

REPAIRING THE CRUSHED-IN BOW OF THE "FLORIDA."

The extraordinary photograph reproduced on the front page of the present issue shows the result of one of the most tremendous collisions in the history of ocean navigation. That concertina-like mass of crumpled-up steel plating and framing represents the effect of the blow struck by a steamer weighing seven thousand tons, and moving through the water probably at not less than twelve knots an hour, when it crashed squarely into the side of an even huger vessel, weighing about twenty-five thousand tons and itself moving at a speed somewhat less. The energy of the blow struck by the "Florida" was not expended until thirty feet of her bow had been crushed and jammed tightly together into a space of five feet. But with this dramatic picture before us, telling its own unmistakable story, it is needless to multiply words by way of description.

It was during thick weather on January 23rd, 1909, that the steamship "Republic" of the White Star Line was feeling her way past Nantucket lightship, when suddenly out of the fog loomed up the bow of the "Florida," so closely aboard that nothing could be done to avert the collision. The blow was delivered squarely amidships. The "Florida's" bow crushed through the side plating of the "Republic" and entered the engine room, tearing open a gaping vertical hole, which extended from the main deck down to the bilge. The subsequent history of the disaster, including the call for help by wireless and the speedy rescue of the passengers of the "Republic," needs no repetition here. The gradual giving way of the bulkheads of the stricken ship sealed her fate, and she now lies in some four hundred feet of water. Thanks to the staunchness of the construction of her collision bulkhead, the "Florida," although thirty feet of her bow had been smashed in, was able to make her way to New York under her own steam.

To those who went down to the Bush docks in South Brooklyn to take a look at the "Florida," it seemed as though the terrific impact of the collision must have strained the ship so severely as to necessitate many months of careful overhauling and repair. Several weeks elapsed indeed before the owners made any call for tenders for the work of repair, which involved the construction of an entirely new bow on the vessel. The contract was let to the Morse Dry Dock and Repair Company, who agreed to cut away the old wreckage and build a completely new bow, in the extraordinarily short time of twenty-four running days and for the sum of \$39,500. The nearest competitor asked for thirty-four days; while one contractor considered that to complete a job of this magnitude would require fifty-six days, or two and one-third as much time as that in which the job was actually done.

It has been a matter of common belief on the part of the public that American shipyards are unable to turn out work at the speed which obtains in foreign yards. There was a day when this may have been true; but with the increased experience, the better tools and the splendid plants which have been built of late years around our seaboard and on the Great Lakes, the art of shipbuilding has made prodigious strides. It is safe to say that work can be turned out of as high quality and in as short a time in the best of our yards to-day as it can

in those of the European shipbuilders; and of this fact the remarkable job done on the "Florida" affords strong evidence.

Immediately upon the awarding of the contract, workmen armed with pneumatic tools cut through the

