

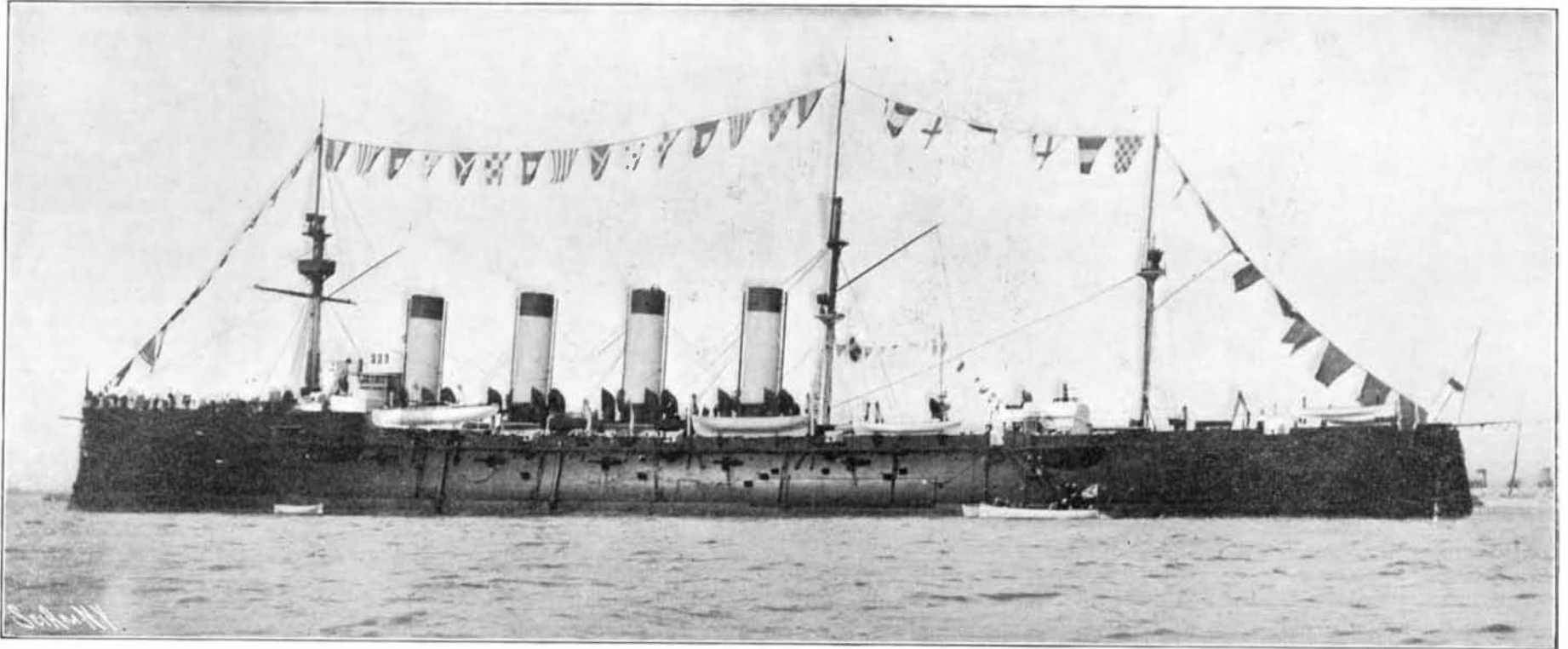
THE DEFEAT OF THE VLADIVOSTOCK SQUADRON.

It must have been with considerable satisfaction that Admiral Kamimura sighted at dawn on the morning of August 14, three of the illusive Vladivostock squadron steaming to the southward in the Strait of Korea; for herein lay his opportunity of forcing the enemy to combat, and proving to the over-zealous and not-too-discriminating Japanese patriots at home, that the Russian squadron was able to carry on its successful raiding of merchant ships only because Kamimura was tied down to the important duty of watching the narrow seas in which he finally intercepted and defeated the enemy.

