

flour milled is shipped in bags for family use or for export. Cloth bags are preferred, and are filled by machines working on the same principle as the barrel filler; they are sewed by sewing machines, are then run down inclines, and are carried on trucks to the cars. Bags are largely used for export purposes by the Washburn-Crosby Company, as barrels do not pack well, and the American flour sack can now be found in all parts of the world. American foodstuffs, on account of their purity and uniformity, have taken a prominent place in the markets of the world, and Minneapolis is now in the lead as a base of supplies.

THE DISABLED RUSSIAN CRUISER "NOVIK."

Among the vessels that fell a victim to the attack of the Japanese guns and torpedoes at Port Arthur was a vessel (the only one of its type in existence) which has attracted a great deal of attention in the naval world. We refer to the fast cruiser "Novik," of which we present an illustration. It was shortly after the close of the Spanish-American war that the Russian Admiralty sanctioned the announcement that they were about to build a fleet of several extremely fast protected cruisers, which were to have a speed far in excess of the fleetest vessels afloat at that time. Originally these boats were to have been of a little less than 3,000 tons displacement and 25 knots speed. The contract for the first of them, the "Novik," was given to Schichau, the well-known torpedo-boat builder of Elbing, Germany. She was launched in 1900, and delivered to the government in 1902. Her destination, like that of all the latest and best warships of Russia, was the Pacific station.

The "Novik," as constructed, is somewhat larger and faster than the vessels contemplated in the first designs. She is 347 feet in length, 39 feet 4 inches in beam, and on a draft of 19 feet displaces 3,000 tons. For a vessel of her size the engine and boiler room equipment is extremely powerful, consisting of twelve Thornycroft boilers, and triple engines with a combined indicated horse power of 18,000 to 20,000. On trial she developed a speed of 26 knots an hour, and therefore she is by about

2 knots the fastest cruiser in the world. So much being given up to motive power, the protection is confined to a 2-inch deck with a glacis of inclined armor above the engine hatches 3 inches in thickness. There is also a protection of 1 1/4 inches on the conning tower. All of this armor is treated by the Krupp process. In addition to her scouting duties, for which by virtue of her high speed she was admirably suited, the "Novik" was designed for the important work of chasing and sinking torpedo boats and torpedo-boat destroyers. For this work she was armed with six 4.7-inch rapid-fire guns, one 9-pounder, eight 6-pounders, and two 1-pounder rapid-fire guns. She also carried one above-water torpedo tube in the stern, and two above-water on each broadside.

