

and with the Blanco Encalada, built by Armstrong & Company, will show this very clearly.

Table with columns: Displacement (Tons), Horse power, Speed, Protective deck (Inches), Normal coal carried, Armament. Rows include Olympia, Eclipse, and Blanco Encalada.

The great superiority of the Olympia over the Eclipse on every point of comparison cannot be attributed to the extra 200 tons displacement of the former...

The main battery of the Olympia, composed of four 8 inch and ten 5 inch breech loading rifles, is entirely on the main deck. The four 8 inch guns are mounted in pairs in two turrets of Harveyized steel...

The ten 5 inch guns, which are of the rapid fire type, are housed in armored sponsons four inches thick, and are so placed that they give a direct bow or stern fire from four guns and a broadside discharge on either side from five.

The secondary battery, composed principally of fourteen 6 pounder rapid fire guns, is stowed in armored sponsons on the berth deck and along the hammock berthing above the 5 inch guns...

From a commanding position just abaft and above the forward turret, the commanding officer, incased by five inches of nickel steel, will bring his ship into action; and the most modern means of communication bring every important point within immediate touch.

The principal dimensions are:

Table of dimensions: Length on water line (340 feet), Beam, extreme (53 feet), Draught, mean (21 feet 6 inches), Displacement, normal (5,800 tons), Coal supply, normal (400 tons), Coal supply, bunker capacity (1,093 tons).

The vessel has twin screws, each shaft being driven by its own vertical, triple-expansion engine. While not admitting strictly of comparison, the Olympia and the Minneapolis have engines individually alike...

The contract called for only 13,500; and the difference between that and the trial result is indicative of the wide margin of safety reserved by the government and upon which the contractors, at their own risk, are willing to encroach when a premium of \$50,000 is placed upon every quarter knot of speed in excess of contract requirements.

Miscellaneous Notes.

It has been suggested that the boards of health of large cities require the wheels of all milk wagons to be equipped with rubber tires.

A car load of redwood has been recently sent to Nuremberg, Germany, for use in making lead pencils. California redwood and cedar are about the only woods used in the manufacture of pencils...

The Albert Levy prize, of the value of \$10,000, has been awarded by the Academy of Medicine to Drs. Behring, of Berlin, and Roux, sub-director of the Pasteur Institute in Paris, for their discovery of the means of curing diphtheria.

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NEW YORK, SATURDAY, MARCH 21, 1896.

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STABILITY OF LOFTY BUILDINGS.

Although the exaggerated vertical proportions of the modern office building render it, architecturally speaking, somewhat grotesque, there is no doubt but that the steel "skeleton" system upon which it is built provides all the necessary rigidity and strength.

The vibration of lofty buildings has ever been a favorite theme with those who write in the field of engineering romance.

The party who, not so long ago, gravely assured the public that the lantern at the top of the Eiffel Tower swept to and fro through an arc of ten feet, in response to the fiercer gusts of a storm, was shortly afterward followed by another writer, whose pen, more given to fluency than to fact, wrote down a detailed account of the vibrations of a certain well known office building.

That tall factory chimneys do sway to and fro in a high wind, and that a poorly constructed building will rock, can be proved by careful instrumental tests, and in extreme cases the motion can perhaps be detected by the eye, but the frequency and extent to which such movements occur has been vastly exaggerated.

It would be natural to suppose that the elasticity of the steel framework of a fire proof building would allow of a certain amount of "give" or spring, under the severe bending stresses to which it is subjected by wind pressure.

We have been favored with the result of an instrumental test, which was recently carried out on the twenty-first floor of the American Surety building, Broadway, New York, by the engineer and superintendent of the building, Mr. J. Turner. It was made during the height of the heavy storm which prevailed during January 4, when an official wind velocity of 82 miles per hour was registered in the neighboring station.

We confess to some surprise at this practically absolute rigidity; for the absence of any building on the opposite side of Broadway, and, indeed, on that part of the whole block which lies immediately in front of the Surety building, makes it certain that practically the full height, from curb to coping, was exposed to the shock of the storm. Just how great was the bending strain set up within the building is a matter of easy calculation. The front exposed to the wind is 84 feet 8 inches wide by 314 feet high, giving a total of 26,585 square feet.

This gives a pressure on the whole front of 332 tons; and a bending or overturning moment of over 52,000 foot tons. These figures give us an impressive idea of the solidity of a construction which proves to be quite insensible to such powerful disturbing forces.

REPORT ON THE PLANS FOR NEW YORK RAPID TRANSIT.

The Supreme Court Commission, consisting of Frederic R. Coudert, George Sherman, and William H. Gelshehan, which was appointed to examine and pass upon the plans of the New York Rapid Transit Commission, has reported unequivocally in favor of the construction of the underground railroad on the lines proposed by Engineer Wm. B. Parsons.

It is evident, from the general tone of the report that they have judged the question as to whether the tunnel should or should not be built from the standpoint of general expediency, having in view the greatest good of the greatest number. The question which the commission set itself to answer was, whether the necessity for increased transit facilities existed and, if so, whether the proposed scheme would meet the necessity, and confer a public benefit upon the city.