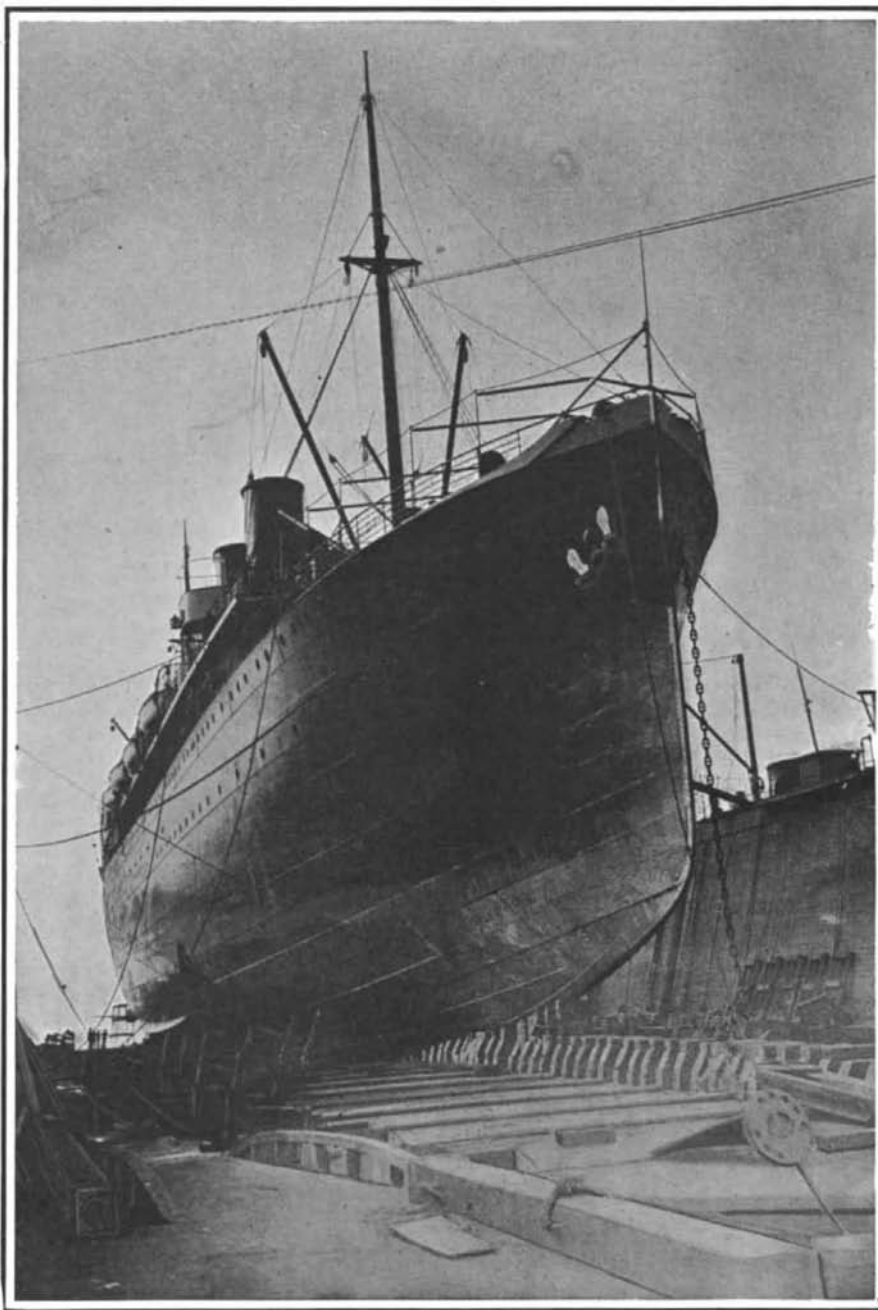
Steel Company in New Jersey. The contract time for the latter was six days; but the patterns for the stem piece and the steel casting itself were made, and the latter delivered at the Morse yard, in three and a half days' time. In five days after beginning repairs the "Florida" was placed in drydock, stern first; and at one o'clock the workmen were cutting through the remaining portion of the hull from the waterline down to the keel. The 300-ton floating derrick "Monarch" was now brought to the open end of the floating dock. Chains were shackled onto the broken bow; and at a quarter past six the same evening the shapeless mass, weighing about one hundred tons, was lifted from the ship. It was subsequently sold as junk for seventy-five dollars.

The next step was to lower the floating dock, float the ship out, turn her around, and float her back into the dock, so that the bow would be near the workshops and convenient for the transport of material. The new stem was immediately placed in position; the new frames erected; the riveting of the plating begun; and so quickly did the work proceed, that thirteen days after the lifting off of the old bow, the ship was floated out of the dock with the plating in place, riveted, and painted to some distance above the waterline. Less than two weeks later, the job, as specified by the contract, was completed with the decks, rooms, and all fittings in position. It was done within the contract time of twenty-four days, with a margin of a few hours to spare.

Before closing, reference should be made to the curious fact, as shown by the photograph, that the forecastle deck was not crushed together like the body of the bow below. Evidently, at the time of collision the top deck of the "Florida" stood a few feet higher above the water than the top of the side plating of the "Republic"; and, as the ship crashed into the "Republic," her forecastle deck must have reached out intact above the main deck of the "Republic." When the two ships tore apart, the thirty feet of projecting deck of the "Florida" broke and bent over with its own weight, and hung down in the position shown in the engraving. Our thanks are due to Mr. E. P. Morse,