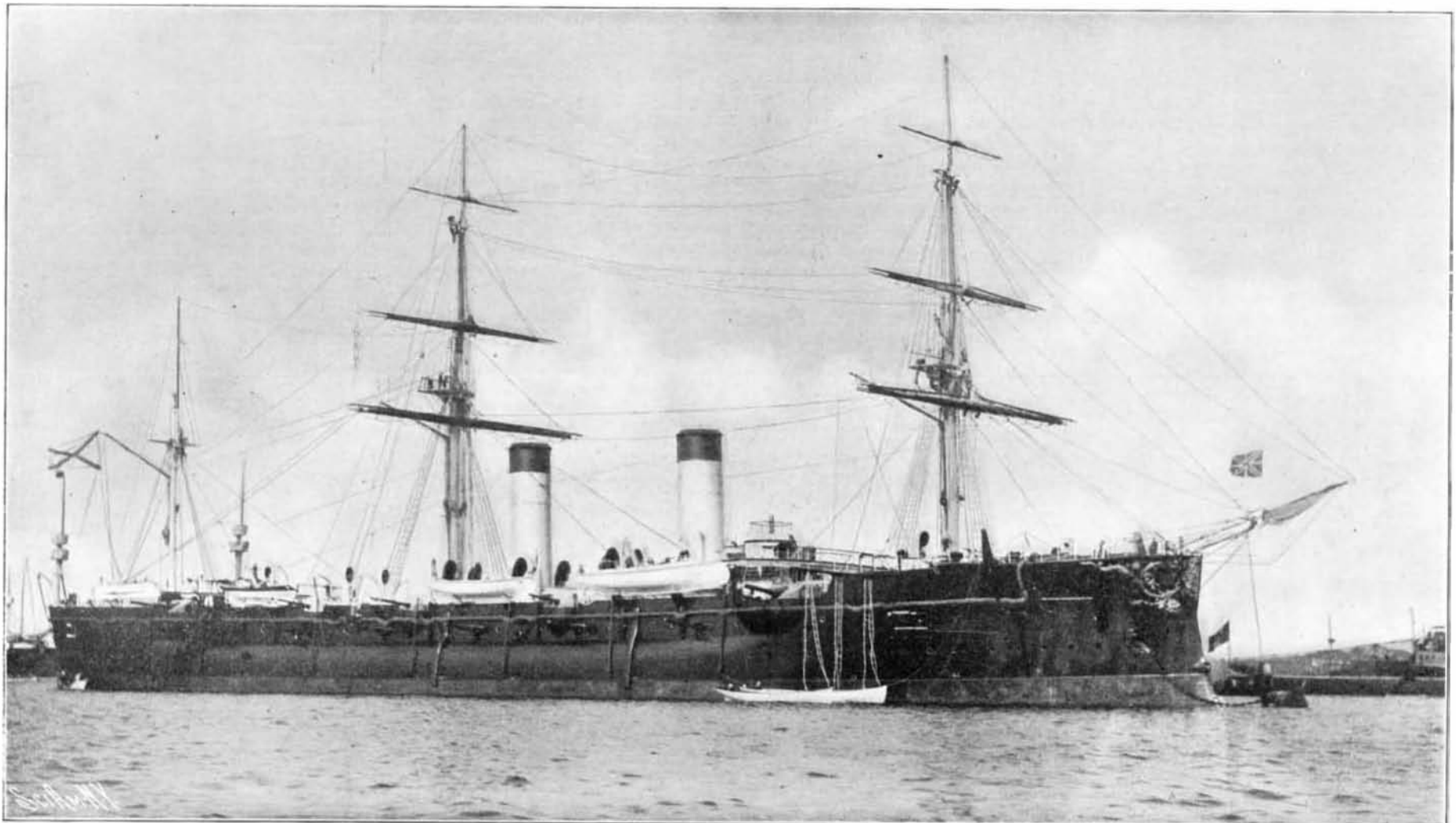
a part of her length, and her armor, although 10 inches thick at the water line, was of inferior quality compared to the splendid material with which all modern ships are protected. The other two armored cruisers were greatly superior to her. The "Rossia," built in 1896, is a vessel of 12,500 tons and about 20 knots speed, and she has the great advantage of being sheathed and coppered. Her main armament consists of four 8-inch guns of modern pattern, but her secondary armament, consisting of sixteen 5.5-inch guns, is altogether too light according to modern ideas, being effective only at close ranges. Her protection is good, consisting of a belt extending over the greater part of

cruisers. All three ships were distinguished by their very numerous batteries, no other vessels in the world being so loaded with guns. Indeed, as the event has proved, they would have been far more effective ships had they carried fewer guns of greater weight and power.

