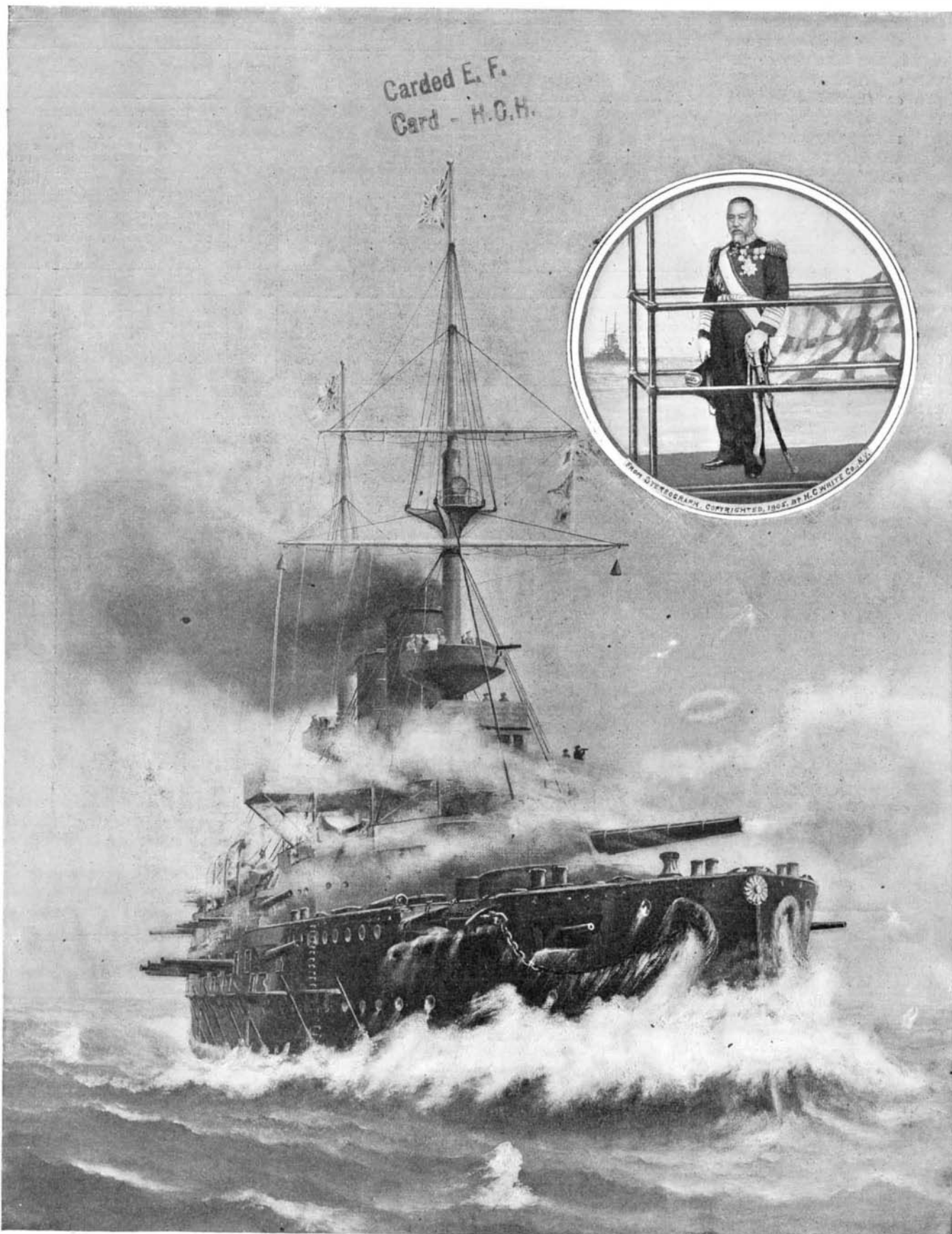


ADMIRAL TOGO AND HIS FLAGSHIP.

To speak of Admiral Togo is to think of his flagship the "Mikasa," and wherever in the stirring events of the war the "Mikasa" has been mentioned, there we know the gallant little admiral has been present, holding in his hands the naval destinies of his country and the fate of the Russian fleets. As Nelson and the "Victory" are the most famous names in the annals of naval warfare in the nineteenth century, so Togo and the "Mikasa" stand out in the opening years of the twentieth century and bid fair, indeed, to become the most notable historic figures when the naval history of the century shall come to be written.

