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Armor and Gun-Power for Battle Ships

The Lesson of the Russo-Japanese War and How It Should Affect Construction and Armament of the Battle Ships About To Be Contracted For

EVERYWHERE the armaments of battleships are being augmented. The tendency is to depart from the two and three calibers of guns hitherto comprising the main batteries of the heavy fighting ships of the line and to confine the principal artillery to guns of one size, very large and very powerful, emplaced in equally large and powerful battleships.

What the United States has heretofore done to insure its possession of such formidable sea fighters is worthy of attention; what it purposes to do is still more interesting. We shall, therefore, tell our readers about the recent battleships and then will follow the suggestion that in our new designs the attempt should be made to mount but a single type of big gun instead of pursuing what appears to be the mistaken idea heretofore embodied in our recently designed 16,000-ton battleships.

After much debate and under the constant spurring of the daily press the last congress was induced to authorize the construction of two battleships of 16,000 tons each.

Constructions of this size are necessary if we are to hold our place among the sea powers, and they follow the lessons taught by the war between Japan and Russia, in which the immense value of the large battleship has been again demonstrated. Further, this increase is needed to maintain our sea fighting force at the standard determined upon by the naval board, of which Admiral Dewey is the head.

The history of the acquirement of our big battleships runs somewhat as follows: In 1902 congress authorized and the navy department began the construction of two first-class battleships, or, as they are officially designated, seagoing battleships, of 16,000 tons each. These two vessels, the first of this type to be designed in this country, are the Connecticut and the Louisiana, both launched last year, and, according to contract agreement, both to be ready next year. Previous experience in the speed of building American warships justifies the belief that 1907 at the earliest will be the year when they will be commissioned.

The next year, 1903, congress authorized the building of three more seagoing battleships of 16,000 tons each—the Kansas, the Vermont and the Minnesota. These ships are also in hand. In 1904 congress authorized the construction of another seagoing battleship of 16,000 tons, the New Hampshire. Finally this year two more 16,000 tonners were appropriated for, but excepting that one is to be named South Carolina and the other Michigan nothing conclusive has been reached concerning them. Our latest exponent of the type remains, therefore, the New Hampshire. Her designs are completed and the contract to build her has been awarded.

The New Hampshire will have her 450 feet of water line length covered by an armor belt nine feet wide for 285 feet amidships, abreast of the engines. This belt will be nine inches thick; thence, both forward and aft, the armor will be gradually decreased in thickness until at the extreme ends of the ship, at bow and stern, it will be only four inches thick.

Resting on the midships section of this water line will be a box or casemate of armor of seven-inch thickness, reaching from the belt up to the edge of the gun ports of the seven-inch guns of the gun deck and extending fore and aft to the heavy 12-inch gun emplacements at bow and stern. On top of this lower casemate will be placed a second casemate, also of 7-inch armor, to afford protection to the battery of 7-inch guns. Finally there will be on top on the second a third casemate of only 2-inch armor to safeguard the smaller guns.

Batteries and Turrets

The barbettes for the 12-inch guns, the huge cylinders within which the turrets and their maneuvering machinery are placed, will be eleven inches thick in front—that face turned toward the enemy—and about six inches in the rear, and the turrets themselves, carrying each two 12-inch guns, will be twelve inches thick in front and eight inches in the rear. In addition to the two large turrets, one forward and one aft, above mentioned there will be four smaller barbette turrets near the four corners of the upper casemate, each turret carrying a pair of 8-inch guns. These turrets will be of 6½-inch armor and the barbettes will be six inches thick in front and four inches in the rear.

This arrangement of the armor of the New Hampshire is somewhat different from the disposal of the protection provided for the Connecticut and her sister ships, and doubtless in the new ships just authorized something still different will be thought advisable. So, too, is there a difference in the thickness here and there of the armor. However, what these differences may amount to toward increasing the effectiveness of the defensive power of battleships no layman can determine, especially, since if one glances at the latest plans of the most recently designed battleships the world over he will see no two that will appear to him to be precisely similar as regards the distribution and thickness of the armor.

