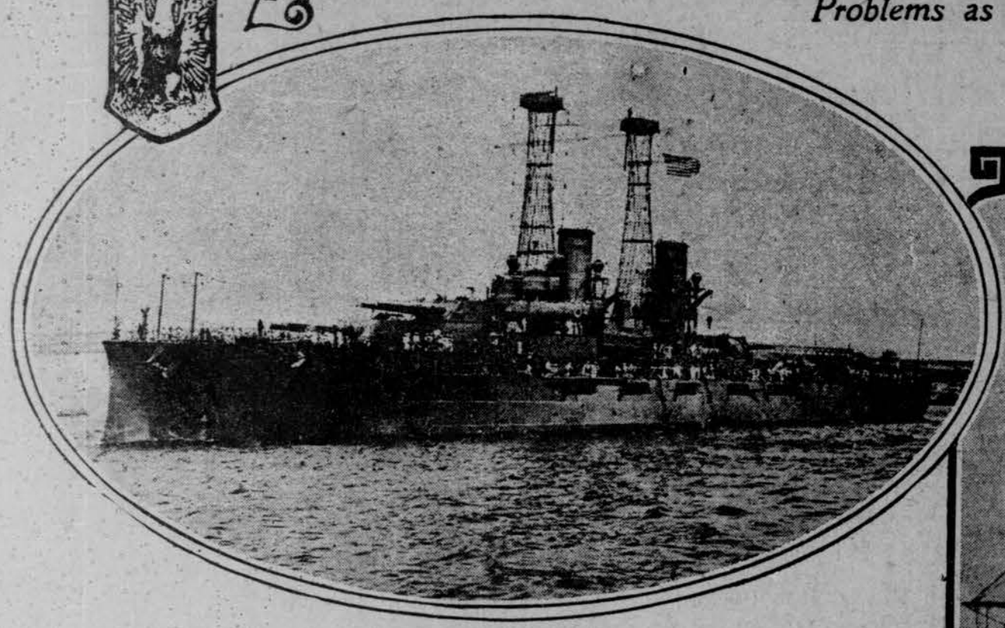
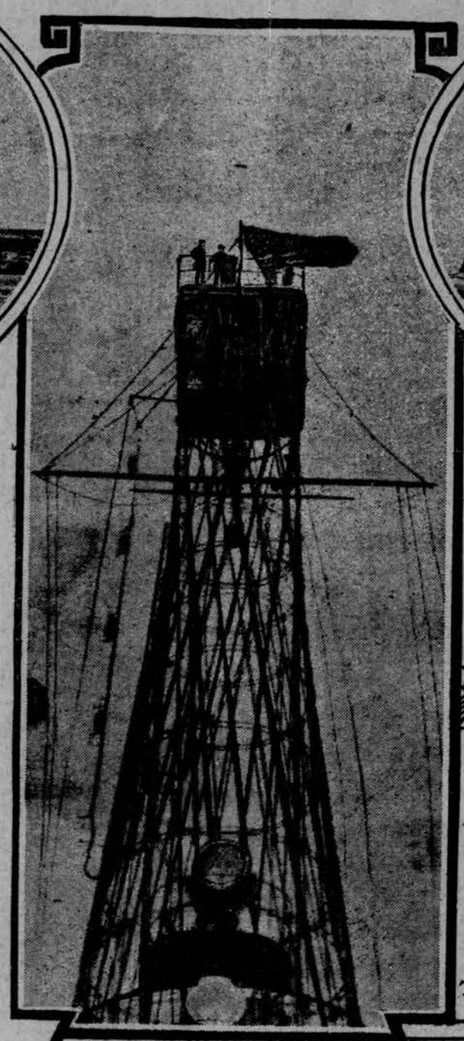
TRAINING THE MODERN DREADNOUGHT TO FIGHT