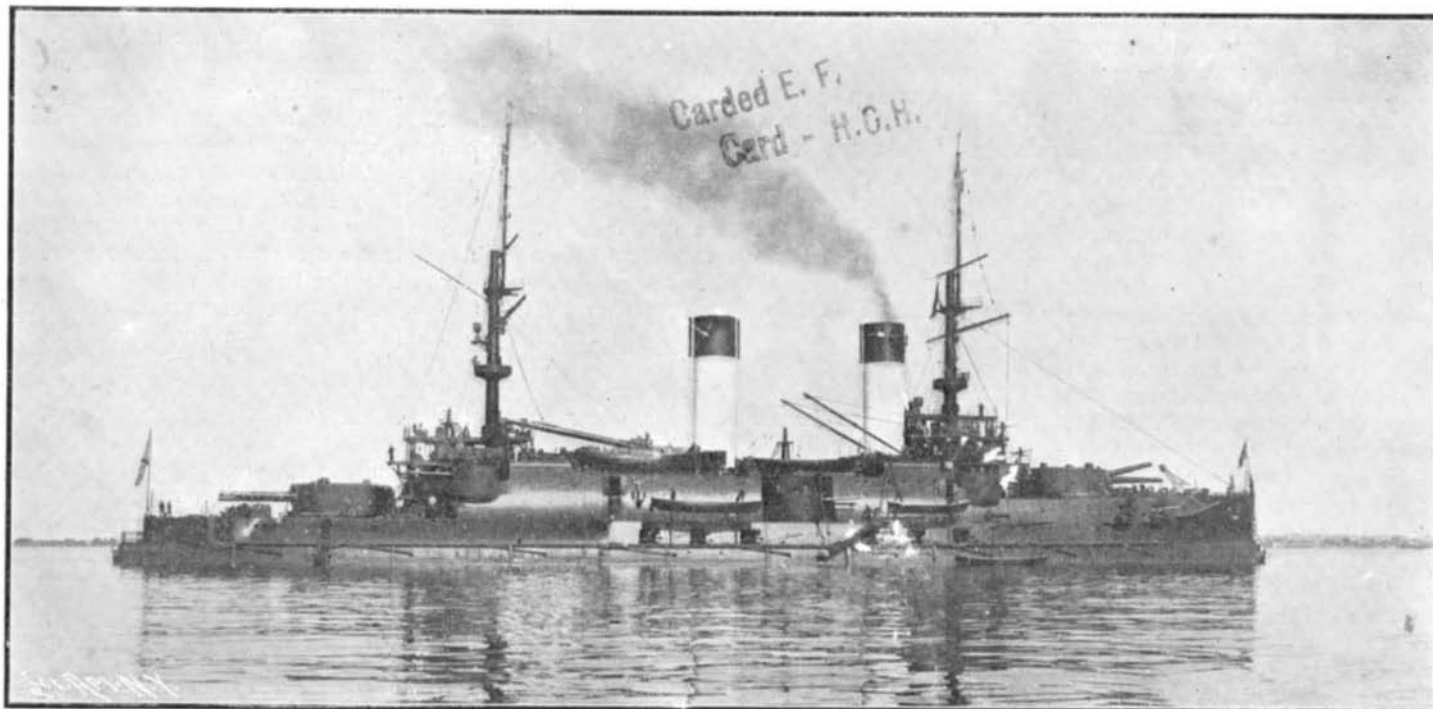
In the presence of such a sweeping victory as that achieved over the Baltic fleet in the Straits of Korea, it is easy to fall into exaggerated expression and give to this Japanese admiral credit even greater than his due; on the other hand, the critic who seeks a questionable distinction by invariably running counter to popular approval will tell us that the Japanese success is due more to Russian imbecility than to their own skill and courage. Yet we can hardly conceive anything more ungenerous than to seek to depreciate the superb achievements of the Japanese fleet in this, the crowning hour of their triumph. Togo must be judged by the facts as we see them to-day, and baldly stated they are as follows: With a fleet which was so small and so youthful among the great fleets of the world that it was not even reckoned as of the first class, Admiral Togo did not hesitate to match himself against the third



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ADMIRAL TOGO'S FAMOUS FLAGSHIP "MIKASA" IN ACTION.

From This Flagship Admiral Togo Directed and Won the Great Battle of the Sea of Japan.



