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THE NEW WAR SHIPS TEXAS AND OREGON.

In the present issue we publish illustrations of new United States battle ships Texas and Oregon, which have been for some time in course of construction, and are now at last nearing completion. Both vessels will make important additions to our navy, and of their kind both are considered model ships. The Oregon is known technically as an armored coast line battle ship of the first class, and is being built by the Union Iron Works, of San Francisco, Cal. The Texas is being built by the government at the Norfolk Navy Yard, and has been designed to carry guns of the heaviest caliber, and to be protected by an armor which will resist the projectiles of similar guns on an enemy's vessels.

The Oregon, which has been built on the Pacific coast by the Union Iron Works, of San Francisco, Cal., was launched on October 26, 1893. The appropriation to provide for building the Oregon was $4,000,000. It is a sister ship to the Indiana and Massachusetts. The Oregon will be one of the largest and most important vessels of our navy, and is considered in all respects a model ship. The length of the Oregon is 348 feet, the beam 69¼ feet, draught 24 feet, displacement 10,200 tons, and maximum speed 16·2 knots per hour. The coal capacity is 1,800 tons. At full speed the Oregon will be able to run 5,000 miles without replenishing the coal supply, or at a speed of 10 knots it may run 16,000 miles. It is protected by a belt of armor 7½ feet wide, which extends 3 feet above the water line and 4 feet below it. This armor is 18 inches thick, and over this is a steel protective deck 3 inches thick. At each end of the armor belt are redoubts 17 inches thick which provide an armored freeboard of 15 feet 2 inches. The turrets revolve in these redoubts. There are also heavy protective decks forward and aft of the belt, and in these the coal is stowed to provide additional protection. The steel conning tower is 10 inches thick, and is well provided with the necessary complement of signals, speaking tubes, etc. The engines of the Oregon are of the twin screw, vertical triple expansion, direct acting, inverted cylinder type. The stroke is 42 inches and the diameter of the cylinders 34½, 48, and 75 inches respectively. The battery consists of four 13 inch breech-loading rifles, eight 8 inch breech-loading rifles, four 6 inch, twenty 6 pounder rapid-fire guns, two Gatlings and 6 torpedo tubes. The 13 inch guns are 18 feet above the water, and can be moved through an arc of 270 degrees, and it is believed that this battery would annihilate any small vessel which came within range.

The Texas was launched on June 28, 1892. The original plans were made by English designers, but these have since been considerably altered, so that the ship has been built for the most part from American designs. The Texas is a twin screw, steel armored vessel of 6,335 tons normal displacement. She will be driven by two sets of triple expansion engines capable of developing 5,800 horse power with natural draught and 8,600 horse power with forced draught. The vessel will be 290 feet in length and 64 feet 1 inch wide. It will have a mean draught of 22 feet 6 inches and will carry about 950 tons of coal. The main armament will consist of two 12 inch breech-loading guns, each weighing 46½ tons, mounted in two turrets, one on either side of the forward deck. A secondary battery will consist of four 6 pounder and four 3 pounder rapid-firing guns, with four 47 mm. Hotchkiss guns. All of these will be mounted on the gun deck with a 1½ inch plating to protect them. There will be besides two Gatling guns and two 37 mm. Hotchkiss guns mounted on the bridge. The military tops and the flying bridge will be provided with similar equipments.

The turrets will be armored with 12 inches of steel and their bases will be inclosed by a diagonal redoubt armored with 12-inch steel plates, which will also serve to protect the hydraulic machinery used for operating the guns and the smoke pipe casings. The boilers and engines will be protected by a belt of armor 12 inches thick, extending 2 feet above the designed water line and 4½ feet below it, having a length of 116 feet. There will be a protective deck built of 12 inch steel above the armor belt. The hull of the Texas is built on the cellular system and is constructed throughout of steel. A double bottom extends under the engines, boilers and magazines and is divided into numerous watertight compartments by longitudinal and transverse partitions. There are in all 129 of these compartments, and all are connected to steam and hand pumps by an extensive drainage system.

It will be seen, therefore, that in the case of accident from rams or torpedoes, it will be practically impossible for the Texas to be sunk. The boilers and engines will be placed in watertight compartments.