A Battleship's Guns

When, however, we come to what seems to be the most important feature of a battleship, the armament, we are, we think, on surer ground, for of guns we know something more than we do of armor, and this little knowledge, enough perhaps to be dangerous, leads us to doubt whether our 16,000-ton battleship will carry the "most powerful armament for a vessel of its class." Comparison of gun power alone is, as many authorities have pointed out, misleading. Nevertheless, it is mainly in gun power that we find superiority among battleships of the same size and substantially alike in other characteristics.

In regard to this matter of armament, something was said at the meeting of the Society of Naval Architects held last year in New York by Commander Hoogaard of the Danish navy. "For the main battery," he said, "no one now thinks of departing from the practice of having four 12-inch guns in pairs in turrets, one pair forward, the other aft. The chief differences of opinion now relate to the larger guns of the secondary battery." The commander stated further that, notwithstanding the great improvement in recent years in the efficiency of ordnance, the guns of six inches and seven inches cannot perform useful service, for tougher armor has to be penetrated today than was carried ten years ago. The Danish officer, therefore, regards the English naval 9.2-inch gun as an ideal weapon, and thinks in all likelihood that a ten-inch gun will be adopted before long.

This opinion of an expert, expressed less than a year ago, met with much approval, but already, in the light of recent developments in the far east, a change of guns of heavier caliber is seen to be desirable, even necessary, if battleships are to be able to do their very best work, and, therefore, in the new Lord Nelson class of British battleships there are emplaced only 12-inch and 9.2-inch guns, to the exclusion of 6 or 7.5-inch guns. And the further plan has been suggested, which will probably in future be adopted, of eliminating even the 9.2-inch guns and substituting 12-inch guns. Thus the coming battleship will have none but one caliber, 12-inch, in her main battery. Of course there will be an auxiliary battery composed of thirty or forty guns of 3-inch and smaller pieces of artillery to stand off torpedo attacks.

Japan-Russian Engagements

In the Japan-Russia war nearly all the naval fighting has been conducted at extremely long range. It is questionable whether ship has engaged ship thus far in that conflict at a shorter range than three thousand five hundred yards; generally the firing has been at distances of from five thousand yards to nearly eight thousand yards, say about four miles. In the light of this fact it is clear that the 6-inch gun mounted in our smaller ships, which preceded the New Hampshire class, is no longer a proper weapon to be there. As a substitute our New Hampshires are to be given 7-inch and 8-inch guns, and this notwithstanding the evidence that Great Britain has already emplaced 9.2-inch guns in ships afloat. The English ships on which there are 9.2-inch guns were laid down in 1902; our battleships were laid down subsequently. The query suggests itself, Why are we content with 8-inch rather than 9.2-inch guns, and why have 7-inch guns at all?

Some of the legends pertaining to guns, taken mainly from data published by a noted English manufacturer of ordnance, are here given in order to show the relative values of different calibers.

There are some noteworthy facts to be borne in mind in estimating the importance of guns. The first of these is the length of the bore of the gun; the longer the gun, the heavier the charge of powder which may be used; therefore, the greater the velocity of the shot, the longer the range and the more powerful the striking force. A gun 50 calibers long—that is, fifty times the diameter of the bore—is more destructive than a gun 45 calibers long. For example, a 12-inch gun, fifty feet long, will use 248 pounds of smokeless powder, have a muzzle velocity of 2880 feet a second and a penetrative power against armor approximately two inches greater than a similar gun only forty-five feet long. Difficulties of manufacture and of emplacement on board ship limit at present the length, however, so that for the heaviest guns 45 calibers long appears to be about the standard.

The latest designed guns of 7 and 8-inch bore to be mounted in our most recently designed armored ships are to be 50 calibers long.