The "Borodino," One of the Four Finest Battleships of the Baltic Fleet, Fought a Terrific Battle, Until She Succumbed to Gunfire and the Torpedo, and Went Down with Colors Flying.

ADMIRAL ROJESTVENSKY'S FLAGSHIP "BORODINO."

greatest naval power in existence, a power which in numbers and weight of ships, extent of resources, and ability to stand a long-drawn-out war, was fully three times as great as his own; that at the very outset he dashed in and crippled a powerful and selected fleet of the enemy while it was sheltered behind the guns of a first-class modern fortress; that throughout the inclement weather of a stormy and tempestuous winter he blockaded the enemy within the shelter of that fortress, repeatedly driving him to take refuge under its guns, and finally smashing his fleet in a fiercely contested battle upon the high seas; that after practically wiping out the first Pacific fleet, he retired for two or three months' rest and refitting, and then threw himself across the path of an even larger, and in some respects more modern fleet dispatched for his undoing from the home ports, and literally swept it from the high seas; and finally, that after literally annihilating the third greatest naval power in the world, the forces with which he has accomplished this stupendous task are practically, thanks to captures from the enemy, and fresh constructions carried on in the home dockyards during the war, as strong as they were sixteen months ago, when the war began.

Admiral Togo comes of a race of sailors and sea fighters. He was born in 1857 at the time of Japan's awakening, and therefore, being but 48 years of age, he is in the prime of life. He saw the beginnings of the new Japanese navy and he was one of the first Japanese youths to be sent abroad to study, spend-

ing three years in the famous British naval college at Greenwich. On returning to Japan he was enrolled in the Japanese navy as an ensign, and on the opening of the war with China in 1894 he had risen to the command of the then crack cruiser "Naniwa," of 3,650 tons. It is a curious fact that in that war, as in this, he struck the first serious blow, for the "Naniwa" on coming up with a Chinese transport, the "Kowshing," of which he had been sent in search, ordered her to heave to, and on her refusing promptly sent her to the bottom.

For his distinguished services in the Chinese war, 1894-5, he was given two Japanese orders and a pension. He was appointed a member of the board of admirals in 1895. For his service in Formosa he received further rewards, and he was appointed vice-admiral in June, 1898, with the commission of commander-in-chief of Sasebo naval station. In 1900 he was appointed commander-in-chief of the standing squadron, and during the diplomatic controversy at the close of 1903 that led up to the present war he was appointed commander-in-chief of the first fleet. The naval

attaché of the Japanese legation, Washington, states that Admiral Togo has well earned his sobriquet of "the silent man." Before the war, among the Japanese naval officers, he was held in the very highest repute as a strategist and fighter, and his conduct of the war, and the fact that after destroying one of the greatest of naval powers he should have in hand a fleet practically as powerful as that with which the war opened, proclaims Admiral Togo as one of the very greatest admirals of this or any other age. What he has done has not only never been equaled, but has never been approached.

