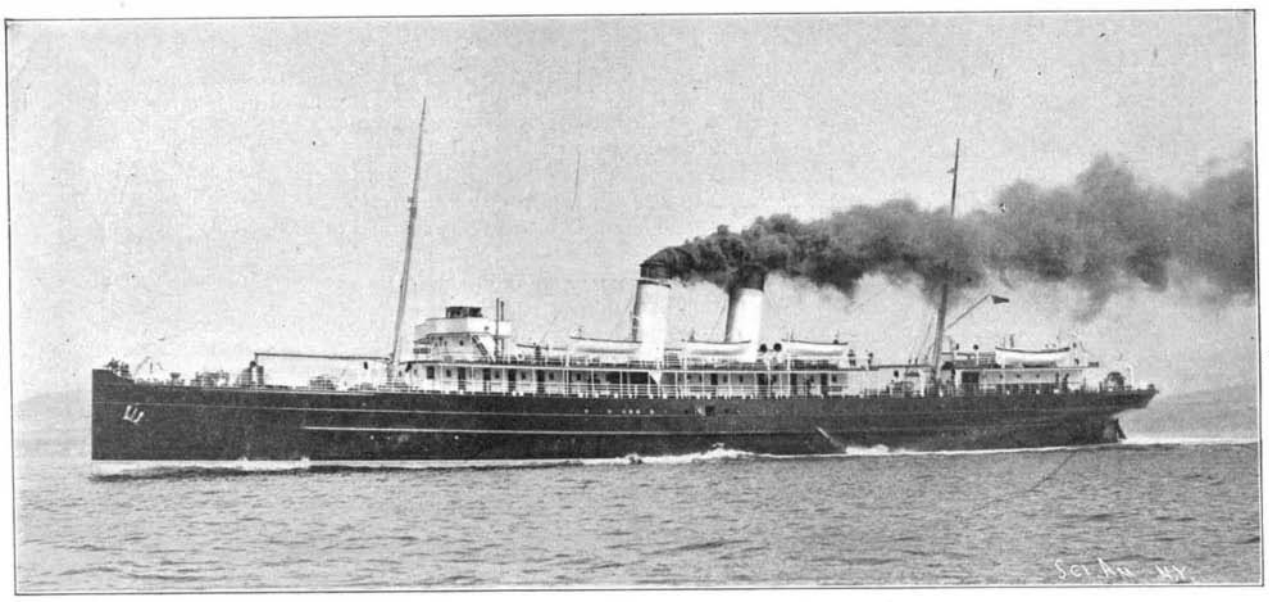
THE NEW CALAIS-DOVER TURBINE STEAMER.

The inauguration of a cross-channel, turbine steamer service which took place Saturday, June 27, marks another important step in the application of the steam turbine to marine propulsion. The new vessel is the first turbine passenger steamer to be used in deep-sea service, for her predecessors, the "Queen Alexandra" and "King Edward," were merely river boats intended for service in quiet waters. The new boat, however, which is known as the "Queen," will be engaged in daily service across one of the stormiest and roughest stretches of water in the world, and if she fulfills her promise, the turbine marine engine will have moved another step forward toward the day when, as we confidently believe, it will become the standard marine engine for all classes of service.



THE NEW TURBINE PASSENGER STEAMER "QUEEN" FOR THE CALAIS-DOVER ROUTE.

Length, 310 feet; beam, 40 feet; speed, 22 knots per hour.

Cross-channel steamers plying across the North Sea, the English Channel, and the Irish Channel have certain well-defined features which are easily recognized, and distinguish them sharply from the steamers engaged in similar service in American waters, such vessels, for instance, as the well-known Sound and Hudson River steamers. As a class the English boats are marked by low freeboard, narrow beam, and a comparative absence of deck-house accommodation. The "Queen," however, has a lofty freeboard, the cumbersome paddle-boxes have disappeared, and she has, for an English boat, fairly generous accommodations above the main deck. In point of lines and general contour she certainly looks to be a handsome and able sea-going craft. She is 310 feet in length and 40 feet in beam, or 5 feet more than the breadth of any previous steamer on this line. For about two-thirds of her length she is fitted with bilge keels, which will serve to keep her steady when she is running in the trough of the seas which prevail in the English Channel between Calais and Dover. The motive power consists of three turbine engines, driving three shafts. Originally the vessel had five propellers; but two have been removed, leaving one propeller on each shaft. The live steam enters first the high-pressure turbine on the center shaft, where it is expanded five-fold. It then passes to the low-pressure turbines on the side shafts, where it is expanded twenty-five fold, and from the low-pressure turbines it passes to the condensers. When under way clear of the harbors, all three turbines will be in action in the go-ahead direction; but in making a landing the outer shafts only are in operation, the vessel thereby securing all the advantages of maneuvering due to twin-screw propulsion. For reversing there is placed inside the exhaust end of each low-pressure turbine a reversing turbine, suitable valves changing the flow of steam from the go-ahead to the go-astern direction. The "Queen" was built for the Southeastern and Chatham Railway Company, for the Calais-Dover route, which forms an important link in the through service between London and Paris. On her first trip across the Channel, above referred to, she maintained an average speed of twenty-two knots an hour, and at times ran considerably over that speed. On board the vessel were the Hon. Charles Parsons, the inventor and designer of her turbines, Col. Denny, the builder, and several American guests. According to Mr. Parsons, the cost of the ship was about $425,000, or practically the same as that of a vessel of her size fitted with reciprocating engines. The great advantage of the turbine installation is that there is a great reduction in weight and space for a given output of power on the propeller shafts. In the present case, from the foundations to the top of the turbine it is only six feet, whereas reciprocating engines of the same power would require about three times as much height to clear them. The expense of overhauls, which have to be very frequent on reciprocating engines, is practically eliminated on the turbine engines, the "King Edward" during the few years that she has been in service on the Clyde having cost practically nothing for repairs.

