

ACCIDENT TO THE BATTLESHIP "ILLINOIS."

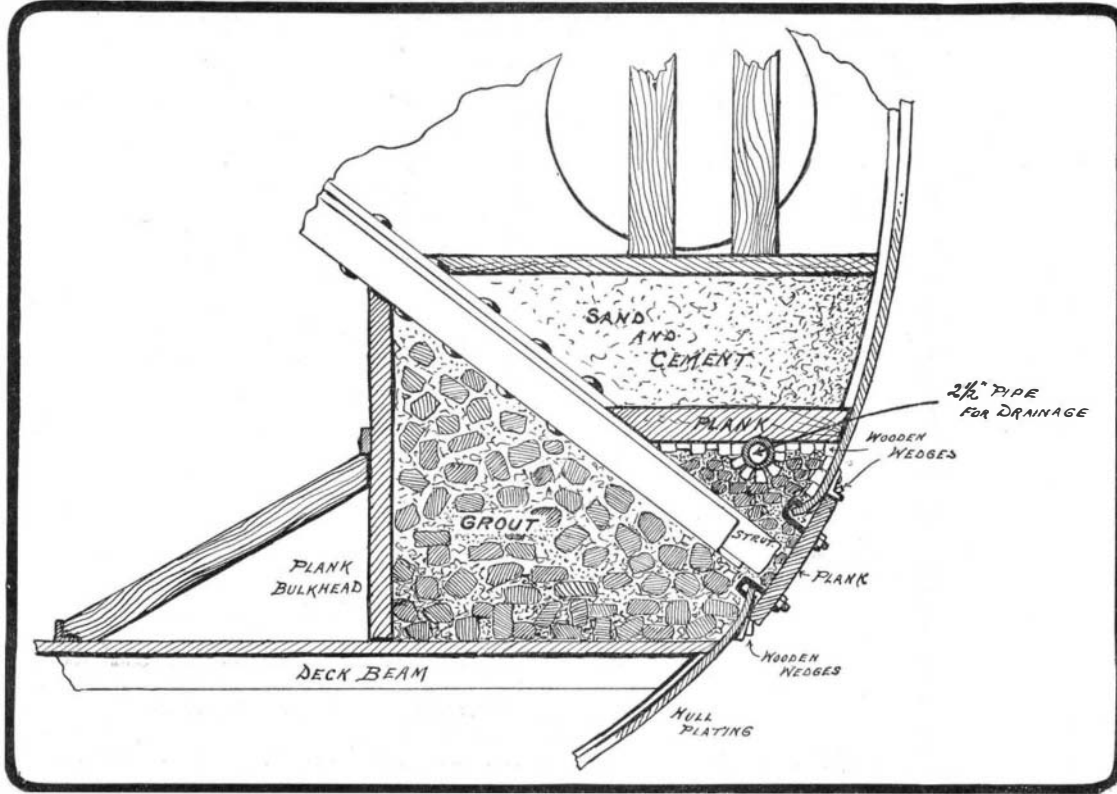
The battleship "Illinois" is now at the navy yard, Brooklyn, repairing the damages sustained during a collision in which, but for the presence of mind of her captain, Royal B. Bradford, she might have shared the fate of the British battleship "Victoria," which now lies at the bottom of the Mediterranean Sea. The "Illinois" is one of three identical ships, the other two being the "Alabama" and "Wisconsin." She is a first-class battleship, built at Newport News, commenced in 1897, launched in 1898, and commissioned September, 1901. On a displacement of 11,565 tons, when indicating her full horse-power, she has a speed of 17.4 knots. Her armament consists of four 13-inch guns in the main battery, fourteen 6-inch rapid-fire guns in the intermediate battery, and a secondary battery of sixteen 6-pounders, six 1-pounders, four Colts, and two 3-inch field guns. She also has four above-water torpedo tubes. Her belt armor, of Harvey steel, varies at the water-line from 13¾ inches amidships to about 4 inches at the bow. She is protected with 14 inches of Harvey steel on the turrets and 15 inches on the barbettes.