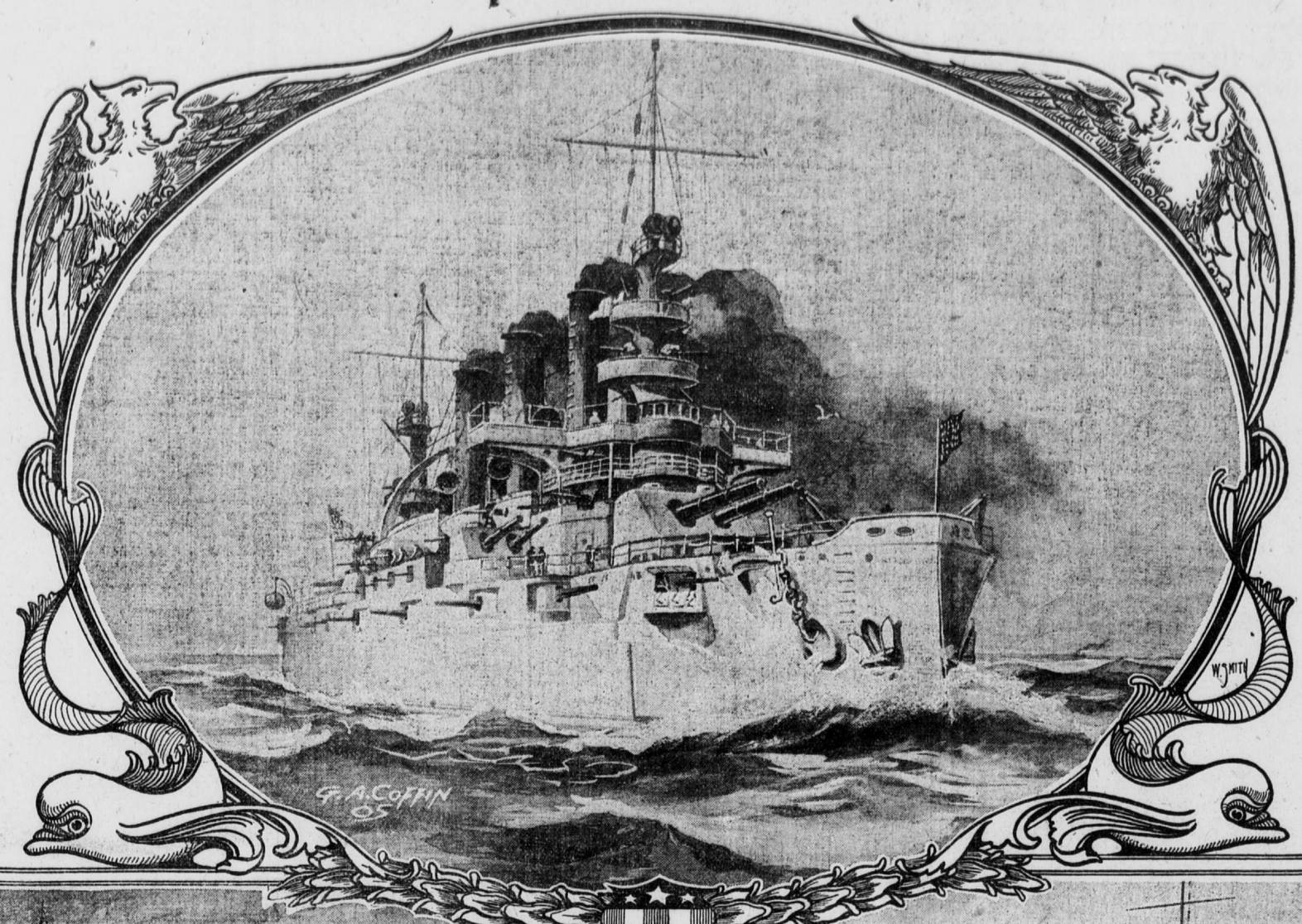
A second fact to know about guns is that perforation data are theoretical. Formulas are used, and while the deductions therefrom are undoubtedly sufficiently exact to be used as bases of comparison, it by no means follows that praetical demonstrations will bear out the accuracy of the figures.