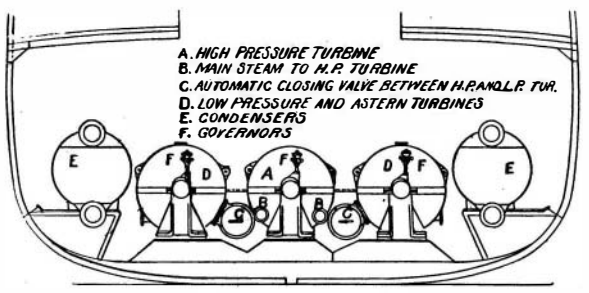


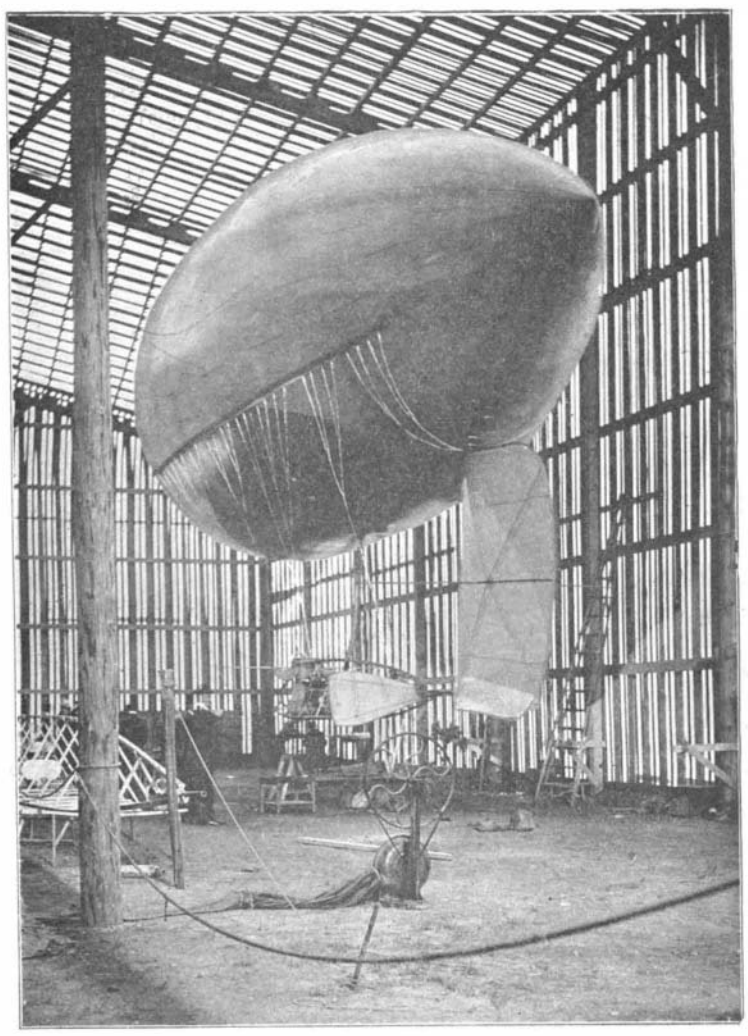
DIAGRAM SHOWING POSITION OF TURBINES.