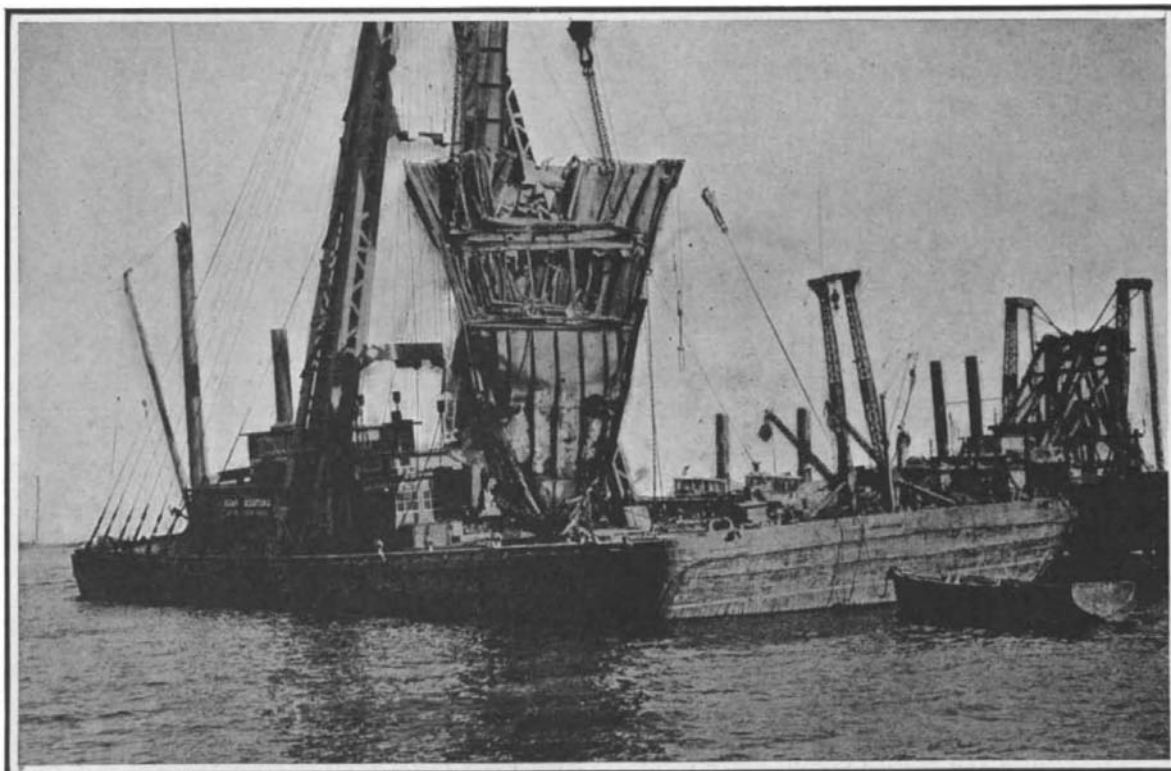
general manager of the Dry Dock Company, for photographs and data used in the preparation of the present article.

In the early part of the present year the French Academy of Sciences discussed a communication in which it was asserted that the human body emits radiations which affect photographic plates. In the course of the discussion De Fontenay demonstrated that the effects which had been attributed to radiations could be explained perfectly by the warmth and moisture of the body. Later, an attempt was made to sustain the theory of human radiations by the statement that the Lumière company had been compelled to discharge several employees who fogged the plates that passed through their hands. De Fontenay investigated the matter and found that nothing of the kind had ever occurred at the Lumière factory. Each case of fog was due to accident and to well-known causes—finger marks, packing strips, lantern fog, etc.—not to any mysterious human radiation. In regard to animal magnetism and other occult agencies, it is bad enough to be assailed with crude experiments and unproved assumptions, without false testimony.



The "Florida" with her new bow completed, 24 days after repairs were commenced.

plating and the decks from the rail down to the waterline, the general line of cutting being about two feet aft of the farthest point of damage. Telephone and telegraph were meanwhile busily at work; and while the wreck of the bow was being cut off, the mills were furnishing the new steel frames and plating, and a new steel stem piece was being cast by the New Jersey



View looking forward, showing after side of the chain-locker bulkhead. This section, representing 30 feet of the bow and weighing 100 tons, was crushed into a mass 5 feet in thickness.

Wrecked bow lifted away from the ship by floating derrick.