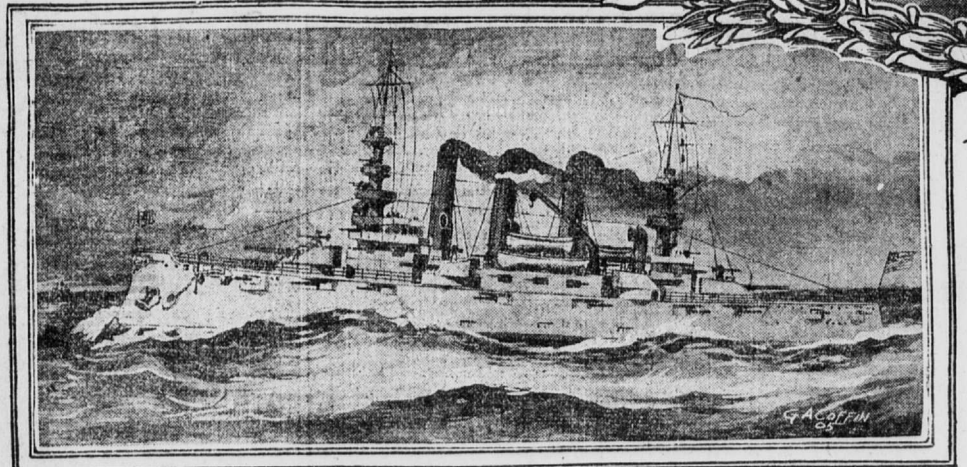
It becomes necessary at this point, if we would know whether the intentions of congress are to be realized, to ascertain the armaments which foreign nations are emplacing in their 16,000-ton battleships, for with this information and our tables of guns we can come to a pretty accurate estimate of our standing.

First we look to England. Here we see eight battleships of 16,300 tons each laid down in 1902-03 and two of 16,500 tons each laid down in 1904. These last two, the Lord Nelson and the Agamemnon, are a trifle larger—500 tons—than our New Hampshire. None the less they are so splendidly supplied with gun power that particular attention is called to their armament, especially since our ships ought to be able to fight them. They mount four 12-inch 45-caliber guns and ten 9.2-inch 50-caliber guns. Separately and collectively, the ordnance of these ships has a greater fighting power than that of any other in the world.

The eight other English battleships of 16,300 tons each can be mated with ours of 16,000 tons, for our ships will run over the authorized 16,000 tons quite as surely as the English ships overran their originally intended 16,000 tons.

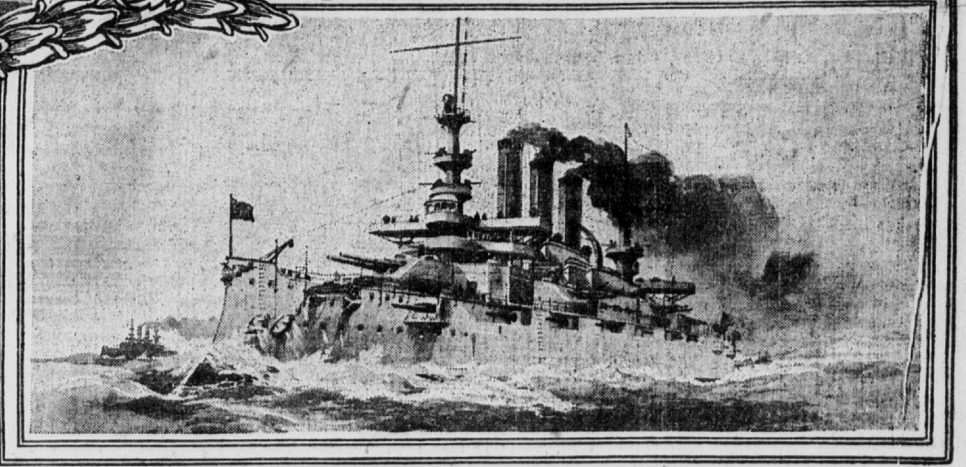
The question of the speed of a battleship merits attention, but a word only can be ventured here about it. Speed stands for the old-time weather gauge. This means that the fastest ship can choose her position for fighting and that the faster fleet can blank the slower.