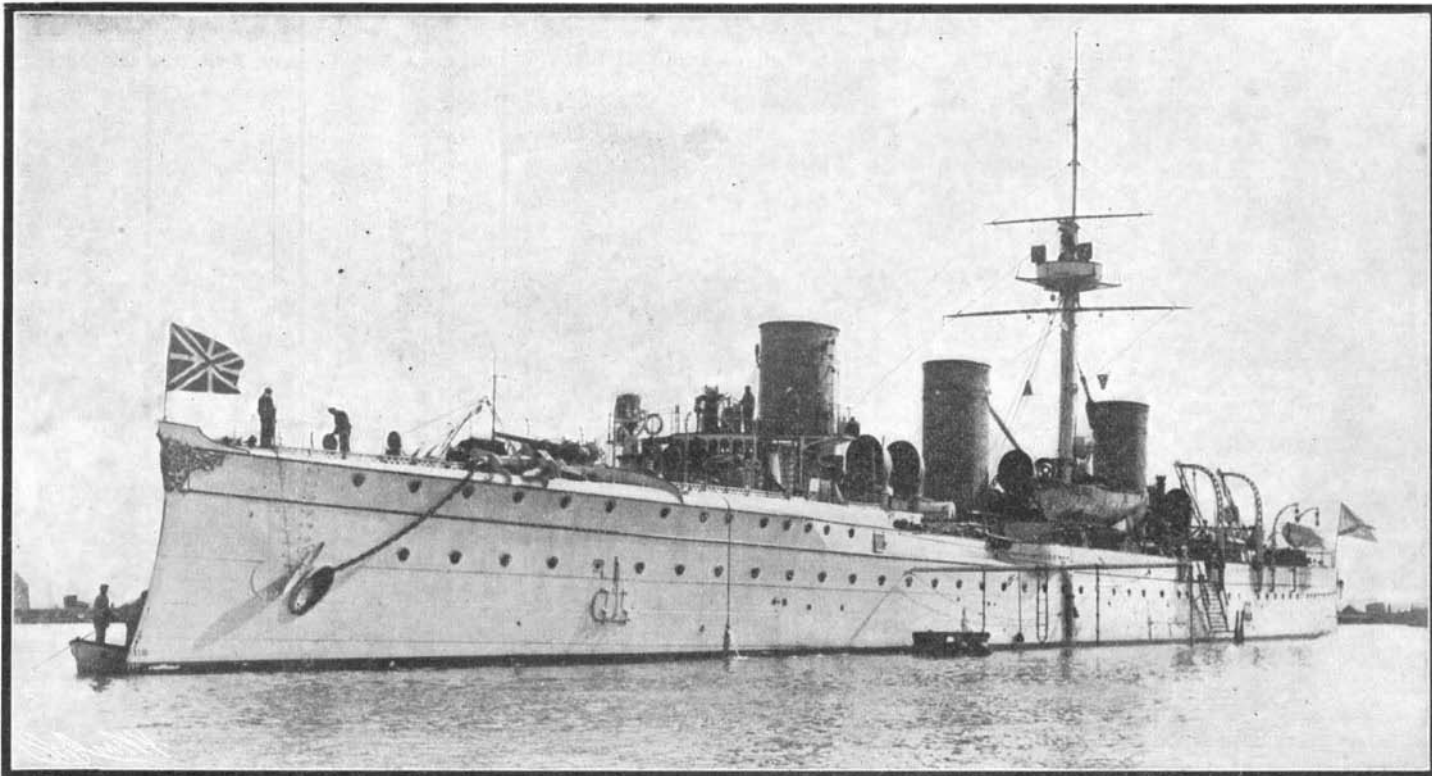
In the meager accounts of the Port Arthur engagement, the "Novik" was mentioned as having been very active, maneuvering on the outskirts of the Russian fleet. It is probable that she was doing her best to sink the Japanese destroyers with her 4.7-inch guns, a single well-placed shell from one of which would have meant the complete disablement of any boat that was struck. Whether the "Novik" was disabled by torpedo or by gun fire is not very clear; but it is probable that it was the gun that put her out of action.

In addition to the "Novik," four other fast cruisers of the same type have been completed or are now under construction, while two others are proposed. Of the four, one, the "Almaz," is identical with the "Novik," having the same high speed; the "Boyarin," launched in 1900 at Copenhagen, was sent to the Pacific station, and two others, the "Jemtchug" and "Izumrud," launched in 1903, are now approaching

completion. The last three cruisers, while of the same general dimensions as the "Novik" and carrying the same armor and battery, are not so fast by two or three knots, the contract speed being 22.5 knots for 11,500 indicated horse power. The "Boyarin," it would seem, must be added to the list of those Russian ships at Port Arthur that have fallen a victim to the deadly torpedo. It will be remembered that the first intimation of her loss came in the form of a dispatch from Port Arthur stating that the torpedo transport "Yenisei" and the cruiser "Boyarin" had been sunk by coming accidentally in contact with one of the submarine mines in the harbor. A day later came the announcement that the Japanese torpedo-boat destroyers had made another dash at the Port Arthur fleet in a driving snowstorm, that they had discharged their torpedoes, and thought that they had hit a couple of ships. Then followed a statement from Tokio, Japan, that these torpedo boats had succeeded in sinking the "Boyarin" and another vessel. The probabilities are that the last report is correct, and if so, the torpedo boat has added still further to the immense prestige it had already acquired in the present war.

Death of Prof. Charles E. Beecher.

On February 14, Prof. Charles Emerson Beecher, who occupied the chair of palaeontology at Yale, died suddenly at his residence in New Haven. Prof. Beecher was forty-eight years old. A graduate of the University of Michigan of the class of 1878, he pursued a post-graduate course at Yale which earned for him the degree of Ph.D. Shortly after his first appointment to a position on the University staff, he was made



Displacement, 3,000 tons. Speed, 26 knots. Coal, 500 tons. Armor: Deck, 2 inches. Guns: Six 4.7-inch; eleven smaller rapid-fire guns. Five torpedo tubes above water.

RUSSIAN CRUISER "NOVIK," THE FASTEST CRUISER EVER BUILT. DISABLED AT PORT ARTHUR.

professor of historical geology. He succeeded Prof. Marsh as curator of the geological collections and professor of palaeontology.