The ship will be lighted throughout with electricity

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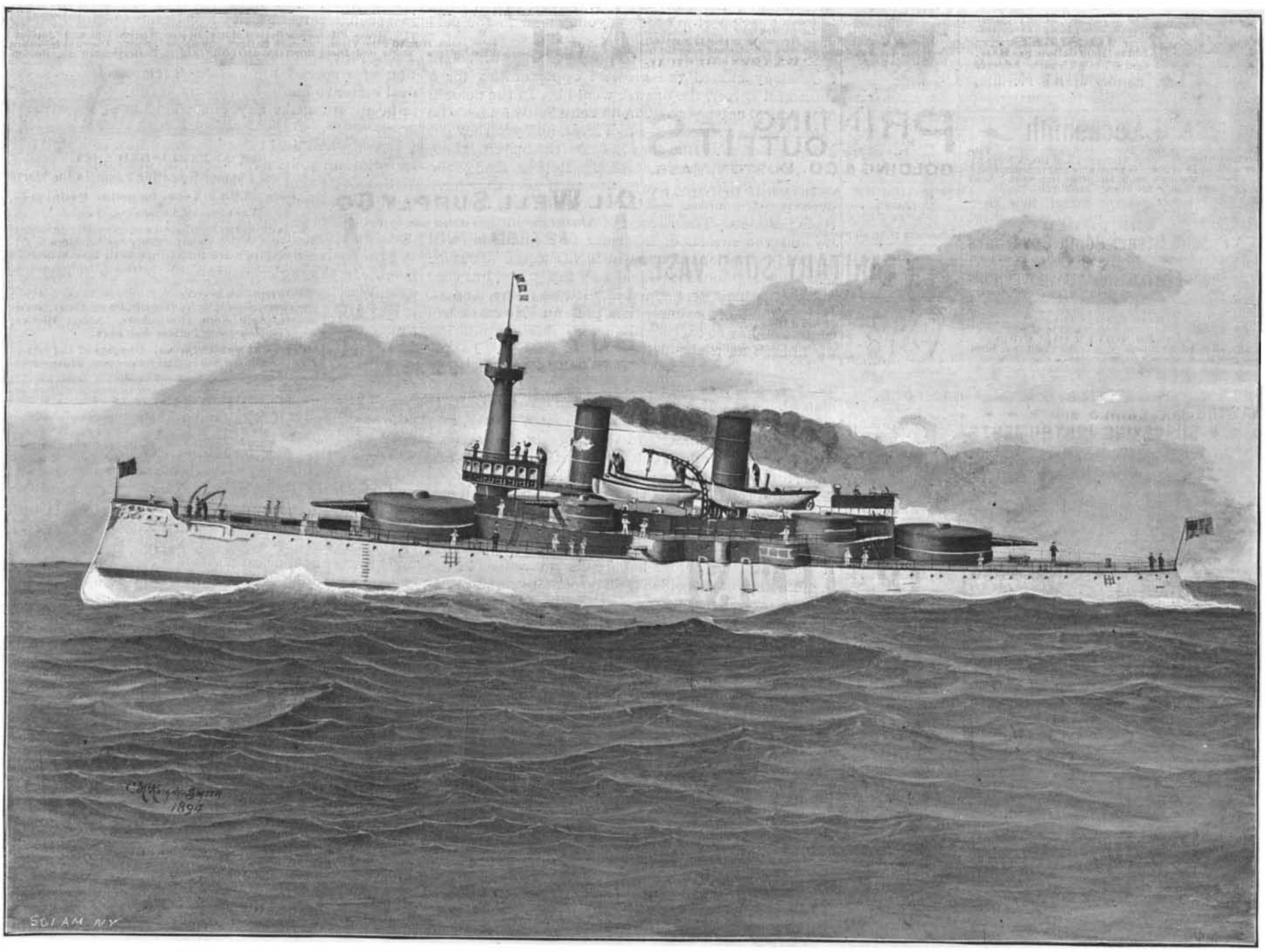


THE OREGON, UNITED STATES BATTLE SHIP OF THE FIRST CLASS—10,231 TONS DISPLACEMENT.

THE NEW WAR SHIPS TEXAS AND OREGON.

(Continued from first page.)

and will carry two powerful electric search lights. She is to be used as a flagship and will be supplied with 368 officers and men. The machinery for the Texas has been built by the Richmond Locomotive and Machine Works, of Richmond, Va.

Needed Increase of the Army.