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SCIENTIFIC AMERICAN

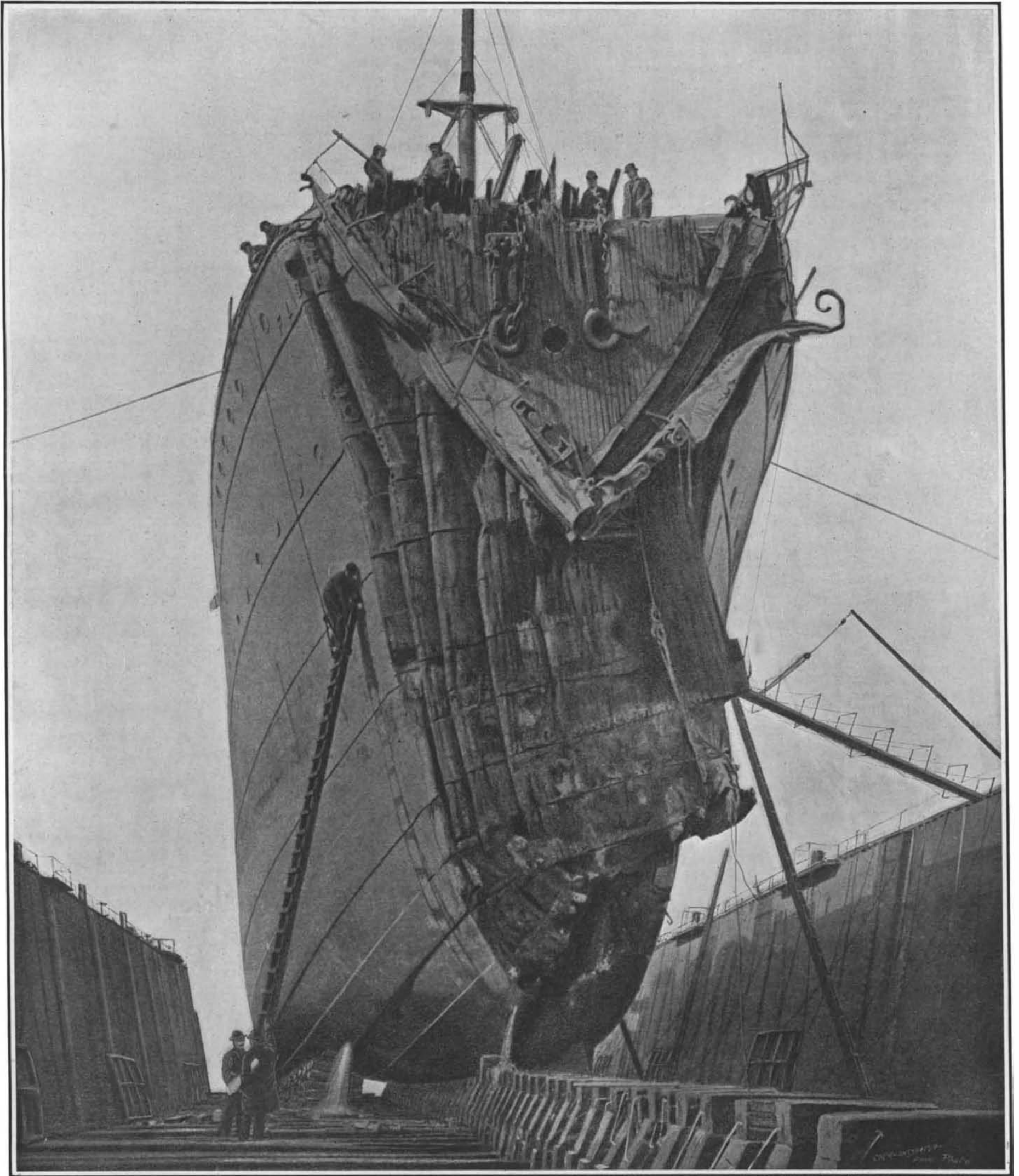
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The above illustration shows the "Florida" in the Morse drydock for repairs. The force of the collision flattened thirty feet of the bow, concertina fashion, into a space of five feet.

The wreckage was cut away and a new bow built on in twenty-four days.

EFFECT OF COLLISION ON BOW OF ATLANTIC LINER.—[See page 140.]