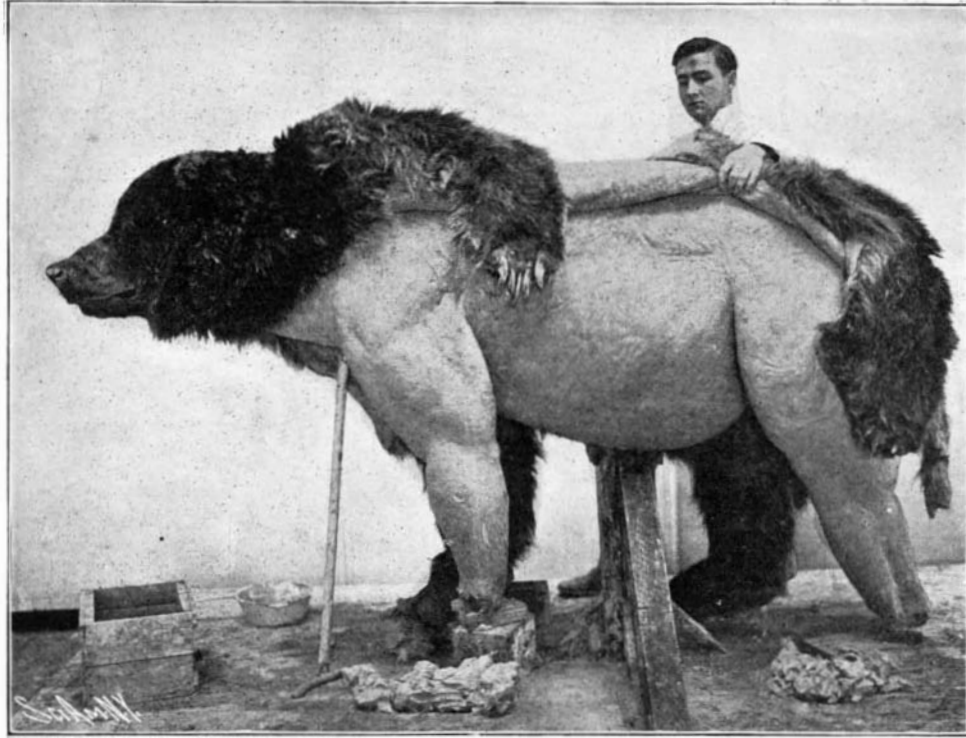


THE LOFTY PECOS VIADUCT ON THE SOUTHERN PACIFIC RAILWAY.

BY DAY ALLEN WILLEY.

The traveler on the Southern Pacific Railway between New Orleans and California crosses one of the most notable viaducts in the world. This is a bridge which spans the Pecos River. A few miles from the point where it flows into the Rio Grande, the Pecos passes through a canyon which is directly on the route of the railway in question. In addition to the height of the canyon walls another problem which the engineers had to solve was the flow of water during the season when the river is in flood. Frequently the volume of water carried down is so great that in twenty-four hours the river may rise to a height of from 20 to 30 feet. The plan decided on was a bridge supported by steel towers, the center towers resting upon piers of masonry which would place the footing of the steelwork at a height above the ordinary freshet. As the photograph shows, the cantilever system of construction was employed to bridge the full width occupied by the river when it is in flood. At the greatest elevation the rails are no less than 321 feet above the water. In fact, the only viaduct in North and South America which exceeds the Pecos is the Loa in the Andes Mountains. This is 336 feet high, but only 800 feet in length, less than half the length of the Pecos, which is 2,180 feet from end to end. The structure which crosses the Kinzua Creek in Pennsylvania on the route of the Erie Railway is next in height in the United States—301 feet—but is slightly shorter, being but 2,053 feet in length. The famous Gokteik bridge recently completed in Southern Asia is but 320 feet high, although it is about 100 feet longer.

Considering its dimensions, the Pecos viaduct is an exceedingly light and graceful structure, containing but 1,820 tons of metal in all. The heavy trains of Pullman cars, with the two big passenger locomotives at the head, will weigh about 860 tons, or nearly half as much as the whole bridge. The great height can be estimated by noting the size of the locomotives and cars, as they are seen from the bottom of the canyon. The bridge is situated in Val Verde County, Texas, and is 219 miles west of the city of San Antonio.