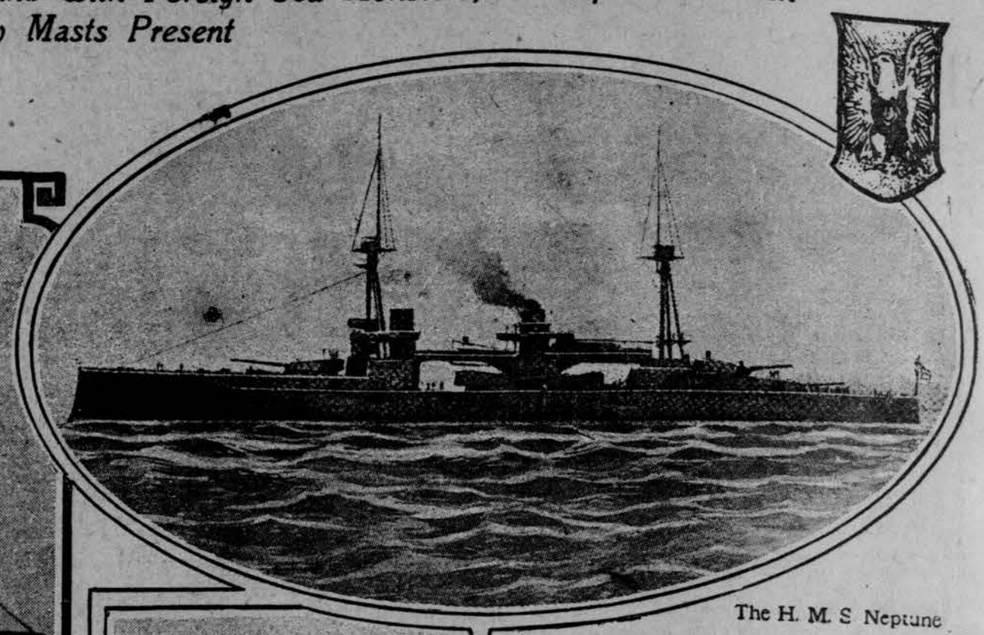
ALONE in His Study, the Naval Officer Wages Battles in His Mind with Foreign Sea Monsters, to Help Solve Such Problems as Gunnery and Military Masts Present



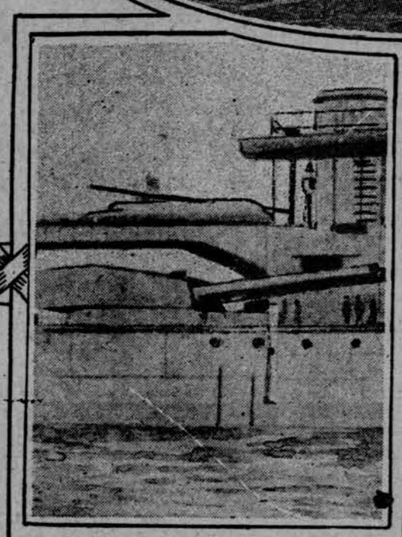
The U. S. S. Delaware



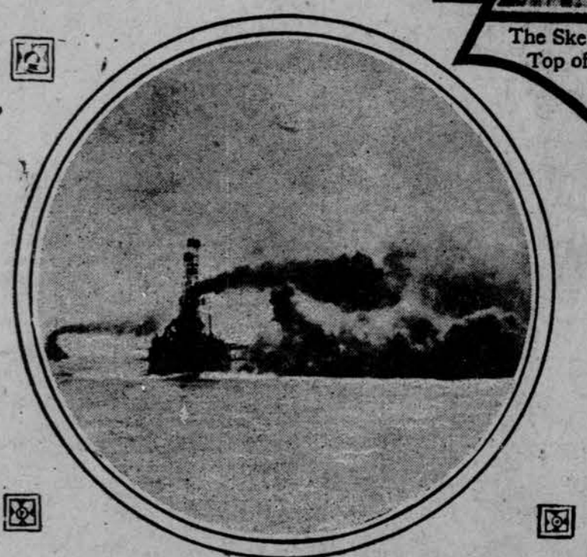
The Skeleton Mast, from the Top of Which the Firing Is Controlled