Opposed to the Russians was a homogeneous fleet of four modern armored cruisers of practically the same size, speed, and armament. Three of them, the "Idzumo," "Iwate," and "Tokiwa," of about 9,800 tons displacement and 22 knots speed under forced draft, were built by Armstrong and carried guns of his make. The main armament consisted, in each case, of four



Displacement, 12,500 tons. Speed, 20.25 knots. Coal Supply, 2,500 tons and liquid fuel. Armor: Belt, 10 inches to 5 inches, upper belt, 4 inches, casemates 2 inches, screens, 2 inches. Armament, four 8-inch, sixteen 5.5-inch, twelve 3-inch, 36 smaller guns. Torpedo tubes, 6 above water. Complement, 735.

ARMORED CRUISER "ROSSIA," SEVERELY DAMAGED IN THE KOREA STRAIT ENGAGEMENT.

Displacement, 10,950 tons. Speed, 18.8 knots. Coal Supply, 2,000 tons. Armor: Belt, 10 inches to 5 inches; deck, 2 3/4 inches; sponsons, 2 inches. Armament: four 8-inch, sixteen 5.5-inch; six 4.7-inch, 22 small guns. Torpedo tubes, 6 above water. Complement, 727.

RUSSIAN ARMORED CRUISER "RURIK," SUNK IN THE KOREA STRAIT ENGAGEMENT.

The Russian squadron was composed of three large armored cruisers, of which the oldest, the "Rurik," of about 11,000 tons displacement, was notable as having been the progenitor of the big, powerful, and fast armored cruisers which have become so popular in the present day. The "Rurik," built in 1892, must be called an old vessel; for her guns were of short caliber and low velocities; her speed, originally between 18 and 19 knots, had dropped to 15 knots or under (for not being wood-sheathed and coppered she naturally fouled rather quickly); her armor belt extended only

the water-line, and composed of Harvey steel of a maximum thickness of 10 inches. The "Gromoboi," built in 1899, is a vessel of about the same tonnage, also sheathed and coppered, and having about the same speed, 20 knots an hour, as the "Rossia." Her main armament consists of four 8-inch or possibly 8.4-inch guns, and is greatly superior to that of the "Rossia" because of the fact that her secondary battery is made up of sixteen 6-inch guns, 45 calibers in length, which were available for effective work of much greater ranges than the rapid-fire guns of the other two

8-inch and fourteen 6-inch guns, and the vessels were protected with 7-inch Harvey nickel belts, with 6 inches of casemate protection for the guns. The fourth vessel of the squadron was the "Azuma," built at St. Nazaire, France. She is of 9,436 tons displacement, 21 knots speed and carries four 8-inch and twelve 6-inch guns as her main armament. Her belt is of Krupp steel, and she has 6 inches of Harvey nickel-steel protection for her guns.

It should be mentioned that whereas the Japanese cruisers carried their armament in turrets or within

casemates, the Russian cruisers carried but few of their guns in casemates, most of the pieces depending upon gun shields for protection. The Japanese, in this fight as in that off Port Arthur a few days before, elected to make the conflict a battle between gunners. They appear to have remained at long range (though the reports of the Japanese and Russian admirals do not agree on this point), and trusted to their superior pieces and better gunnery to disable the enemy at the cost of a minimum amount of damage to themselves. This was obviously the proper course for the Japanese. Such fighting would have to be done mainly by the 8-inch and 6-inch guns, and of the 8-inch Russia possessed but twelve guns against sixteen carried by the Japanese; moreover four of those twelve were the short 30-caliber pieces of the "Rurik," whose velocity and range were very limited. Hence, in the earlier stages of the fight, the Japanese must have been able to reach the Russian ships with about twice the number of 8-inch pieces that the Russians could hope to make effective upon the Japanese ships. In the 6-inch pieces, the Japanese had a tremendous superiority, carrying fifty-four against the sixteen mounted by the "Gromoboi." The "Rossia" and the "Rurik," it is true, mounted sixteen 5.5-inch guns apiece; but the one-half inch drop in caliber means a big drop in striking energy and carrying power, and it is doubtful if the 5.5-inch guns were able to do much effective work in this long-range fight.

