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SCIENTIFIC AMERICAN SUPPLEMENT

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SECRETARY HERBERT'S REPORT ON THE TEXAS.

The official statement of the Secretary of the Navy on the recent sinking of the Texas at the Brooklyn navy yard will go far to re-establish the confidence of the American public in this vessel. Mr. Herbert states that in giving out the action of the department on the finding of the recent court of inquiry he has concluded to depart from his usual custom and make a general statement about this ship. We are informed that the accident was due to the fact that a part of an injection pipe had been taken out for repairs, and that the accident "could not have happened at sea." He reviews the past history of the ship and states that as the result of a competition of naval architects a board of eminent naval officers awarded the prize to a prominent English designer, Mr. John. This was done in accordance with the policy by which "we were availing ourselves of the experience of foreign nations." Since her launch various defects have developed themselves, and among other changes she was sent to the navy yard at Norfolk to have her bottom stiffened. It is now believed that all defects have been remedied except those relating to her turrets and the system of water-tight compartments, which latter were developed by the recent flooding of the vessel, as shown by the finding of the court of inquiry. Mr. Herbert points out that while it would be desirable that all our ships should be turned out in perfect condition, this has never been accomplished in our own or any other navy. It is believed we have made fewer and less costly mistakes than most other nations in the building of a modern navy, and yet the Castine and Machias had to be cut in two and lengthened; and three other ships, the Detroit, the Montgomery, and the Marblehead, required "far more fundamental changes than have ever been found necessary in the Texas." Nevertheless, the latter for some reason or other, has been the subject of an unusual amount of harsh criticism.

We are glad to learn that such officers as Capt. Glass, her commander, and Capt. R. D. Evans, commanding the Indiana, unite in declaring that the Texas is "the stiffest, most easily managed, and entirely seaworthy ship in the service." Capt. Evans states that in the hurricane of October 12 she showed herself to be the most seaworthy ship in the fleet, rolling considerably less than the Indiana and the Maine, which were just ahead and just astern of her. The captain also states that she was a perfect gun platform, and in this respect, and in respect of her seaworthy qualities, was superior to such fine ships as the New York, the Columbia, and the Raleigh.

The Secretary then goes on to quote from a letter from Charles H. Cramp, in which the writer says: "I have always defended her (the Texas) to an extent that has made me obnoxious to many officers in the navy, who were bitterly opposed to the adoption of Mr. John's scheme." After examining the plans and specification, Mr. Cramp stated that they were "good, symmetrical and practicable;" that they were by odds the best submitted in that competition; and that while the scantlings were light, "as a whole her hull construction involved the best mechanical distribution of minimum weight" that he had ever seen. At that time the era of steel was new and there was a tendency to over-estimate the strength of the new material. This led to the placing of very heavy armor and armament on small displacements, and the Texas is a practical instance of this tendency. The latter part of Mr. Cramp's letter is devoted to strenuously deprecating public criticism and discussion of the defects of naval construction by the press, which he considers unwise, for the reason that such criticisms are used abroad to the prejudice of our industries when they enter into competition for foreign work.

The Secretary calls especial attention to Mr. Cramp's remarks about the effect of criticism by the press of American ships and armor plate. He says, "I submit Mr. Cramp's letter for the purpose of pointing out to some of our newspaper friends the unintentional injuries to American interests that are liable to result from enlarging upon minor mistakes that may have been committed, even though at other times full credit be given for the great and substantial successes that have been attained."

We do not agree with Mr. Cramp in his opinion of the value and effect of newspaper comments upon naval work. Such criticisms are not confined to the American press, as readers of any of the English technical journals can testify. There is never a new design for British warships published but what it calls forth a storm of hostile criticism, and the same thing obtains in France. It is the privilege of the public which pays for the ships to have its say about them, and while there is a great deal of matter written which is arrant nonsense, there is much other criticism which is intelligent and to the point and healthy in its general effect. If, as Mr. Cramp says, such criticism has occasionally robbed this country of contracts for building foreign warships, it is to be regretted; but we think that such an occasional loss is not a sufficient reason for asking the public to suspend its right to pass judgment upon or discuss the merits and defects of its new navy. It has been a difficult task to awaken the people at large to the necessity of a navy at all, and there has been no agent so active in this awakening as the daily and weekly press.

