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The editor is always glad to receive for examination illustrated articles on subjects of timely interest. If the photographs are *sharp*, the articles *short*, and the facts *authentic*, the contributions will receive special attention. Accepted articles will be paid for at regular space rates.

SHALL WE HAVE DOUBLE-DECKED STREETS?

There is many a true word spoken in jest, and when the Mayor of New York city recently said that in the endeavor to cope with the congestion of traffic we might yet come to four-storied streets, there was a kernel of truth in his hyperbole which may bear fruit much sooner than some of us expect. Indeed, we have the germ of such an idea in the existing elevated railways, and were the floor system of the elevated structures extended to the building line and suitably supported, thereby providing a roadway and a passenger sidewalk on each side of the tracks, the double-decked street would be an accomplished fact. At present, however, it is not the streets or avenues containing the electric roads that are most congested, but rather such thoroughfares as Broadway and Nassau Street, Cortlandt and Liberty Streets, where, unless some heroic measures are taken, we are bound to witness within a few years in the busiest hours of the day a positive deadlock.

The first objection that presents itself to a double-decked street is the shutting out of so much air and light, and the consequent necessity of using artificial light on what might be called the ground-floor level, except on the brightest days; but this objection could be met, and practically equal accommodations secured, by carrying the front wall of the buildings on columns, thus forming covered arcades within the building line, such as may be seen in some Continental cities. By moving the sidewalks within the building line it would be possible to give over the present sidewalks, or a certain portion of them, to street traffic. This would get rid of a large amount of crowding and obstruction of the trolley cars by enabling three teams to travel abreast on each side of the car tracks. The capacity of the street for pedestrian traffic might also be enlarged by building overhead sidewalks at the level of the first story, with stairways and cross connections at stated intervals throughout the length of the street. One immediate advantage incidental to such a scheme as this would be the great enhancement of values due to the fact that the first as well as the ground floors would be accessible to pedestrian traffic. There would be an instant appreciation of value of the first floor for shop and store purposes, while the frontage available for shop and store purposes would be doubled. The first statement of such a scheme as this may sound radical, and even chimerical; but not so much so, surely, as did the first suggestion to build an underground city railroad.

COLLAPSE OF THE GREAT SALT LAKE RAILROAD TRESTLE.

The construction of the great timber trestle across Salt Lake on the route of the Southern Pacific Railroad to San Francisco, by which it is expected to shorten the distance to that city by sixty miles, has been suddenly brought to a stop by the discovery of what has so far proved to be a deep chasm of soft material in which it is impossible to find a good bearing for the piles. The weakness of the structure was developed when the bridge recently gave way under a locomotive, which sank into the lake, drowning the fireman. In endeavoring to repair the break six 40-foot piles have been driven, one above the other, without finding the solid bed of the lake; while in the vain hope of forming a foundation 100 carloads of stone, weighing 4,000,000 pounds, were unloaded from the trestle into the soft spot without success, the mass being apparently swallowed up as were the piles. Many theories have been advanced to explain the trouble, the most likely of which is that the bottom of the lake is formed of a layer of precipitated material, and that at the point where the bridge gave way this crust has broken through, allowing the piles to pass through a deep underlying stratum of soft material. It is believed that the trestle has been located across the old bed of a river which has been filled with an alluvial deposit that is not sufficiently solid to carry the weight of the trestle. It is probable that if the engineers will only keep on dumping sufficient rock into the hole, they will in time secure a firm foundation, but it is likely to be a costly work; and it teaches a lesson as to the advisability of carrying out a system of borings before such a costly bridge work as this across Salt Lake is undertaken.

DOES IT PAY TO RECONSTRUCT BATTLESHIPS?

One of the most encouraging signs of the growing interest in the navy is the large amount of correspondence that reaches this office from all parts of the United States on naval matters. Most of this correspondence is intelligent and to the point, and it is only want of space that prevents us from publishing more of the letters received. We have before us, for instance, a communication from Boston, in which the writer asks a question which has often been asked before, and is doubtless at this very time in the minds of thousands of those American citizens who follow closely the progress of naval affairs. He asks if it would not be good policy to reconstruct and rearm the three battleships, "Oregon," "Massachusetts," and "Indiana." Briefly enumerated, his suggestions are: that the 13-inch, 8-inch, and 6-inch guns should be replaced by four high-velocity 12-inch and twelve or more 7-inch guns, thus securing a modern and more homogeneous battery and greater rapidity of fire; that the 18-inch armor be removed and 9-inch Krupp armor substituted, and that the weight thus saved be utilized to increase the engine and boiler power; he would place the vessels in dock, cut them in two and lengthen them, and so secure a knot or two more speed than they now possess, or say 18 knots an hour. Our correspondent sums up his suggestion by asking, "Would this not be a quick and economical way of securing three practically modern vessels?"

