man the rapidly increasing number of war vessels has become a serious matter. On the active list there are only 180 commissioned officers in the engineer corps, namely, 70 chief engineers, 66 passed assistants, and 44 assistants.

The chief says: "Unless something is soon done, our navy, now practically an engineering one, will be crippled for want of engineers."

"This question of the sufficiency of engineers in the service is one of paramount importance, and no other, if left in abeyance, will so vitally affect the efficiency of the navy as a fighting organization. It must be remembered that the efficiency of the modern war ship, either as a fighting machine or as a commerce destroyer, depends wholly and absolutely upon her machinery, and the efficiency of this machinery upon the skill of her engineers, and upon the diligence exercised by them in its care and management. Be her armor and armament the most powerful and her commander the most capable and intrepid, if her machinery fails, she is helpless, and no amount of seamanship and gunnery will avail against the enemy."

"Were the navy a mercantile concern, the present state of affairs would not last beyond the time necessary to change it, for men with capital invested in machinery see to it that there is a force sufficient to keep it in proper maintenance; and surely if business people find such a course economical, the government cannot do better than follow their example. The value of the naval machinery now owned by the government and in process of construction is about \$24,000,000, and it has now come to the point where Congress must decide whether it is more economical to properly care for this machinery and keep it always in an efficient condition or to let it run as long as it will and then replace it, taking meanwhile the risk of having it fail when most needed. As an illustration of the increased work thrown on the members of the engineer corps by the acquisition of the new navy, I can state that the New York has added 17 per cent to the horse power of the machinery of vessels in commission; the Columbia will add 17 3/4 per cent more; and when the ships now authorized and building are finished, the horse power of the propelling machinery of the navy will have increased to nearly two and a half times its present amount—and yet we are asked to run it with the same number of engineer officers that we now have."

"The officers of the engineer corps at sea on the new vessels have altogether too much work to do now, and it is merely a question of time before the strain will tell. The result of this hard work is being seriously felt; retirements are increasing, and the government thus subjected to an expense greater than would be involved in now granting a fair increase of numbers, while some of those who manage to complete a cruise in one of the high-powered ships only await a favorable opportunity to resign. Many of our young officers who have resigned to accept lucrative and responsible positions would have preferred to remain in the service if they could have seen any chance of advancement in it."

THE COLUMBIA, THE NEW COMMERCE DESTROYER.

The new American navy has become a popular subject with the people at large. The records of the trial trips are given place in the papers, and much congratulation is expressed over the results obtained. Yet the fact is apt to be forgotten that a few hours' run of a new ship under the most favorable auspices does not tell what she will do in the service. To-day no satisfactory method of keeping an iron ship's bottom free from barnacles and seaweed is known, and the slightest deposit reduces speed. The duration of the engines and boilers under service conditions is problematical. The warship certainly seems to deteriorate or to develop weakness in her boilers or machinery in very short periods.

From the old sailing vessel, through auxiliary steamships, the development has at last brought us to triple screw ships without sail power enough to be of more than the slightest service. It is perhaps true, as ex-Secretary Tracy says, that we have in the Columbia, New York and Olyupia three ships unapproachable in good qualities. But admitting this, the question has to be answered of how long these ships will retain their qualities. Will they hold their present efficiency for years, or even months? Time and repeated speed trials can alone show this.

An attempt was made on Thursday, November 16, to subject the new cruiser Columbia to an official trial over a 44 knot course. Buoys were placed along the course, vessels were anchored near each buoy, and the ship started on her trial run. On the trip from Philadelphia to Boston, she had already shown very high speed. On attempting the trial, however, the sea was so high that the buoys were displaced, and the attend-

ant vessels could not lie at anchor, so the trial was abandoned. Sufficient, however, was done to show that the vessel does possess very high powers, reaching a rate of speed, for a short run, from 28 to 29 statute miles an hour. This speed of course she could not long maintain, but for a ship of her size to reach it was very extraordinary. Not only was her rate of travel very high, but the Columbia is designed to have a very long radius of action, being able to steam around the world without recoaling.