Now that the turbine has been successfully installed on deep-sea channel service, the next natural step will be the construction of a transatlantic steamer with turbine motive power. Mr. Parsons affirmed on the occasion of the trial trip of the "Queen" that all the advantages shown by the turbine in river and channel steamers, will be realized in an increased ratio on the larger vessels for ocean service. This is a perfectly reasonable expectation. Turbines of 10,000 horse power are now being built, and will shortly be installed for electrical power station work, and there would be no theoretical or mechanical difficulty encountered in the installation of three or more turbines of similar size on a fast ocean liner; while the reduction in dead weight and the additional space that could be devoted to passenger accommodation would be very considerable.

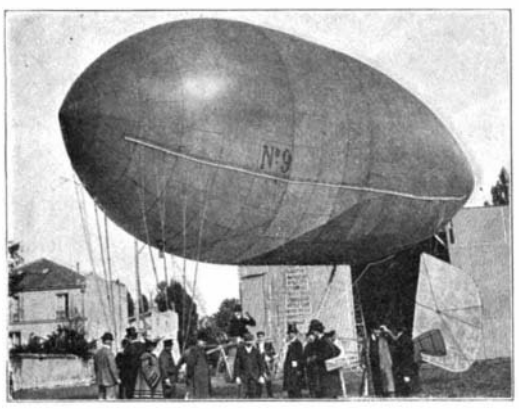
THE NEW SANTOS-DUMONT AIRSHIPS.

BY THE PARIS CORRESPONDENT OF THE SCIENTIFIC AMERICAN.

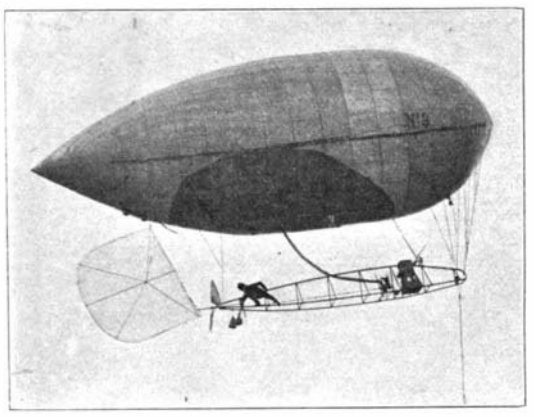
Santos-Dumont's new airship, the No. 9, has been tried in the neighborhood of Paris with considerable success. The tests thus far made may be considered as experiments with the new egg-shaped form of balloon before building a larger airship on the same plan. The vessel is the smallest airship ever built. Its gas capacity is only 340 cubic yards. On the 8th of May the new airship started from the balloon shed and sailed over the maneuvering grounds of the Bois



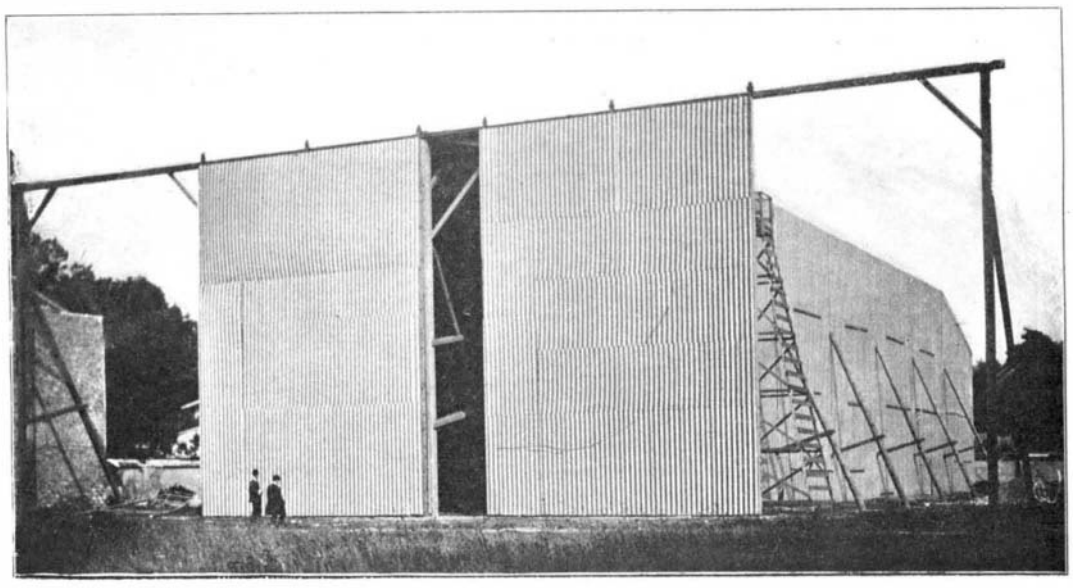
Interior of the New Shed, Showing the No. 9 and the Framework of the New St. Louis Racer.



Ready for the Start.



Santos-Dumont Shifting the Ballast-Bags.



Santos-Dumont's New Balloon Shed.

THE SANTOS-DUMONT NO. 9 AND ITS SHED.