Now, while we must admit that, on the face of it, such a proposal looks attractive, yet, as a matter of fact, we would not secure "three practically modern vessels," nor would the change, even if it could be made, be economical. For, in the first place, to institute radical changes affecting the whole battery of guns and the entire motive power would in itself involve a reconstruction of the vessel more far-reaching than our correspondent for a moment imagines. As regards the guns, extensive structural changes would have to be made in the mounts, in the ammunition hoists, and in the magazines; for arrangements which were laid down fifteen years ago for the supply of ammunition to slow-fire guns, would be altogether inadequate to maintain the far more rapid flow of ammunition that would be necessary with a modern, rapid-firing equipment. This would involve cutting open decks and bulkheads, and practically tearing out a large part of the interior structure of the vessel. The increase in motive power would call for similar internal rearrangements. So also with the armor plating. Changes in the methods of supporting and fastening armor plate which have occurred during the past fifteen years, would render it a complex problem to fit the new armor satisfactorily to the old backing and hull structure. Then, again, the great changes in the disposition of weights throughout the vessel would be another complexity. Furthermore, after the new engines and boilers were in, it would be impossible to secure adequate speed results for the increased power, because the model of the "Oregon," even if she were lengthened amidships, would be uneconomical for the higher speeds. But, perhaps, the most important objection of all is that the freeboard of the "Oregon" is so low, not over 12 feet, that it would on this account alone be impossible to bring her up to modern battleship requirements, among which a high freeboard of 20 feet or more stands first. It might be answered that the molded depth of the ship could be raised by the addition of another deck; but this would require the lifting of the guns, and the heavy turrets, and would involve such a general raising of weights in the vessel that the element of stability would be seriously impaired, if not lost altogether.

No, it does not pay to remodel battleships as old as the "Oregon" class. If any remodeling is to be done, vessels should be taken in hand within ten years of their launch, and preferably even earlier than that; and even then the modernizing should go not further than the batteries, which might be improved by the substitution of more up-to-date pieces, or the insertion of submerged torpedo tubes.

Now, as regards the submerged torpedo tube, we cannot but think that some of our existing battleships and cruisers might well be supplied with this extremely valuable device, and that this addition to their armament would greatly increase their fighting value. As we have recently pointed out, the submerged tube is one of the leading characteristics in the modern warship; and we are informed, on the best authority, that it is possible to obtain accurate results and to hit the target, even when a vessel is traveling at considerable speed. One of the most important lessons of the naval war game between Germany and the United States was the fact that the possession of this device by one fleet and its absence from the opposing fleet, would at all times exercise a dominating influence in the tactics of naval warfare, and might easily at the close of a hard-fought battle enable the torpedo-armed fleet to strike a decisive blow. Of course the insertion of submerged torpedo tubes and the provision of torpedo emplacements and handling rooms would involve serious structural changes within the ship itself. It might even necessitate the sacrifice of some ammunition supply and general storage space; but it can scarcely be questioned that the sacrifices and the expense involved would be but a cheap price to pay for the enormous increase in moral and military value given to the ships in which the change was made.

THE EXTERMINATION OF THE MOSQUITO ON LONG ISLAND.

The efforts of the North Shore Improvement Association to abate the mosquito nuisance along the North Shore of Long Island have met with considerable success, as indicated by reports of their operations last summer. The purpose of the society was to study the problem so that it could point out to residents and land owners the most effective plan for the destruction of the insect.

The investigations carried on by the entomologists, Frank D. Lutz and William W. Chambers, his assistant, in the eastern section of the territory, were so thorough that they should receive more than local attention. The prevailing winds of Long Island come from the south, and as operations of the Association were confined to the North Shore, their representatives were continually met with the question, "Don't mosquitoes come to the north side of Long Island from the south side?" This question occasioned a careful investigation. Although Messrs. Lutz and Chambers were almost constantly in the field, night and day, during the entire summer, never was an independent flight of mosquitoes observed. It was quite a common sight to behold a cloud of insects follow a person walking or a vehicle driven along a road. They were also found in all railroad coaches and trolley cars of that region. These mosquitoes were always of the salt marsh variety (*Culex sollicitans*), which may be easily identified by the stripes on its body, legs, and feet. It was also observed that *C. sollicitans* was more numerous along railway trolley tracks and public roads than in places considerably removed from these highways. It could not, therefore, be denied that the salt marsh mosquito does migrate, and since it is a very long-lived insect, that it will travel considerable distances; but from the fact that its wandering depends upon the travel of man, Mr. Lutz gives it as his opinion that no large number are ever brought into a region, because a swarm, in following a team in one direction, is quite liable to return on meeting a team going in the opposite direction. Nor does he think it probable that crowds of mosquitoes are carried from one district to another by the wind, for these delicate insects would be utterly destroyed by the force of the air currents. One need but visit a marsh on a windy day to find proof of this. Mosquitoes will be discovered in large numbers, clinging for dear life to the leeward side of trees and bushes. We know also that a gentle fanning is sufficient to keep them off.

All of these facts point to the personal responsibility of each locality for its own infected condition. In fact, it is affirmed that "a single rain barrel will breed a larger number of mosquitoes than a large pond. A soggy pasture is on an average equal to about one and one-half or two barrels, and even the salt meadows," as they exist on the North Shore of Long Island, "scarcely come up to four or five good barrels apiece." The reasons for this are that the larger pools contain fish which prey upon the larvæ. It has also been found that many of the smaller pools do not breed, which is due probably to the presence of hydrogen sulphide gas. As for the meadows, they are cleansed on an average of once a month, by a high tide. The best treatment for salt meadows is, then, to dig parallel ditches about 25 feet apart, into which the surface water can drain. No mosquitoes could breed in these ditches, if they were of sufficient depth to be flushed at high tide. This plan was followed by the people of Lawrence, with complete success. In large ponds, mosquitoes breed around the shallow edges where they are out of reach of fish. The best method of treating such ponds is to deepen the shore, so as to give free access to the fishes. In one instance, mentioned by Mr. Lutz, a pond well stocked with fish was found to breed mosquitoes; the larvæ were discovered in the thin film of water contained on leaves floating about on the surface of the pond. Great care must be taken, therefore, to keep the surface of every pond free from leaves or any other floating mass which would harbor the mosquito larvæ.

In regard to the best fish for the destruction of mosquito larvæ, Mr. Lutz recommends the use of