While the above sounds very satisfactory, and the ship is apparently a triumph of American construction, experience has shown that it is not safe to judge a war vessel from these trials. A vessel designed for use as a warship, when put in charge of the navy and kept in such service, never is able to hold her original record. The English government has all its ships of war rated, each one at its specific speed, but it has time and again been shown that the rating is far too high, and the ships, owing to deterioration of the propelling apparatus or to marine growth on their bottoms, always show a greatly reduced speed.

The Columbia is built for a commerce destroyer. She may be able to run away from any heavy fighting ship. In war her competitors would be the fastest ships of the British navy. Among these, at present, are the reserve ships Campania and Lucania, of the Cunard line, ships which day in and day out maintain speed approximating to the highest obtainable by the Columbia on her trial trip, ships which from the conditions of their service are always kept in the best possible condition for instant service. Each regular trip consists of a run of some 3,000 miles, in which runs a gain of five or ten minutes over the record is eagerly striven for. It is not improbable that the Columbia, driven under forced draught, straining every fiber under the action of the machinery, stripped and in the most perfect condition for a few hours' run with selected coal, will earn for her builders a premium of \$400,000. After all this she will not have been properly tried. She should be manned with a crew from the American navy, she should be coaled under ordinary conditions of quality of fuel, and her trial course should be the same as that of the Cunard ships or of the German or American line vessels—the course of about 3,000 nautical miles across the ocean. Then we could establish her true rating, and the trial would show whether she could compete in war with the Lucania and Campania, with the Furst Bismarck or the Paris. In the present system of trial trips everything is subordinated to making the highest possible speed over the short course of forty to fifty miles.

While her trial has been in progress or preparation, Mr. Charles H. Cramp, of Philadelphia, who represents the firm which built her, presented before the Society of Naval Architects and Marine Engineers of this city a paper on the "Evolution of the Atlantic Greyhound." In about a year the two ships of the American line built at the Cramp yard will be in commission. In them he proposes to go back to the old American idea of high initial stability and make ships which will stand on their own bottoms without the use of 1,000 tons of ballast. These ships will be in continual service and will be driven at full speed under the regular conditions of their work. In such vessels as these enrolled as a naval reserve would seem to be the greatest hope of our navy for the really efficient commerce destroyer.

A Singular Balloon Accident.

A Rome correspondent of the London Daily Graphic says: Captain Charbonnet and his wife recently met with an extraordinary balloon accident in the Alps. Captain Charbonnet was a well known Italian aeronaut. He was recently married in Turin, and, in accordance with a previous decision, the couple set out immediately in a newly constructed balloon—the wedding present of the bridegroom to his bride. Their intention was to spend their honeymoon in making a series of aerial trips across the Alps. They were accompanied by a male friend named Giuseppe Ponta. The first day's trip proved successful. On the following day, however, when near the Cairainella Peaks, the balloon was caught in a hurricane, dashed violently against a glacier, and broken up. Strangely enough, the occupants escaped this mishap with trifling injuries. The balloon, of course, was useless. The unfortunate trio remained on the snow and ice until the following morning, when a descent of the mountain was attempted. It was during this descent that Charbonnet lost his life, disappearing suddenly in a crevasse. His unfortunate wife and Signor Ponta, who were forced to spend the rest of the day and the following night on the mountain, suffered terribly from the cold. Signor Ponta fell and sustained serious injuries, Signora Charbonnet having thus to make her way alone. She managed at length to reach a mountaineer's hut. Here, acting upon her instructions, a party of men discovered Ponta and brought him safely back. The remains of Captain Charbonnet were recovered on the following day. Two days later Signora Charbonnet and Signor Ponta were sufficiently recovered to be removed to Turin.