DRAWING THE BEAR'S SKIN OVER THE MODEL.



MOUNTING THE LARGEST BEAR EVER KILLED. WEIGHT 1,600 POUNDS.

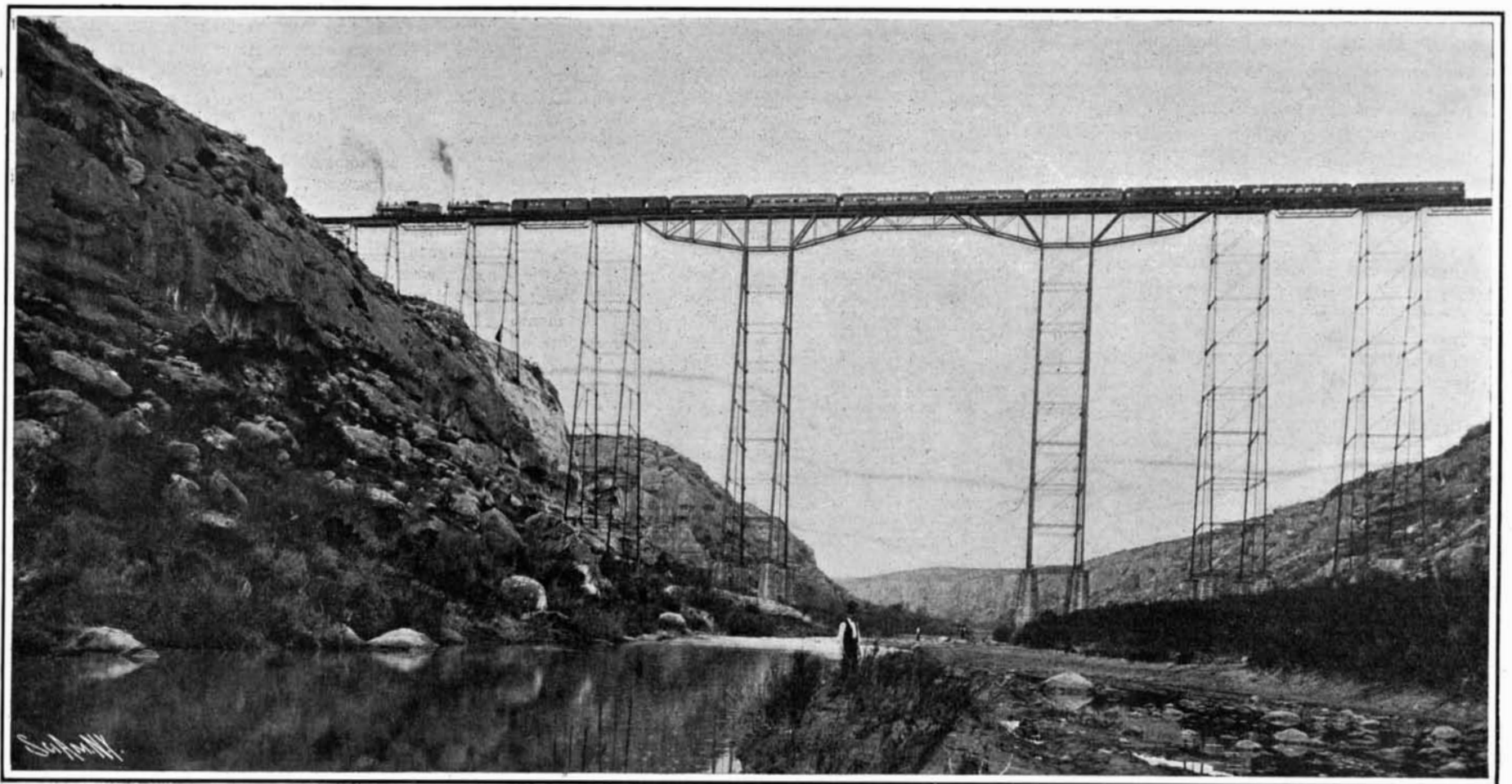
THE LARGEST OF BEARS.