It is a question as to which squadron had the advantage in the matter of speed. For although the Japanese ships were credited with from 21 to 22 knots trial speed, they were not sheathed, and for some months they have been tied closely to the task of watching the Straits to prevent a junction of the Port Arthur and Vladivostock squadrons; hence their bottoms were probably very foul, and their speed not much better than that of the "Rurik," or, say, about 15 knots an hour. The immense advantage of sheathing and coppering was shown at the close of the fight, when the "Gromoboi" and "Rossia," which should have been captured or sunk by the victorious Japanese, were able to draw a way and make good their escape to Vladivostock.

There is no new lesson taught by the fight. We simply see the accepted theories

of construction and tactics once more strongly verified. That the speed of the fleet is governed by the speed of the slowest ships was proved by the fact that the slower "Rurik" dropped behind and became the target for a terrific concentrated fire from the four Japanese cruisers; and although the two faster Russian ships repeatedly returned to her assistance, they were themselves so hard hit in doing this that they were forced to leave the "Rurik" to her fate. The su-

go far to enhance the value of the copper bottom in future warship construction.

THE NEW BALDWIN AIRSHIP.

BY J. MAYNE BALTIMORE.

Capt. T. S. Baldwin, of Oakland, Cal., is the recent inventor and constructor of what proves to be a very successful dirigible airship.

The first and initial trial of the craft was made from Idora Park, Oakland. Since then several other trials have been made, all of which proved very satisfactory.

No high altitude was attained by the new airship. Capt. Baldwin's principal aim was to determine if the movements of his ship could be controlled. He ascertained that this could be done quite easily.

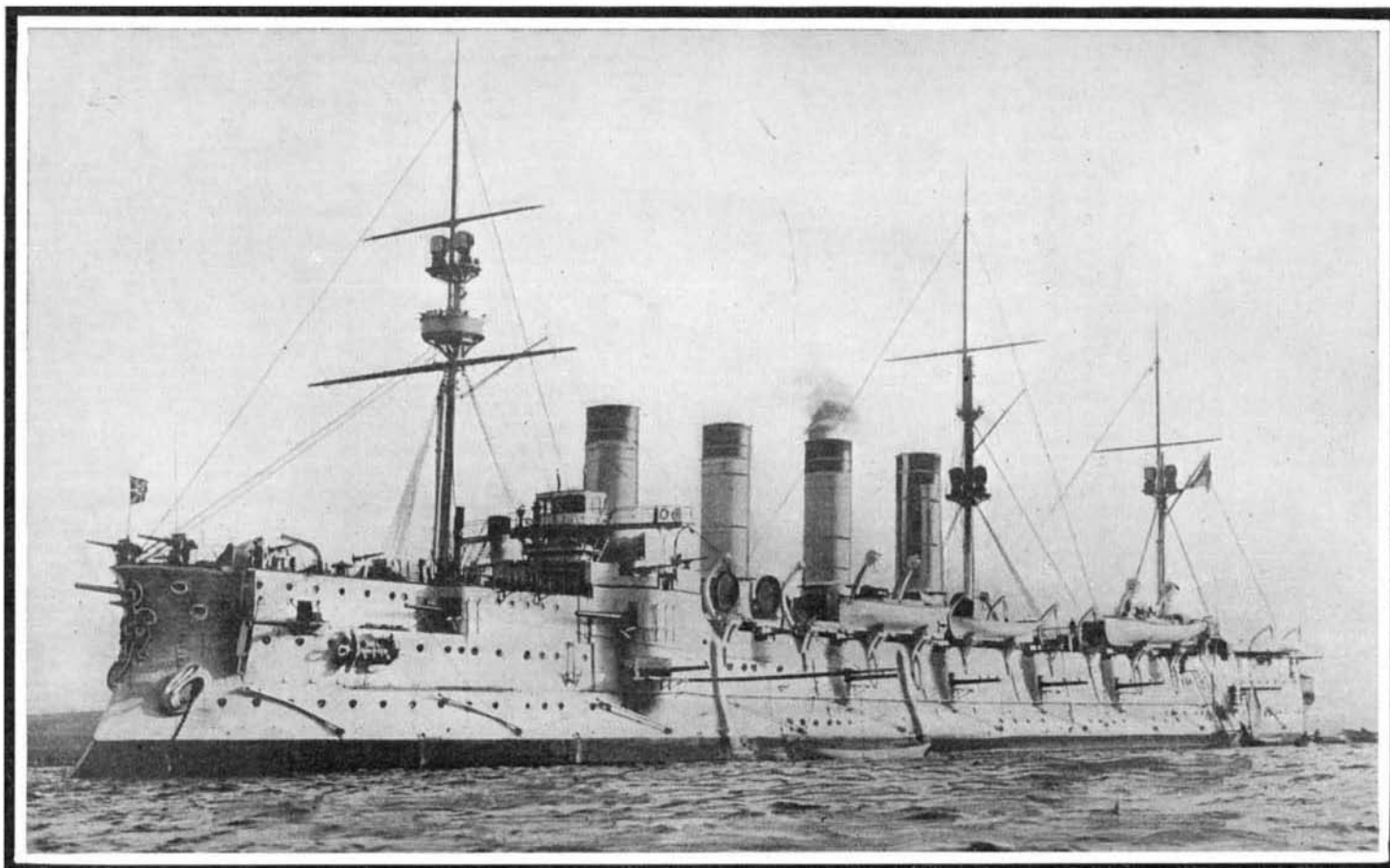
At a height of about 700 feet, he circled several times clear around the large park, going both against and with the wind, and moving at various angles. After being up nearly an hour, Capt. Baldwin