Recent numbers of the North American Review contain valuable articles on this subject by Gen. Ruggles and by Lieut.-Col. Wm. Ludlow. Only a very brief abstract can be given. General Ruggles shows how inadequate to present necessities is our establishment of 25,000 men, which in effect allows but 20,000 men for the fighting line. To properly man our modern seacoast defenses for a reasonably efficient defense in time of war would require 42,500 artillerymen, and as many more would be needed for the smooth-bore and rifled guns of the old armament, making a total of 85,000 men. It is not too much to ask, in consideration of the long and careful training that these men require, that one-twentieth of the war strength be maintained in time of peace. This would furnish a minimum peace footing of 4,250 heavy artillery troops, or seven regiments of 600 artillery, plus 50 mechanical and electrical engineers. These 4,250 men will afford meager garrisons for existing works at only the more important of our seaports, and will be simply sufficient for the ordinary care of their costly armaments. They will furnish a mere leaven of gunners for the total force required in war. That, from motives of economy alone, there should be this reasonable number of peace-trained gunners is evident from the fact that a single round of maximum cost, wasted, is equivalent to the pay of one soldier for five years, and that a single round of minimum cost wasted is equivalent to the pay of a soldier for about nine months. Like necessity exists for the instruction of the light artillery, the cavalry, and the infantry man. To the strength of the seven regiments proposed should be added for light artillery service 900 men. General Ruggles further shows how pressing and immediate is the necessity for artillery defense. "Independently of the disgrace which would come to us as a nation by the successful bombardment by an enemy of any one of our seacoast cities, the cost in money and the disaster which would thus be effected in a few days would far exceed the expense of proper defense for years."

We should increase our cavalry to 12 regiments, or 8,820 men, and our 25 regiments of infantry to three battalions with 80 men to a company, or 24,625 infantry in all. This would give a grand total in round numbers of 40,000 men. From this total it is proposed to deduct 9,500 men for skeletonized companies, making a minimum of 30,460, or 5,500 in excess of the present force. An inconsiderable increase of officers would be required, so that the increased expense would not be great, enlisted men costing $272 per year for each man, a total of but little more than a million and a half of dollars.

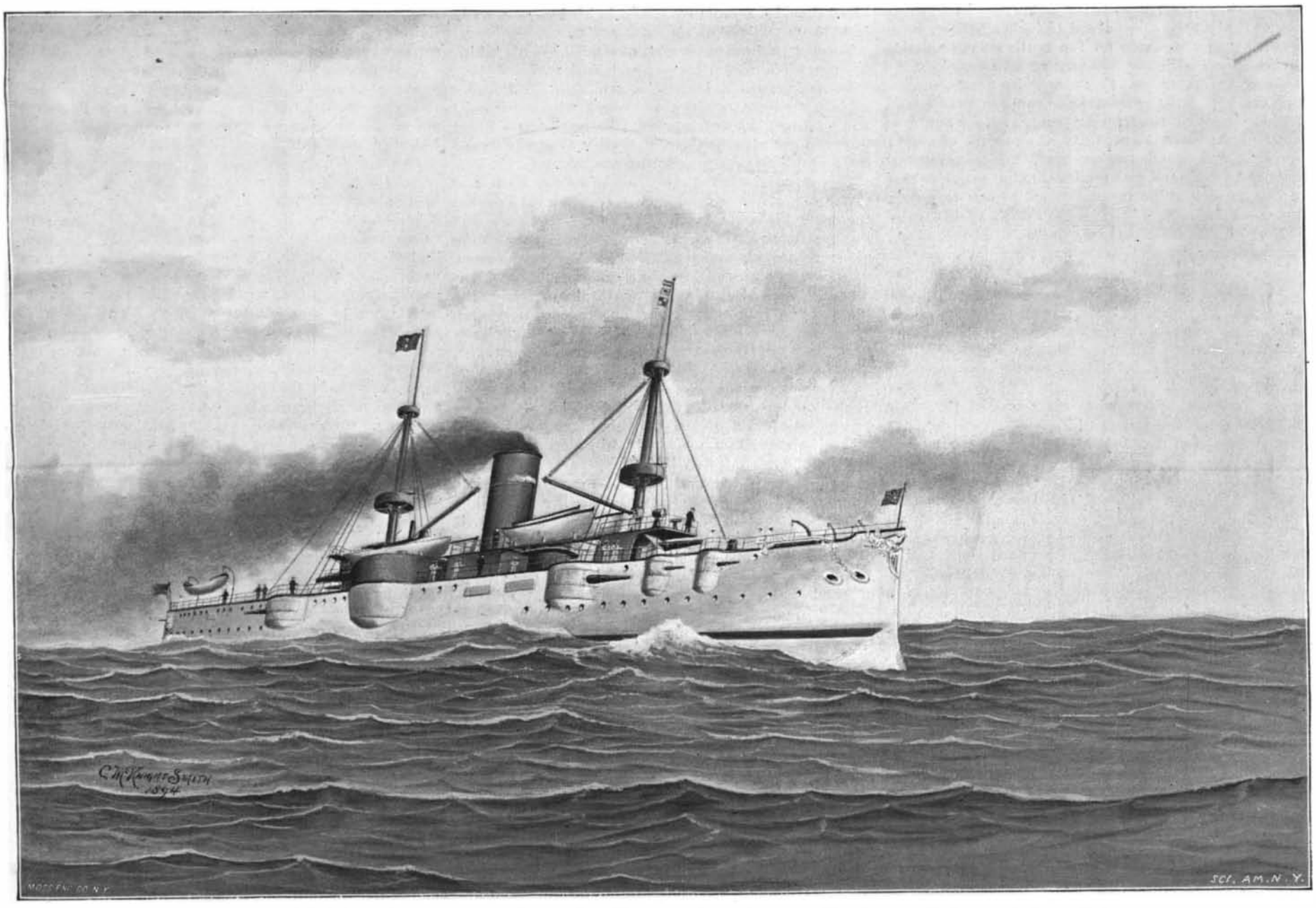
The conclusion of the whole matter as presented in Colonel Ludlow's able and interesting paper is this: "To be worthy of respect a government should be able to command it, and, since preservation of order is the object to be attained, there is needed so much of an organized force at the disposal of the government as should be able not only to restore peace, but to forbid its breach; and a nation that would relegate the maintenance of order to casual and insufficient means puts itself in the attitude of a city that, dispensing with a trained police, should intrust its security to its citizens alone, and presently would find itself at the mercy of the criminal and violent classes. In a well-ordered community it does not suffice that after an emeute lasting for weeks—with direct losses of millions from acts of violence and rapine, and incidental losses of millions more from suspension of wage earning, interruption of traffic, and interference with commerce, threatening starvation to whole communities and entailing destitution and misery upon thousands—the national police should finally appear, and taking stand on the ruins, amid the smoking desolation, command the disappearance of the rioters. It would be better if the ultimate hand of the law were raised at the first open act of defiance, and steadily and silently upheld in the face of impending riot, until the moral effect should have repressed the rising wave of violence, and given time for cooler counsels to prevail. . . . If the law in any of its practical effects shall involve injustice to or unnecessary hardship on any, let it be changed as shall seem best. The one principle that may not be changed is respect for and obedience to law so long as it is law. This principle is the deepest teaching of the military life, and can best be preserved and expanded by the retention of an adequate military nucleus as a permanent and wisely-regulated feature of the national life."