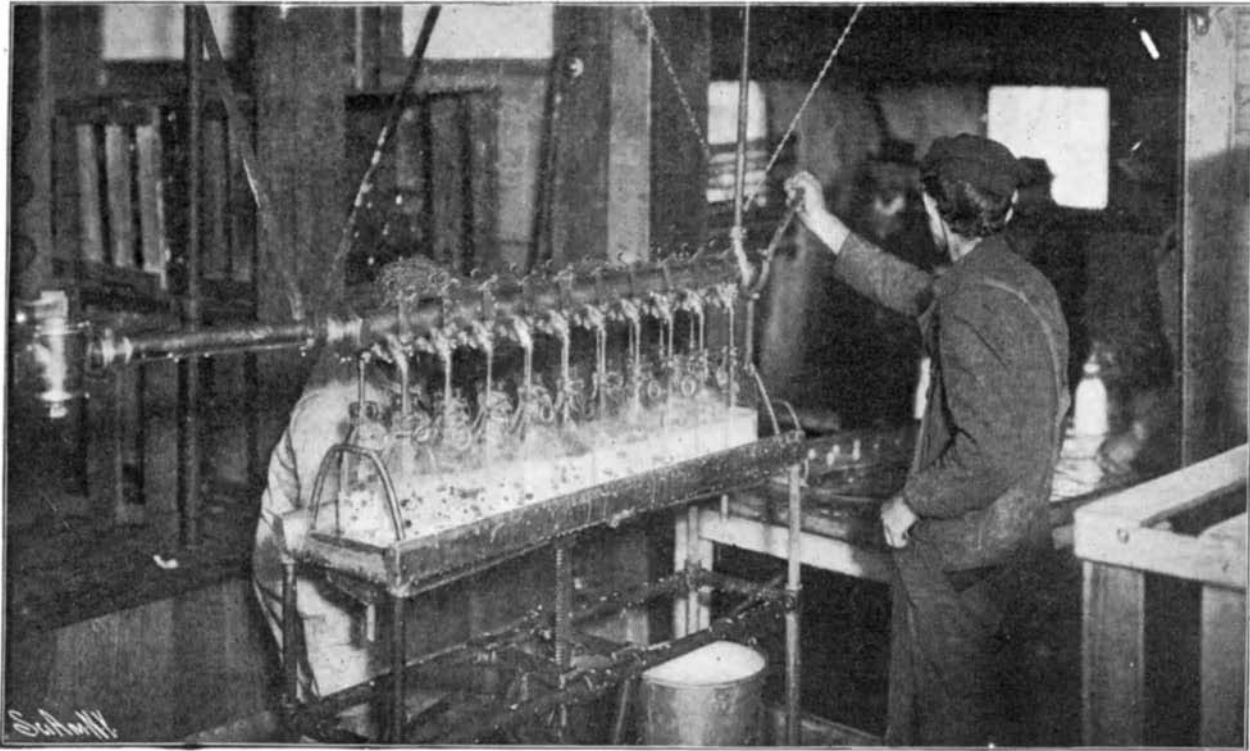
The first-class battleship "Mikasa," Togo's flagship throughout the war, is probably better known than any other ship that has figured in the present conflict. Built by Vickers, Sons & Maxim at Barrow, she was at the time of her launch in 1900 the largest battleship afloat, and at the opening of the war she was the largest battleship in commission in any navy. With a length over all of 436 feet, beam of 76 feet, and a draft of 27 1/4 feet, she displaces 15,200 tons. She is a thoroughly up-to-date vessel, and includes the accepted ideas as to speed, armor, and armament of naval designers. The only points on which ships of later design surpass her are those which are due to the lessons that have been taught by the war in which the "Mikasa" has figured so largely; namely, the substitution of large guns of from 9 to 10-inch caliber, emplaced in turrets, for the more numerous battery of 6-inch guns

mounted behind side armor which constitutes the secondary armament of the "Mikasa" and her type of battleship. She is driven by twin triple-expansion engines, for which steam is supplied by a battery of twenty-five Belleville water-tube boilers. As in the other battleships of the Japanese navy the main battery consists of four 12-inch wire-wound guns of high velocity; the secondary battery is made up of fourteen 6-inch guns. For protection the vessel carries a 9-inch belt of Krupp

the long journey permits the growth of millions of bacteria, so that by the time it passes through the distributing station, and is finally delivered to the consumer, the milk may be teeming with all kinds of germs. Of course, most of these germs are harmless. Nevertheless, milk affords an excellent breeding ground for all bacteria, and should any disease germs gain access to it, they would in a few hours multiply to an astonishing number. The milk of a healthy cow contains, at the outset,

only very few bacteria per cubic centimeter; but by the time it arrives in this city it seldom contains less than four hundred thousand bacteria, with the exception of certified milk, and often as many as six or seven million bacteria per cubic centimeter. A cubic centimeter, by the way, is equivalent to less than one-third of a teaspoonful. After this many hours may elapse before the milk is delivered, and then it may be exposed to all the filth and disease of a tenement for hours, ere it is finally fed to some sickly infant. Small wonder that the death rate in the tenement district is so high.

In Germany and France, the law requires much greater care to be exercised in the handling of milk, and all milk that is brought into the cities must be pasteurized before delivery. Within the last two or three years, modern dairy machinery has been introduced into this country, and we can now boast of a number of establishments in which the milk is purified both by destroying the bacteria and by filtering out all dirt and foreign substances. Our engravings illustrate the apparatus installed in one of these enterprising dairies. The milk, as it comes from the farms in ten-gallon cans, is poured into a receiving vat, shown at the extreme left in one of the illustrations, and is thence pumped up to an elevated reservoir. From this point it flows by gravity through the filter and pasteurizer. The pump used for elevating the milk is of a new design. Every part that comes in contact with the milk is made of brass, nickel-plated, and the pump is so constructed that it may be readily taken apart and cleaned. The filter comprises three strainers, each covered with a four-inch layer of pure quartz sand, which arrests all foreign substances in the milk. The sand is washed and sterilized every day in a special machine. From the filter the milk passes through the pasteurizer, which is built on what is known as the "regenerative" plan. A better idea of this apparatus may be had from the section view, shown herewith. The pipe leading from the filter opens into the receptacle, H, whence the milk flows



After Leaving the Cooler, the Milk Runs into a Large Tank, from Which It is Drawn into the Bottles.