The record-breaking bear of the world has been brought down. This magnificent natural history prize, and one of the greatest specimens of wild animal life which has reached civilization, will shortly be installed in Prof. J. A. Allen's Department of Mammalogy in the American Museum of Natural History, New York. This leviathan was secured by the Museum's 1903

expedition under the leadership of Mr. Andrew J. Stone, who was sent to Alaska and northern British Columbia to secure Arctic mammals and birds for the museum. The funds for these hunting explorations in the Far North were provided in 1901 through the generosity of several friends of the institution.

Three expeditions were made in all, the results being that the museum has now acquired the finest series of the large game animals of sub-Arctic America in existence, besides several thousands of small mammals, representing abundantly nearly all the species of the regions visited. Fine specimens were obtained for groups of the big Alaska brown, black, and grizzly bears, the great Alaska moose, two species of caribou, two of the mountain sheep, mountain goat, and the Sitka deer. Among the small mammals, several entirely new species were discovered and others previously little known were secured, besides a large number of birds. The round-up of the hunt of 1903, the last of the expeditions, numbered 873 forms, including about thirty large mammals (moose, sheep, bears, etc.) representing 28 species. About 140 were collected on the Bering Sea side of the Alaska Peninsula, near Muller Bay, and the remainder on the Kenai Peninsula.

The principal trophy, aside from its scientific importance, and one destined to attract widespread attention among all big-game lovers and sportsmen, was the great male bear, *Ursus dalli gyas* Merriam, measuring 8 feet in length and 4 feet 4 inches in height at the shoulders, and weighing approximately 1,600 pounds. Mr. Stone, with four experienced hunters, two Indians and two white, made a special bear hunt in May, 1903, in and around Muller Bay. On the 29th the big creature was shot, affording his captors an exciting and somewhat dangerous experience. Ten fine examples of large brown bears obtained by Mr. Stone at Muller Bay throw much light on the question of the number of species of bears on the Alaskan Peninsula. Of these specimens nine belong to the form *Ursus merriami* and one to *Ursus dalli gyas* Merriam, based on specimens from Pavlof Bay, on the opposite side of the peninsula from Muller Bay. The two species proved to be read-



Height of rails above water, 321 feet. Length of bridge, 2,180 feet.

THE LOFTY PECOS VIADUCT ON THE SOUTHERN PACIFIC RAILWAY.