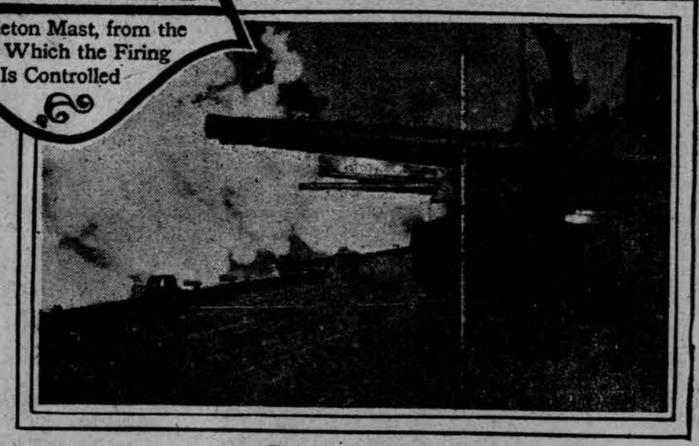
The H. M. S Neptune



Turret on the British Dreadnought Neptune



The U. S. S. Delaware Firing a Broadside of All Guns



Firing a Broadside

WHEN the new battleship Utah, with a full load displacement of 23,003 tons, went into commission a few weeks ago, an experienced naval officer, who had been looking it over with a proud sense of patriotic spirit, remarked:

"She's the cream of them all. I'd like to help train her to fight."

The big ship, as it ploughed its way slowly through the water, was in itself an emblem of strength and a product of all that modern naval design could make it. Surely it was equipped to give a good account of itself. In the words of the naval expert watching it, it was "ready to be taught how to fight."

It may not have occurred to persons outside of the navy that it is as necessary to teach a ship how to act in a battle as it is to teach a pugilist how to act in the ring. Yet it is so—emphatically so. Even the mighty Utah, with its ten 12 inch 45 caliber rifles, its heavy Krupp armor and its complement of 888 men, would make a sorry showing against a very inferior ship if its officers and men did not know how to get the best out of it during the comparatively short space of time when the actual battle is being fought.

This is why it is now being made ready for its period of training, and also why the navy department attaches such great importance to the naval drills which are conducted regularly by competent men in time of peace. By naval drills one must take into consideration all the different phases of "training" that the ships of the United States navy go through from one end of the year to the other. Special consideration might be given to the periods of target practice, when the ships are taught to shoot straight, for shooting straight is, indeed, the most immediate and important offense and defense which a ship can have.

But, let it not for a moment be supposed that teaching a ship to shoot straight means merely getting good gunners and putting them at the big guns. "The man behind the gun" has been a navy watchword for many years, but it is not the man behind the gun who is going to be the prime factor in naval battles of the future. A battleship might have a picked crew of the best gunners available in all the world and yet not make a single hit in a modern naval engagement. In fact, if the gunners did their work properly the ship would necessarily miss with all the broadside guns every time the wrong information as to range, etc., were communimated from the fire control towers to the gunnery crews.

The importance of the gunner is accurately to carry out his orders and point the guns as he is instructed to point them. Perfect co-operation between the fire control tower and the gun pointers would form the ideal shooting ship, as the gunners would be correctly told where to shoot and would shoot as told. But, if one or the other of these co-ordinate branches must be sacrificed it would be better to have mediocre gunners and a good fire control system than good gunners and a system of fire control that threw them off the target.

Training a modern battleship to fight, therefore, consists, among other things, of teaching the officers in the fire control to spot the shots on the target and communicate the range accurately to the gun pointers at the big guns, and in teaching the guns' crews to shoot "according to instructions" and to shoot as quickly as they can. The rapidity of shots fired is, of course, of paramount importance, and in this respect the efficiency depends solely upon the crews at the guns.

It is in working on this problem that the most expert ordnance officers in the navy are devoting their best energies day by day. Everything that might spell improvement in this line is given consideration. The majority of this work revolves around the system of fire control, which naval experts are straining to bring to the highest point of efficiency. This fire control system not only must be effective in target practice, but must so stand as to be practical and effective when hostile shots are coming its way.

There would be surprise for many if they realized even a small part of the work which the naval experts go through in this process of training a battleship for actual battle. Ideas are constantly exchanged between those officers most proficient in this line, and the ideas brought out in foreign navies are closely scrutinized and studied. Mimic battles between American sea monsters and the best available foreign ships are fought and refought under various conditions in the minds of the naval authorities.

Perhaps an account of one of these battles, fought in one of the offices of a naval officer in Washington only last week, would illustrate by what means American officers attempt to arrive at conclusions, and, likewise, would give an idea of how modern naval battles are fought. The battle begins in this way:

A commanding officer whose opinions carry great weight with the navy department, and who is daily working on the "training of battleships," sits quietly in his library in the evening thinking about suggestions he has heard in talks with his brother officers and the problems which on that day have been discussed.