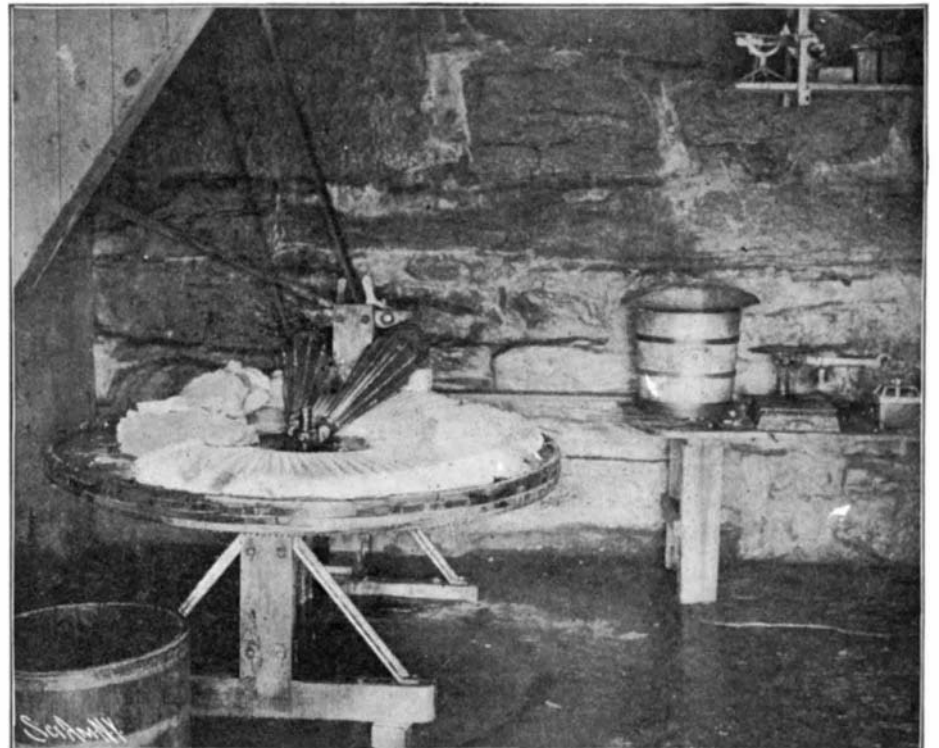
steel and a wall of side armor 6 inches in thickness extending amidships from the main belt to the main deck. The very striking picture of the "Mikasa" which we herewith reproduce represents her leading the Japanese fleet into an engagement. She is stripped of her boats, rails, stanchions, and everything that might interfere with gun fire or, by intercepting the enemy's shells, burst them and be knocked into flying splinters that would endanger the crew. The "Mikasa" has been present and taken a prominent part in all the battleship engagements of the war. She has been subject to attack by the guns of the enemy's fleet, by the coast defense guns of Port Arthur's fortifications, and by the deadly mine and torpedo. Yet to-day, as far as we can learn, she is in first-class fighting condition.

MODERN SCIENTIFIC DAIRY METHODS.

New York city drinks two million quarts of milk every day. Could this milk be delivered to the consumer within an hour or so from the time it is milked, there would be little danger of its spreading disease, provided it came from healthy cows and was handled with due precautions. But, unfortunately, our transportation systems have not been so highly developed as to permit of such rapid delivery. The supply is brought in from distant farms in New Jersey, Connecticut, central New York State, and Vermont. Even if fairly clean when shipped, which is not often the case,



Taking the Butter from the Steam Churn, Which Holds 350 Gallons. The Tubs of Butter Were Churned in One Hour.



The Butter-Working Machine, Where the Butter, after Coming from the Churn, is Mixed with Salt.

MODERN SCIENTIFIC DAIRY METHODS.