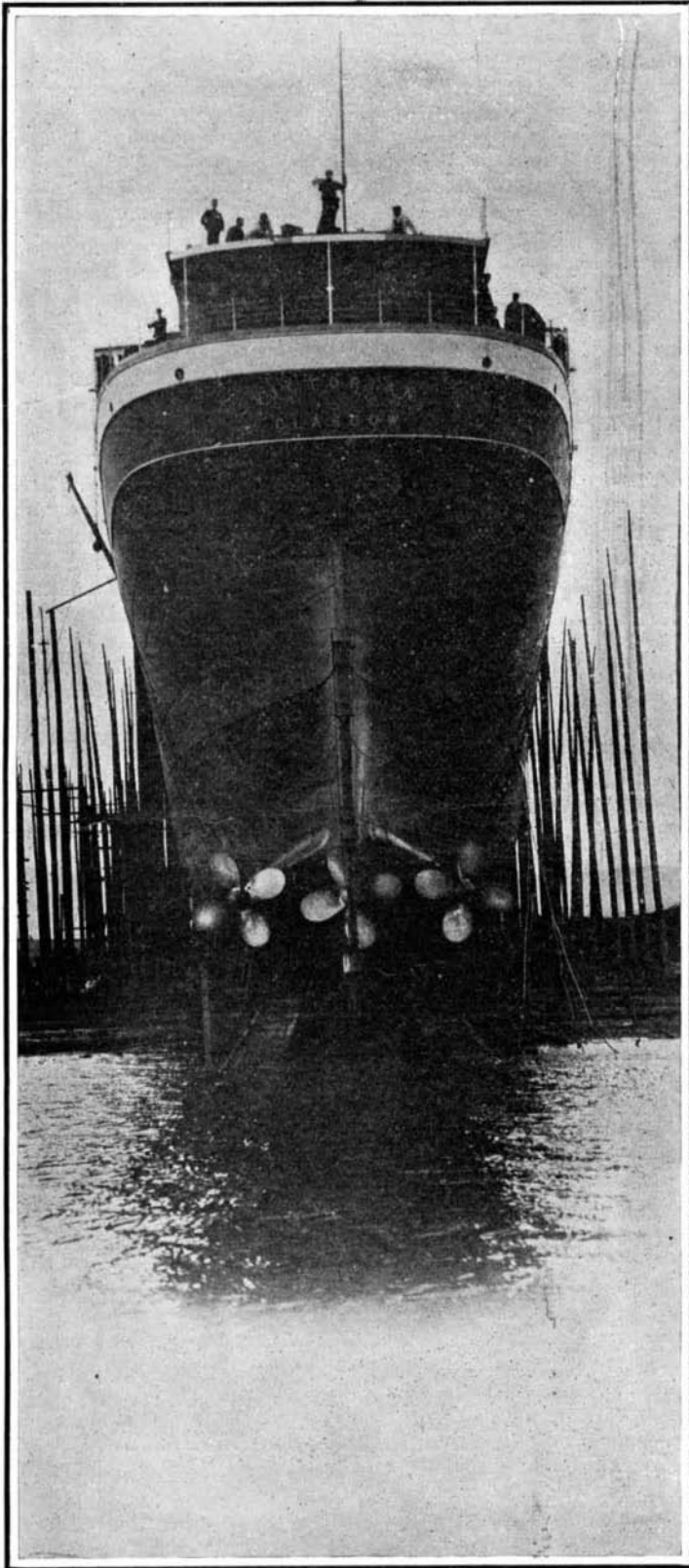
ily distinguishable by both cranial and external characters. The big creature has just been mounted in Dr. Dahlgren's Department of Preparation, by Mr. Clark, employing the clay and sculpturing method, previously described in detail in this paper by the writer, of which Mr. J. F. Ackerly, of the Field Columbian Museum of Chicago, is the originator. Huge Bruin will be the dominant figure in a family bear group, showing the female and several cubs in characteristic lifelike positions. Mr. W. H. Osgood, of the Government Biological Survey, who made a recent trip to the same regions, gives some interesting accounts from personal observation of those obtained from native hunters as to the habits of these bears. Probably the most ingenious is that of capturing salmon for food. This is done as follows: As soon as the salmon begin to enter the streams, Bruin makes fishing his chief business. The fish in large numbers

If a plentiful supply has been obtained, only the choice parts are devoured, such as the two sides, leaving the rest. The cubs, however, are not so particular, and consume their whole portion. The accompanying photographs, taken by the writer, are the first made of the subject, and are reproduced through the courtesy of the American Museum of Natural History.