The proposal of making a slight change in the military masts now aboard American ships has just been up for consideration. Some of the officers believe these masts should be smaller than they are now, and that the American dreadnoughts should have one instead of two of these structures. Other officers are in favor of keeping the masts as they are because of the tremendos advantage they wold give American ships in the early action of an engagement.

Still other authorities are doubtful about the superiority of the American skeleton masts over the British tripod masts. They point out that the skeleton masts, upon which the all important fire control stations are situated, are each 120 feet high and from 30 to 40 feet in diameter at the base, and they argue that they form too large a target for the enemy, which would doubtless direct highly explosive projectiles against them.

All these ideas are in the mind of the naval officer. How does he form his own opinion as to the best type of mast for the American ships of the future? He sends—figuratively speaking, of course—one of the late American ships with the skeleton masts out to meet one of the latest British ships with the British tripod masts, and pictures what he thinks might happen.

Suppose, he reasons, that the battleship Utah were to meet the British battleship Neptune in the open sea tomorrow and the ships were assigned to the cheerful task of destroying each other What would be likely to happen?

Both vessels are of about the same normal displacement—20,000 tons. Both have ten 12 inch rifles and both have about 21 knots speed.

The powerful Utah steams out in search of its formidable opponent, with its officers and men ready for the fray and ship cleared for action. In the basket at each masthead are two spotters. The executive officer, chief of the fire controls, is ready to take the most advantageous position he can find when the actual battle begins.

Each spotter has a telephone apparatus attached to his hand, and by means of a tube will shortly communicate his signals to the gun pointers at each of the ten 12 inch guns, all on a median line of the ship. The visual sighting apparatus, the telephone system and the electrical apparatus are all working in tiptop shape. The men at the guns are ready to hear that the enemy has been sighted.

Finally, on the horizon there appears the faintest indication of a trail of smoke. Orders are given to increase speed, and some of the 400 tons of the vessel's oil is flushed on the coal to accomplish this. The trail of smoke becomes more distinct. Like a tiny speck first appears the sign of a ship. Word that the enemy is sighted is flashed like magic to the officers and crew. The hour of the supreme test is at hand.

Larger and larger grows the speck, until it is surmised that the Neptune is as anxious for the battle as the Utah. It appears to be coming head on, ready to shift its position when within range and get the full benefit of its 12 inch broadside. The commander of the Utah likewise realizes that the position of his ship with respect to the enemy is important, for if the bow of his vessel points toward the Neptune he can fire only four of his 12 inch rifles. He wants to use all ten. He does not count the sixteen 5 inch 50 caliber rifles, as he believes the battle will be over before they can be made use of. He fully realizes that the big guns are to decide the day.

As the approaching speck is watched from the fire control tower it assumes more and more distinctly the shape of a ship. It is now about nine miles away. As the ship appears to have come within the 15,000 yard range orders are given aboard the American ship to begin the range finding fire.

With a crashing concussion that shakes the mighty ship a gun pours forth its volcano of fire and an armor piercing shell shoots through the air in the direction of the object nine miles distant. The course of the shot is followed from the fire control tower. It is seen to fall short by about 725 yards.

"15,225!" is shouted through the tube in the tower to the 10 gunnery crews. The range was thought to be 14,500 yards, and the shot is 725 yards short.

Another terrific concussion announces the second shot. This is just a little to the right, and strikes the water 200 yards over the ship's stern.

"15,025!" is the immediate signal, while hurried orders are telephoned below to change the train of the guns so that the slight mistake in angle will be corrected. The third shot sends up a splash almost where the thick armor of the ship meets the water. The range is found. Orders for broadside firing at the given range are flashed below.

In instantaneous response to the signal the ten 12 inch rifles pour forth a salvo of 10 shots. Three of them hit the water short of the Neptune, two others are to the right and several just seem to skim over the deck. One is a hit, as shown by the miniature ball of fire which appears to the observers toward the thick armor of the ship's stern. There is doubt about another shot, which seems to disappear somewhere near the after turret.

In 22 seconds' time from the first salvo another is on its way. There is no response from the Neptune. It looks as if the enemy were completely taken off guard by the fact that the American ship opened fire at 15,000 yards. Nine thousand yards is supposed to be the battle range. The British vessel had orders to begin firing at that range. It is coming closer full steam.