At the time of the accident, the North Atlantic fleet was engaged in maneuvers off the south coast of Cuba. The fleet of battleships consisting of the "Kearsarge," "Maine," "Massachusetts," "Alabama," "Missouri," and "Illinois," was moving in line abreast heading east by north. They were ranged from port to starboard in the order named. The "Missouri," experiencing some trouble with her steering gear, had dropped somewhat back of the line, and was coming up in the endeavor to regain her position abreast of the other ships. About this time the signal was flown to change the course through four points to northeast by north, and the maneuver was being executed when the steering gear of the "Missouri" again was disabled, and she began to sheer over to starboard, converging on the "Illinois," which, with the rest of the line, was steaming at a cruising speed of about 10 knots an hour. The "Illinois," in accordance with the signals, had ported her helm; but the speed at which the "Missouri" was traveling made it evident that a collision was impending, and it looked for a moment as though she would ram the "Illinois" fair in the broadside. Accordingly, Capt. Bradford threw his helm hard over to starboard, in the endeavor to swing his stern away to starboard, clear of the oncoming bow of the "Missouri." The maneuver undoubtedly saved the ship, although it was too late by a fraction of a second to carry the ships quite clear of each other. The "Missouri" struck a quartering blow, neither of the ships having much way on at the time. The ram evidently entered between two blades of the propeller and rode up on the upper cast-steel strut of the port propeller shaft, which, of course, snapped under the strain. It broke in two places: near the boss, and also at the point where it enters the hull. The strut extends through the hull and within the interior of the ship until it meets the underside of the protective deck. Unfortunately, the break was a diagonal one, and when the

broken section of the strut fell out, a considerable hole was left into the tiller room compartment, through which the water immediately began to enter. There is a water-tight door to this compartment; but the man whose duty it is to attend the same evidently lost his nerve, and fled above decks without closing the door. The door of

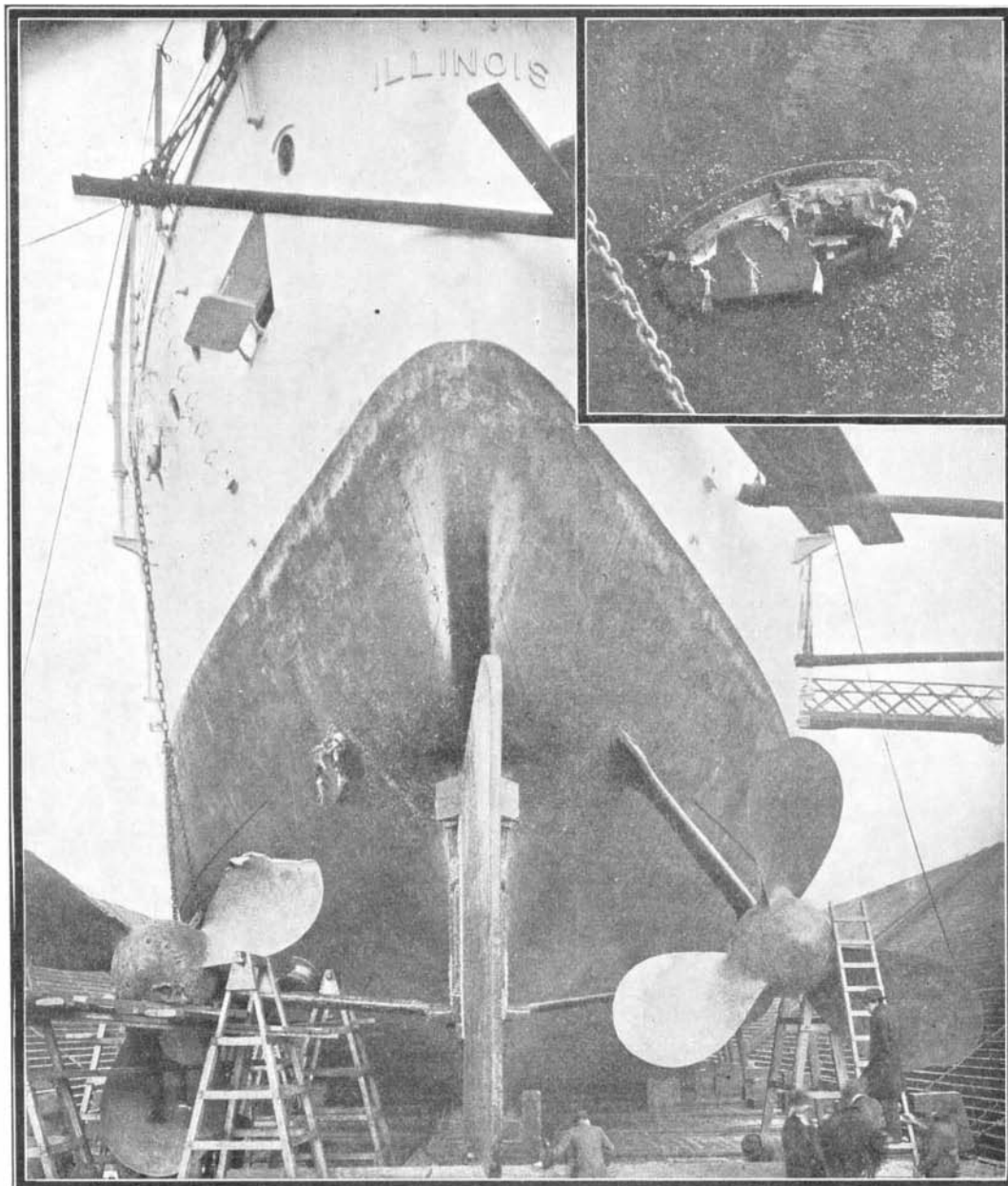
The collision took place about 20 miles from Guantanamo, Cuba, for which point the vessel was immediately headed. Here temporary repairs were executed by some very clever work on the part of one of the ship's divers, who placed felt-covered planking over the hole, and by means of bolt-hooks which caught on the inner edge of the ship's plating, the diver was able to screw the planking up to a fairly snug fit. The hole was so irregular, however, that wooden wedges had to be driven in by the diver, and a patent shot-hole plug inserted, before the hole could be even roughly closed. It was still considered necessary, before the ship could take the long journey to New York, to make further provision against leakage; and at the ingenious suggestion of the ship's carpenter's mate, use was made of some firebrick which happened to be on board and some cement and sand, to make a close sealing up of the rent. The accompanying sketch will show very clearly the way in which this was accomplished. The diagonal riveted member, shown in the illustration, is the inboard portion of the broken strut, and around this was built up a bulkhead of stout wooden planking, completely inclosing the fracture. The brick was then built up around the hole, as shown, and cement forced in for the purpose of filling the interstices and, as