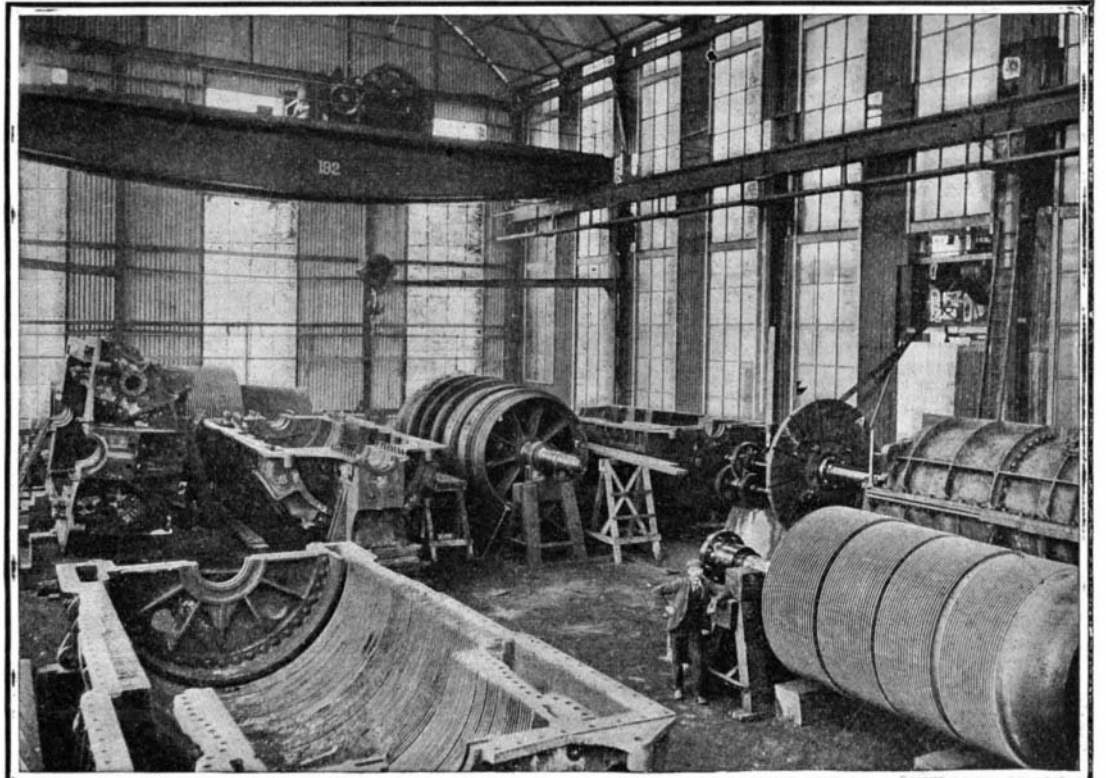
THE "VICTORIAN," THE FIRST TURBINE ATLANTIC LINER.

The "Victorian" is the pioneer turbine vessel to be placed in the transatlantic service and, as such, her arrival in America is an event of more than ordinary interest. Turbines have proved a success for small high-speed channel steamers, but whether they would be an equal success for the largest ocean steamers remained to be proved. The transatlantic trip of the "Victorian" practically solves this problem.

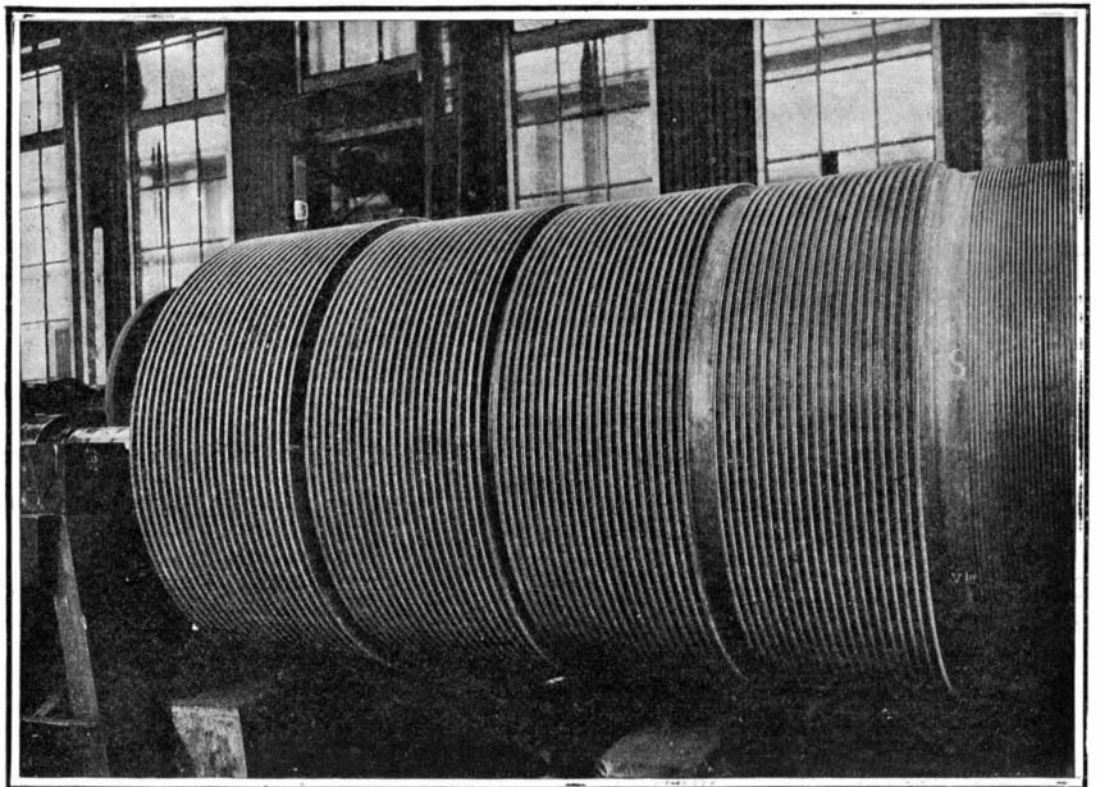
ural design, and at the same time undertook what was a far more difficult task—the construction of the turbines, the largest ever made, which drive her. This was by arrangement with Messrs. Parsons & Co., for it was the Parsons turbine that was decided upon. A high-pressure and two low-pressure turbines drive the three propellers of the ship, which by the way are unusually small to drive a ship possessing a cargo capacity of more than 8,000 tons, besides accommodation and equipment for upward of 1,300 passengers. These propellers, however, revolve at from 270 to 300 revolutions per minute. The central one is worked by the high-pressure turbine, the others by the low-pressure turbines. Shafts of the two latter carry also a reversing turbine, which enables them to be driven full speed astern, either together or independently. Thus the ship will be almost as easily and effectively maneuvered as regards turning or backing as an ordi-