brought his ship back to the starting point, and safely descended to earth. These trials were witnessed by great crowds of spectators.

Subsequent trials have also been made, when it was demonstrated that in every revolution of the large propeller, and in every move of the steering gear, and of the weights which raise or lower the vessel at will, the plans of the inventor have been carried into effect. The large propeller, having two metallic blades, and nearly 6 feet in diameter, instead of being placed at the stern, is located at the bow of the frame or car, as in most recent airships of this type. In this manner the airship, instead of being pushed through the air, is pulled. This facilitates the steering as well as raising or lowering the ship.

The balloon, by means of which the whole machine is raised, is somewhat blunt cigar-shaped. It measures 54 feet in length and is 17 feet in diameter in the middle. The balloon is constructed of a very fine quality of silk, extremely strong and flexible, and with the reticulated netting which attaches it to the car, weighs only 90 pounds. The balloon is inflated with hydrogen gas, and at an ordinary distension pressure contains 8,000 cubic feet.

To this balloon is attached the frame which supports the propelling and steering mechanism. This frame, which is made of

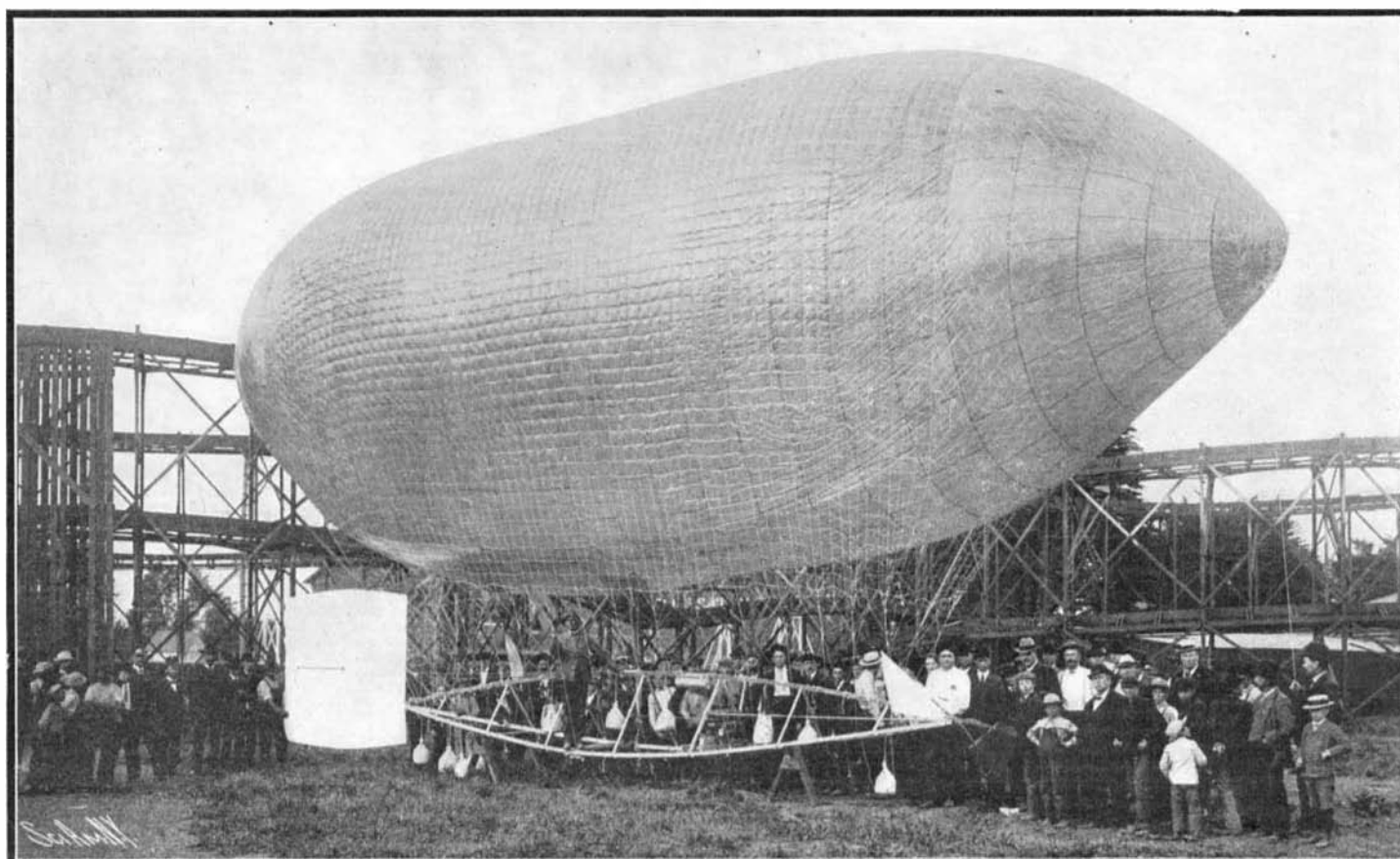


Displacement, 12,367 tons. Speed, 20 knots. Coal Supply, 2,500 tons and liquid fuel. Armor, belt, 6-inch; deck, 2-inch; secondary belt, 4-inch; casemates, 6-inch. Armament, four 8-inch; sixteen 6-inch; twenty 3-inch; twenty-four small guns. Torpedo Tubes, four. Complement, 800.

ARMORED CRUISER "GROMOBOI," SEVERELY DAMAGED IN KOREA STRAIT ENGAGEMENT.

perior armor carried by the newer Russian ships showed its value in protecting the water line from vital injury. The softer and less extensive water-line belt of the "Rurik" presented a weak point which the Japanese were quick to take advantage of. She was evidently so badly hulled that her ultimate sinking was only a question of time.

The two sheathed cruisers which escaped to Vladivostock present an interesting problem for the Japanese to solve. With their copper bottoms and with the large Vladivostock drydock available for cleaning, unless their engines have been seriously disabled, they can prey upon commerce without any fear of being captured for many months to come. For it is doubtful if there are any Japanese ships that can be put into condition to match them in speed. There can be little doubt that the experience of these ships will



BALDWIN'S AIRSHIP ABOUT TO ASCEND.