His most important contributions have been to the knowledge of the development and structure of the trilobites and brachiopods. Several papers on the ontogeny and phylogeny of these and other classes of animals were collected in one volume entitled "Studies in Evolution," which appeared in 1901 as one of the Yale bicentennial publications. He also published "Brachiospongiae: A Memoir on a Group of Silurian Sponges," Memoirs of the Peabody Museum of Yale University, Vol. II., Part I., in 1889. In 1899 he became a member of the National Academy of Sciences.

The Current Supplement.

The current SUPPLEMENT, No. 1469, opens with a most instructive article by Charles H. Stevenson on the dressing and dyeing of aquatic furs. The article is well illustrated by engravings, which clearly show the processes involved. "Natural Products and Scientific Industry" is the title of an article written by Dr. Otto N. Witt, the well-known German chemist. From the mechanical standpoint, by far the most important article in the paper is a thorough discussion of the evolution of watch escapements. The article is very elaborately illustrated. The sleeping sickness, of which we hear so much in these days, is analyzed in a competent way. The walls of ancient Troy are illustrated and briefly described. William Ackroyd writes on "A Principal Cause of the Saltiness of the Dead Sea." The usual electrical notes, engineering notes, and consular information will be found in their accustomed places.

The Commerce of the Far East.

The value of the commerce of the countries fronting upon the scene of hostilities in the Orient aggregates about 600 million dollars per annum, and the value of the commerce of the United States with those countries aggregates over 100 million dollars per annum. While the prospect of war resulted in the placing in the United States of orders from Japan for flour and from Russia for meats, the general trend of exportation to the four countries fronting upon the scene of hostilities has been downward during the period in which this subject has been actively discussed. To Japan the exports from the United States during the month of December, 1903, were \$2,263,245 in value, against \$2,811,589 in December of the preceding year, and for the entire calendar year 1903 were about one million dollars less than in the preceding year. To Asiatic Russia the exports from the United States were \$716,274 in 1903, against \$898,711 in 1902 and \$1,013,320 in 1901. To China our exports during 1903 were materially below those of the preceding year, being for the month of December \$841,373, against \$1,857,733 in December, 1902, and for the entire year \$14,970,138, against \$22,698,282 in 1902. This reduction occurs chiefly in cotton cloths, of which our total exportation to China in December, 1903, was but 3,665,364 yards, against 20,582,544 yards in December of the preceding year, the value being \$230,546 in December, 1903, against \$1,074,463 in December, 1902. For the entire year the value of the cotton cloth exported from the United States to China was \$8,801,964, against \$16,048,455 in the calendar year 1902. This reduction in exports to China is not peculiar to the United States, as the official reports of the Chinese government show a general reduction in its imports during the past year, up to the latest period covered by the reports.

To Russian China our exports show an increase, being in 1903 \$846,310, against \$421,163 in 1902. To Korea the exports of the year also show a slight increase, being valued at \$370,566 in 1903, against \$257,130 in 1902. To Hongkong, which is sufficiently far removed from the scene of existing disturbances to be less affected, apparently, by such condi-

tions, the exports from the United States show an increase, being in December, 1903, \$1,705,436, against \$1,417,736 in December of the preceding year, and for the entire year \$9,792,193, against \$8,751,779 in 1902.

As to the trade of the United States with Manchuria, it is not separately shown in the general statements of the commerce with China. The Department of Commerce and Labor, through its Bureau of Statistics, however, has recently compiled some figures which show that the imports of Newchwang, the principal port through which Manchurian commerce now passes, amounted in 1902 to about 18 million haikwan taels, against 17 millions in 1901 and 8 millions in 1900. The value of the haikwan tael in 1902 was 63 cents, so that the value of the imports of Manchuria, stated in dollars, would be, in 1902, about \$11,000,000. The official report of the Chinese government does not specify all classes of merchandise received into Newchwang from the United States, but does specify the four principal articles—American jeans, drills, sheetings, and kerosenes. The total value of these four articles of American production reported as brought into Newchwang in 1902, either coming direct from the United States or from other ports of China, was 6,118,920 haikwan taels, which at the official valuation of the haikwan tael in 1902 would make the total value in United States currency \$3,854,920.

A Medal for Prof. Hale.

Prof. George E. Hale, director of the Yerkes Observatory, has been awarded a gold medal by the Royal Astronomical Society.