TWENTY-FOUR years ago electricity as a mechanical power was unknown. Now $900,000,000 is invested in various kinds of electrical machinery.

The Locomotive Fireman.

It is doubtful if there is a man on the train who is less appreciated than the fireman. The public shakes hands with the conductor who has charge of the train, thanks the brakeman for many little courtesies, bows to the baggage master who looks out for its luggage in transit, trusts its valuables with the express manager, and talks long and loud of the "brave engineer," but the fireman—he who bends to his work and feeds the fire that makes the steam—is never mentioned. Sometimes a purse is made up for the engineer. No one ever heard of the fireman getting a purse, but the records show that he has performed as many deeds of valor as the engineer. Again, if the train leaves the track or goes into another train, the fireman has fewer chances to escape than any man on the train, except, perhaps, the mail clerk, shut up like a rat in a cage.

When the fireman is at work, and that is nearly all the time when the wheels are turning, he stands stooped over, shoveling in the fuel or raking the coals in the fire box. His view ahead is obstructed, and he cannot see the danger that may be dashing upon him. The rattle and roar of the machinery may drown the engineer's warning call—a crash—the tender pins him to the boiler head, and he dies a horrible death.



THE TEXAS, SECOND CLASS BATTLE SHIP OF THE NEW NAVY—6,300 TONS DISPLACEMENT.

The records show that more firemen than engineers are killed in railroad wrecks. About the only time the fireman has a little leisure is when the train is running down grade. Then "she is shut off," steam is saved, and the knight of the shovel climbs up to a cushioned seat and takes a breathing spell. But even then one eye is ahead, his hand on the bell cord and the other eye fastened on the steam gauge.

There is a science in "feeding" an engine. There is a way to throw in the coal and to empty the shovel and close the furnace door at the same time. It requires nice calculation that tells how many "scoop-loads" are needed to send the hands on the gauge to the proper figure; deft handling to keep the deck of the cab clean, and other little things that go to make a skillful fireman.

In the old days the fireman on "wood burners" had a hard time of it, but he had a sinecure compared with the man in blue overalls and jumper who "stokes up" one of the huge "moguls" or "hogs" of the present day. These engines haul freight and eat up coal as if it were greased paper. The fireman is at work continuously, and about the only time he has to rest is when his train "takes a siding" to let another train pass, or a longer stop than usual is made at a station.—Com. Bulletin.