On the whole, the statement of Secretary Herbert is reassuring, at least to that part of the general public which has been disturbed by the exaggerated statements regarding this ship which have been put fort from time to time by the ultra sensational element of the daily press. We regret, however, that more explicit information has not been given regarding the flooding of the Texas and the causes which led up to it, and more particularly, as it concerns the failure of the so-called watertight bulkheads. In our remarks on this accident in a previous issue, we took it for granted that the watertight doors must have been open. It appears, however, that they were closed, and, therefore, for the purpose of fulfilling their function they seem to have been utterly worthless. This, we consider, is by far the most serious aspect of the case, and we fail to find any reassuring statement or suggestion in the present official utterance. We are told that the accident could not have happened at sea. Why not? Is there any peculiar and unknown quality in the metal of a valve yoke which causes it to hold together when a ship is in thirty fathoms of water and only break when she is in thirty feet? If it is safe to remove a part of an injection pipe for repairs when a ship is afloat, it is just as safe to do it in sixty feet as in thirty feet of water; and it is due to the lucky fact that the Texas lay where she did at the time of the accident that an appalling accident did not take place and she is not to-day at the bottom of the river.

Even if it is allowed that the removal of a section of the injection pipe is a proper thing to do outside of a dry dock, and that valve yokes are not likely to break at sea or when the ship is in deep water, how came it that the engine room bulkhead did not keep the ship afloat? It is suggested that possibly valves were open in the bulkhead; but surely such a court of inquiry was capable of ascertaining to a certainty whether they were or not. If they were, the failure is explained; if they were not, the compartment system of the Texas is a miserable failure.

We must confess to considerable disappointment that explicit information is not given upon this very important point, and that the direct responsibility for the disaster is not distinctly placed. It is evident to the veriest novice in naval matters that by taking the most elementary precautions this accident would have been avoided. All the elaborate and costly appliances of a modern warship are worth about their weight as old junk if they fall into the hands of individuals who fail to exercise proper forethought and discretion in handling them.

We cannot but feel that in its report, as outlined by the Secretary of the Navy, the court of inquiry has passed very lightly over an occurrence which calls for a detailed explanation, and that in deciding that no one was responsible for the mishap, it has shown a leniency that does more credit to its heart than to its judgment.

That in time of peace a battleship should founder at her wharf, with watch on board and fire in her boilers, is, in our judgment, absolutely inexcusable.

THE PREVENTION OF RUST IN IRON AND STEEL STRUCTURES.

The advent of the age of iron and steel in the arts of building and manufacture brought in an element of decay which scarcely existed in the age of stone. For while we are able to build on a grander scale, and combine the new material in daring forms which the primitive ages merely dreamed of and never attempted, we cannot look upon our finished works with the same assurance of their permanence that filled the builders of the Egyptian pyramids or the temples of Greece and Rome. Often when the stone was hewn from the quarry and exposed in a building to the wear of the elements it hardened under the exposure. Nature was thus the friend of the architect, and dealt kindly with his work. The very winds and weather which colored it with the mellow tints and peculiar beauties of age gave it strength as lasting as that of the hills themselves.

But the iron and steel of modern construction are as perishable as they are strong. The action of the elements, which sometimes prolonged the endurance of an ancient structure, commences to destroy our modern works in iron and steel from the very first moment of contact. Unless some thorough system of protection be adopted, it is certain that the life of the skeleton steel buildings, for instance, which are multiplying so fast in our cities, will never be measured by centuries. The dangers of decay are serious indeed, even in the case of such iron work as is open to inspection; for in certain climates the oxidation is so rapid that it takes a comparatively brief time to reduce the section of the metal, so that it is brought perilously near to the breaking point and far below the proper margin of safety. Notable instances of rapid decay may be found in some of the more neglected parts of the viaducts and bridges of this city, where, for the want of thorough and frequent painting the ironwork is being eaten away under

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