

### THE NEW ATLANTIC LINER "KRONPRINZ WILHELM."

It is evident that the two leading German steamship lines are satisfied that there is profit in the building and running of high-speed Atlantic liners. The North German Lloyd Company, after several years' experience with the "Kaiser Wilhelm," which is capable of maintaining over 22½ knots an hour on the Atlantic passage, gave orders for two more high-speed vessels, both of which will be larger and faster than that ship. The first of these, which forms the subject of the accompanying illustrations, is a somewhat enlarged edition of the "Kaiser Wilhelm," and she is being equipped with engines and boilers that will give her at least a knot, and probably a knot and a half per hour, greater speed. The "Kronprinz" is 663 feet 4 inches in length over all, or 15 feet more than the "Kaiser Wilhelm"; her breadth of 66 feet is the same, as is her molded depth of 43 feet. Her normal draft of 28 feet 6 inches is 6 inches greater than that of the "Kaiser Wilhelm," and her tonnage is 14,800 tons, as against 14,349 tons, while her displacement is 21,280 tons, as against 20,880 tons. For the sake of comparison we give the dimensions of the "Deutschland," which is 686 feet over all, 67 feet beam, 44 feet molded depth, 29 feet draft, and 23,500 tons displacement. All three of these vessels were constructed at the Vulcan Works, Stettin, Germany, and there is now upon the stocks of this company a still larger vessel, to be known as the "Kaiser Wilhelm II.," which will have an overall length of 706 feet, a beam of 72 feet and a speed of probably not less than 24 knots an hour.

The "Kronprinz" is built of German steel, and while resembling in construction the "Kaiser Wilhelm," she embodies such improvements in the way of stiffening, subdivision, etc., as have been suggested by the experience that the company have had with the latter vessel in the Atlantic service. She is built with the usual double bottom, and the interior is divided by fifteen transverse bulkheads, which extend to a level considerably above the load-water line. There is also a longitudinal bulkhead between the twin engines. The bulkheads have been designed to withstand the hydraulic pressure due to any one of them being filled, while the adjoining compartment is empty. Safety is further assured by powerful pumps which can discharge 3,600 tons of water per hour.

In the decks and superstructure and in her general appearance the "Kronprinz" will be markedly like her predecessor. The poop is 115 feet in length, the bridge house 374 feet, and the fore-castle deck 115 feet in length. The promenade deck is 508 feet long, and above this is a sun deck of the same length. The vessel provides for over 600 first-class passengers, 350 second-class and 700 third-class passengers, while the crew, including engine and boiler room staff, deck hands, waiters, etc., will total 525. As in the "Kaiser Wilhelm," the dining-room will be in the center of the ship, and will have accommodations for 414 passengers at one sitting. The drawing-room, reading-room, and smoking-room are on the bridge deck.

In connection with the provisions for safety, mention should be made of the fact that there are no doors through the water-tight bulkheads below the level of the water-line, and to enable those above the water-line to be kept closed at sea, separate exits have been provided from each compartment and from

the spaces below the upper deck. The closing of the water-tight doors is regulated from the navigating bridge, where there is a chart which shows the water-tight compartment doors which the demands of navigation require to be left open.

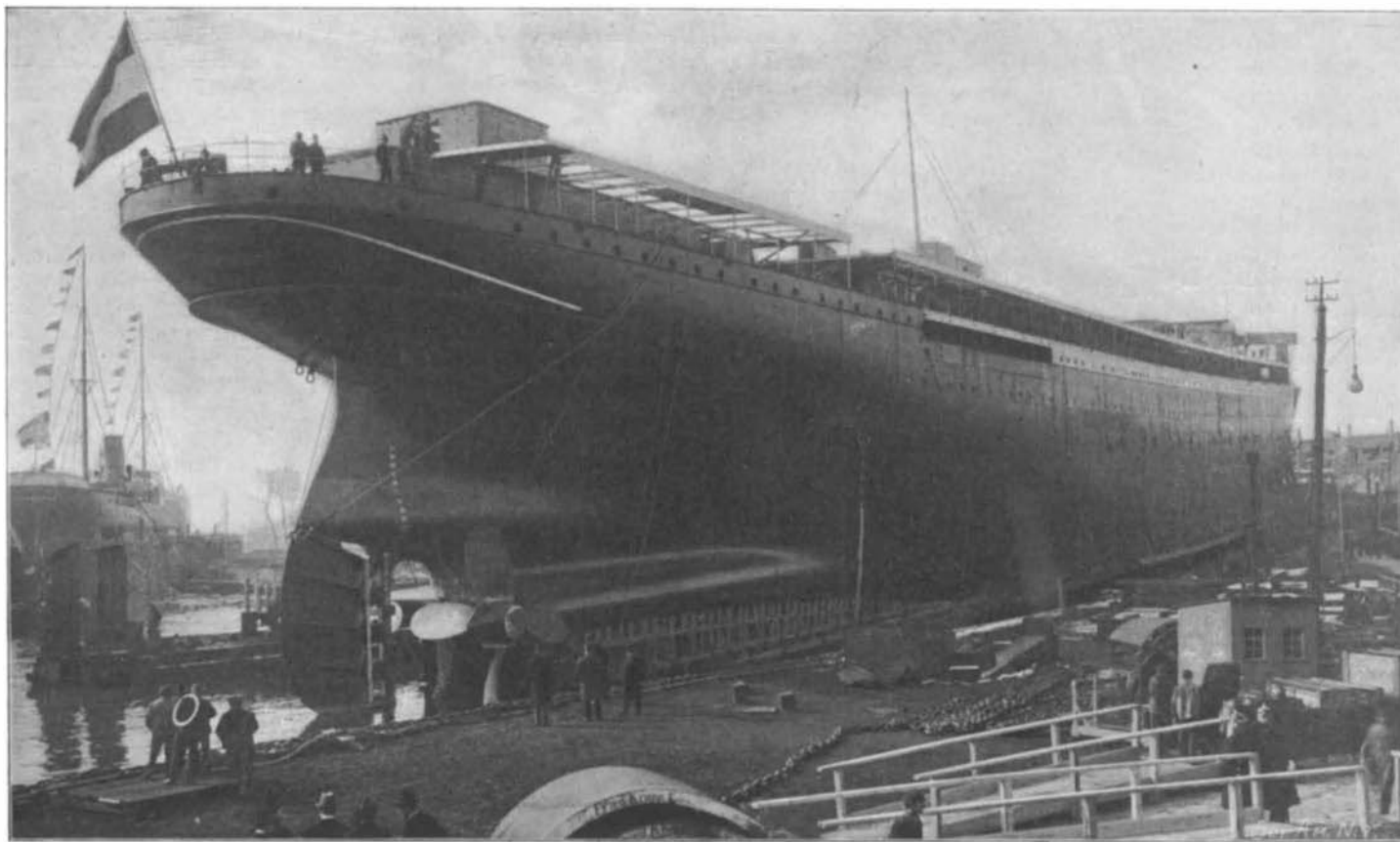
The vessel is, of course, driven by twin screws, and the engines are of the quadruple expansion type, working on four cranks and balanced on the Schlick system, which has done such good work in other boats