The Battle Ship VERMONT

The Battle Ship NEW HAMPSHIRE



The Battle Ship CONNECTICUT

How It Is Possible for a Person to Tell a Criminal at a Glance

ANY one can tell a criminal at a glance nine times out of ten with a little observation," said one of the central office detectives. 'It's only necessary to keep a few types and remember a rule or two."

The interviewer here asked for a few simple directions. The sleuth from his chair in the Broadway hotel lobby kept one eye on the passing crowd as he continued.

"There are two main classes of physiognomy to be found among criminals and two only; every criminal belongs to one or the other type. These classes are a good deal alike; both are cast in the same general mould, though in detail they have been modeled on different lines. While there is a general superficial resemblance of the one to the other, they are found on close examination to be in detail as far apart as the poles. The types of the two classes have been cast in exactly opposite kinds of moulds, but the action of the criminal life has worn both down to a dead level of sameness.

"Now the criminal head is one of two extremes, either very large or very small, scarcely ever normal. In the same way with his whole appearance individually, he belongs to one or the other of two extreme types; his neck is either very short and thick or very long and thin; his forehead very low, narrow and receding or very square and protruding; his lips very thin and compressed or very thick and flabby; his hands very small and delicate or very large and coarse; his nose very high and narrow or very squat and broad; his eyes very small, sunk and beady or very aggressive and staring. Of either class all the members are extraordinarily alike, while in both classes one finds something which is not exactly the expression, is not a definable characteristic, but rather a general air or appearance which at once marks out the convict as not as other men are. The expression in the one order may be servile and cringing, in the other bold and aggressive; the characteristic of the one may be brutality and of the other cowardice, but in both and in every member of both is the same forbidding aspect, which causes the child to cry or the dog to snarl at the sight of the lawbreaker, while the grown man, his finer susceptibilities and instincts blunted by the stress of life among his fellow men, feels a sense of distrust and repulsion.

"All kinds of crime may be divided into two orders—the crime of brutality and the crime of meanness, the offense against the person and the offense against property; the murder and assault on the one hand, the theft and swindle on the other. Hence it is that the face of the criminal, his expression, his whole bearing, denote either fierce brutality, the savage in his nature rising uppermost, or else sneaking cowardice, the animal cunning in him triumphing over all other instincts.

"Some criminals, of course, belong to both classes, form, as it were, the connecting links between them. Such are the robbers with violence or the homicidal housebreakers. The mouth and chin, the eyes and forehead, show the greatest distinction. The murderer, for instance, is frequently underhung. In criminals of the brutal order the jaw is generally massive, the mouth thick lipped and protruding, the eyes are bold and passionate, frequently of a reddish tinge, with bloodshot whites; the eyebrows are heavy, overhanging and straight, usually meeting to form one line; the forehead is square and lumpy. Other signs of the brutality class of crime are the flat, square shaped head, the small, projecting and frequently hairy ears and short bull neck, the coarse, gnarled hands, the squat nose. Convicts of this kind will often be found to have some deformity physically and to be a hairy, much blemished race. In the thief, on the other hand, one finds small, shifty eyes, shaded by light colored lashes and sparse, irregular eyebrows, usually tending upward at the outer corners or else very arched and afflicted with a nervous twitch; the lips, as a rule, are thin and bloodless, the chin receding, the forehead smooth and sloping. The head of this class is generally high and pointed, the ears flat to the head and badly modeled. The hands are soft and small, the nose very frequently straight and regular, though often it rises to a high ridge just below the bridge, and is so constructed as to give the appearance—so favorite with lady novelists—of eyes being close together. The breadth across the frontal bone is, in fact, usually less than normal."