far as possible, sealing up the hole. Above the horizontal bulkhead a further layer of material was laid, and the whole of this masonry work (for such it really was) was held in place by means of timber shores abutting against the protective deck above and against a longitudinal angle iron on the floor of the compartment. These repairs completed, the pumps were set going, and with her disabled propeller and shaft slung in heavy chains, as shown in our photographs, and under her starboard engine, the "Illinois" made the long trip of 1,300 miles from Guantanamo to New York without any mishap.



SECTIONAL VIEW SHOWING THE METHOD OF CLOSING THE HOLE IN TILLER COMPARTMENT OF BATTLESHIP "ILLINOIS."

the next compartment forward was immediately closed, however, and when it was discovered that the compartment was filling but slowly, this second door was opened, and by wading waist-high in water, the crew were able to reach and close the inner door. The water was then pumped out of the forward compartment, leaving only the tiller room compartment to become flooded, the effect being to settle the stern of the "Illinois" about two feet deeper in the water.



BATTLESHIP "ILLINOIS" IN DRYDOCK; SHOWING BROKEN STRUT, BENT PROPELLER BLADES, AND THE HOLE (TEMPORARILY PLUGGED) THROUGH SIDE OF SHIP.

Action of Radium on Bacteria.

Continuing the experiments of one of us on the action of radium bromide on plants, we have experimented on various bacteria. We find that, in the case of *Bacillus pyocyaneus*, *B. typhosus*, *B. prodigiosus*, and *B. anthracis* in agar culture medium the β radiations from radium bromide exercise a marked inhibitory action on growth. Exposure for four days at a distance of 4.5 mm. to 5 mgr. of radium bromide does not appear sufficient to kill the bacteria, but is adequate to arrest their growth, and to maintain a patch on an agar plate, inoculated with any of these organisms, sterile. A broth tube, however, inoculated from this patch has in most cases developed the organisms, showing that while the growth is inhibited in the patch, all the organisms there are not killed.—Henry H. Dixon and J. T. Wigham in Nature.

According to the Agricultural Department's inventory of farm animals for January 1, 1903, the value of horses was over a billion dollars, and of mules, nearly 200 million dollars. The value of cattle of all kinds considerably exceeded 1,300 million, of sheep, 168 million, and of hogs, 365 million dollars.