The Launch.

turned out from the Vulcan yards. The horse power will be about 33,000 with the boilers working at a pressure of 225 pounds to the square inch; but judging by the experience had with the "Kaiser Wilhelm," it is reasonable to expect that this estimated power will be largely exceeded in practice. The arrangement of the boilers is similar to that of the "Deutschland," there being four groups, in each of which there are three double and one single-ended boiler. There will be four smokestacks, the top of which will be 113 feet above the gage. The total heating surface is about 94,000 square feet, and the total grate area 2,691 square feet. It is expected that this vessel will make her maiden trip during the present month.

Mlle. Rodrigue has studied the structure of varie-



Length over all, 663 feet 4 inches. Beam, 66 feet. Depth, 43 feet. Displacement, 21,280 tons. Horse Power, 33,000. Speed Estimated, 23.5 knots.

### THE NEW NORTH GERMAN LLOYD STEAMSHIP "KRONPRINZ WILHELM."

gated leaves in a number of different plants. The white effect is due, in most cases, to the absence of chlorophyll, though a similar appearance is given also by certain dissolved pigments, and by the reflection of light from the cell walls. Where chlorophyll is absent the leaf may be regarded as diseased, and the tissues have a different structure from that of normal leaves, being much thinner and without any palisade parenchyme.—Bot. Gazette.

### Flora of Madagascar.

The flora of Madagascar forms the subject of a paper lately read before the Académie des Sciences by E. Drake del Castillo. Of all the botanical region of the island the southwestern part is certainly the most interesting, and is probably that in which the flora present the most original types. The vegetation which covers that part of the island recalls, after the descriptions which have been made by travelers, the

photographic views and the botanical collections obtained, the vegetable formations which have been observed in the western portions of tropical Africa. There, as in Madagascar, the plants send up a trunk of considerable height, with a crown of thin and rather straight branches, or on the other hand grow in bushy form at a short distance from the ground, with branches interlaced in an inextricable disorder. The vegetation is generally covered with sharp thorns or has a swelled and fleshy tissue which affords a water reserve. The leaves, generally reduced in number and dimensions, make only a short appearance on the branches. The period of flowering is short and in many cases only appears at long intervals. A group which belongs especially to Madagascar is that of the *Didierea*. These curious plants were described for the first time by Baillon; their classification remained doubtful for a long time, but they were finally placed by this author among the *Sapindaceae*, of which they constitute a somewhat irregular type. The first of these, which was called *D. madagascariensis*, was found by Grandidier in the neighborhood of Tulear, and the second by Grevé near Morondava (*D. mirabilis*). In this group must, no doubt, be placed the four plants recently observed by M. Alluand.

The first of these, which the author proposes to call *Didierea* (*Alluandia*) *procera*, is known to the natives as "fantsy-olotra," or thorny-skin. It is a tree bristling with thorns, thin and tall, sometimes reaching more than 50 feet, according to reports, and with but few branches. It has the appearance of an immense candelabrum. The leaves, at whose base are found the thorns, are but few in number and small (0.4 to 0.6 inch), of an oval form and fleshy in character. The male flowers, about ¼ inch long, are carried at the ends of the branches in ample bunches, often from 8 to 12 inches long. Another species is that known to the natives as the *Songo* or *Sonombé*. It is smaller than the preceding, and its branches, thorny and ascendant, come out at a shorter distance from the ground. It is proposed to call it *D. (Alluandia)* *ascendans*. The third species has a straight trunk which only reaches about 6 feet in height and is crowned by an irregular mesh of small branches. The leaves resemble those of the preceding species; the male flowers are smaller than those of the other *Alluandia*. This species may be known as *D. (All.) comosa*. The most singular plant is the fourth species, *D. (All.) dumosa*, which has the form of an oblong bush about 6 feet high, which branches out strongly from the base upward. It is not provided

with thorns like the others, but the young branches are of a fleshy character and about the thickness of the little finger. The leaves have not been observed, as they seem to fall off at an early period. From a structural point of view the *Alluandia* present great analogies with the *Didierea*, properly so-called. In both cases may be observed, in the body and outer covering, vessels filled with a coloring matter of a red-brown color.