The "Victorian" on the Ways.



The "Victorian's" Turbines in Course of Construction.



The Rotating Member of One of the Turbines.

THE "VICTORIAN," FIRST TURBINE LINER TO CROSS THE ATLANTIC.

usually ascend the streams for the entire summer, and the supply is practically unlimited. In fishing the bears do not get all their prey in shallow water, small streams, or on bars, as is generally supposed, but often go into comparatively deep water in large rivers. Practically all the fishing is done at night or very early in the morning, though their habits in this respect have become somewhat changed in recent years, since they have been hunted so much. The cubs do not attempt to fish, but stay on the bank and receive contributions. The old she-bear stands upright and wades in the water even up to her neck, going very slowly with the current, watching the water and scarcely making a ripple in it. She holds her arms down at her sides, with the paws spread, and when she feels the salmon coming up against her, clutches it with her claws and throws it out on the bank to the eager waiting cubs. After supplying her offspring she puts the next fish in her mouth and goes ashore to eat it.

The "Victorian" was launched from the shipbuilding yard of Messrs. Workman, Clark & Co., Ltd., Belfast. Her length is 540 feet; her breadth, 60 feet; her depth, 40 feet 6 inches. She is divided by bulkheads into eleven compartments, and with the subdivisions of her double bottom she is amply secured against foundering. She is built to the highest class of the British Corporation Registry of Shipping, and her hull has been specially strengthened above the requirements of the corporation, in order to make her doubly secure against the heavy weather of the North Atlantic. Her lines fore and aft are sharp and clean, swelling gracefully into a noble breadth amidships, which suggests high qualities of steadiness and stability.

Originally the "Victorian" was designed to be driven by reciprocating engines, but ultimately Messrs. Allan decided that she should have turbines instead. The builders made the necessary alterations in her struct-

nary twin-screw. The steam economy of the turbine has been amply established; but economy of the coal supply is not the only advantage which the turbine promises in connection with ocean traffic. There is a complete absence of the unbalanced forces which cause vibration in an ordinary steamer, and which is thus reduced to the vanishing point. Then there is very little fear of breakdown, because there are no reciprocating parts to break or get out of order. It is usually the breaking of a crankshaft, or connecting-rod, or some such appliance that causes trouble on a modern steamer. Here the steam acts directly, driving the shafts of the ship with an even turning movement, enormously reducing the stresses to which the moving parts of ordinary engines are subjected.

The steam to drive the turbines is generated by eight boilers of the usual type. The turbines were constructed in an engine shop specially equipped with the necessary plant. The turbine blades are surpris-