The second salvo from the American ship is seen to do more damage than the first. Geysers of water are spouting up about the ship, while some of the shots seem to have fallen in a mass into the after turret of the Neptune. Almost before the effect of the shots can be seen the next salvo from the Utah is on its way. The shots are falling true and presumably with terrific effect. The fire control system is working like a charm.

From high up on the skeleton mast the spotters can see the effects, and the delicate mechanism and visual apparatus are working splendidly. It is seen that the British fire control station which is directing the firing is on the frail mast of the ship. It is known to be armored, but the mast appears so frail as to fall if it is hit, although it is realized that hitting the mast is difficult.

Salvo after salvo is sending forth its destructive missiles from the Utah, when there comes the echo of a thunderous roar from the Neptune, followed by splashes of water to the right and left and in front of the Utah. The enemy has opened fire. Eight bright flames indicate that a salvo of eight shots is on its way. The after turret guns are silent. This confirms the suspicion of the American officers that they have been smashed out of commission before the ship was ready to shoot them at all.

The range is now to the enemy's liking, for the missiles are striking nearer home, although the salvos do not come with the short intervals of the American salvos. The British broadsides come at nearly a minute apart, giving the Utah's guns, firing every 22 seconds, two shots to one.

A shell lodges in the end belt armor of the Utah and explodes, shattering the part of the deck near it. Another shell hits amidships. One of the turret bases is slightly damaged, but the majority of the British shells are falling far beyond the ship. The British seem to be purposely aiming high. There is a terrific explosion in the after skeleton mast, which shatters the tubes and sprays the decks fore and aft. Another explosion in the skeleton mast under the fire control station, then another. The enemy is firing purposely at the targets presented by the skeleton structures. The shells explode on the slightest contact.

The duel of shot and shell is now on in earnest. Salvos pass one another in transit and the damage which is being wrought aboard the British dreadnought reminds officers of the shooting at the San Marcos by the battleship Delaware earlier in the year. Another turret aboard the British ship is silenced. The 10 American turrets are still blazing away full blast.

It is evident that the early action is all in favor of the American ship. The theory that it is the first blow that counts in modern naval warfare is being borne out, for the British ship, with its shorter battle range, never really had an opportunity of meeting the Utah on even terms, two of its turrets being out of commission within a few minutes after the first shots from the American dreadnought had been fired.

The British appear to be directing high explosive shells against the skeleton masts, but, although the basketlike structure is ripped away in many places, the masts do not fall. A chance shot from the American ship has meanwhile hit one leg in the tripod mast aboard the Neptune and the whole system has come down.

The height of the American skeleton masts has enabled the Utah to deliver very decisive blows at the longest ranges so far possible to gun fire. But now, as the ships have drawn closer, there is serious danger of the fire control station at the masthead becoming untenable. The high explosive shells, purposely directed against the large basketlike targets, are beginning to cause terrific havoc. The electrical apparatus and delicate visual apparatus are becoming affected by the hostile fire, and it is feared that the high structures may at last be brought down and possibly hamper the operation of the turret guns.

As the advantages which these masts have at the early stage of the battle begin to wane the preparations for conducting the remainder of the battle from a lower armored station are hurriedly made. The Germans direct all their fire control from an armored station below. The possibility of being obliged to follow these tactics aboard the American ship has already been taken into consideration.

But the skeleton masts, even when abandoned, will continue to form targets for the high explosive shells of the enemy. Projectiles that otherwise would have passed harmlessly by the ship will explode when they strike the structure. The American officers, now that the usefulness of the masts is gone, would like nothing better than to throw them into the sea.

Meanwhile high explosive and armor piercing projectiles are doing their terrific damage aboard each ship, tearing first a huge gap in one vessel, then endangering the vitals of the other. In a few minutes all will be over and one of the ships will be a helpless mass.

Which is the vessel destined to become a scrapheap for the bottom of the sea? Is it the Neptune or the Utah? Has the tremendous advantage of the first blow and the effective fire of the American ship been too great for the Neptune to overcome, or has the British vessel finally succeeded in turning the tide in its favor? The American officer conducting the theoretical battle does not let it proceed that far. He is only interested in the technical problems involved. His mind has dwelt long enough on the effects of the firing to solve several important problems to his own satisfaction.

First, he has reinforced his opinion that the advantages of the skeleton masts are of prime importance, especially in the early part of the battle, and that this advantage is too great to sacrifice.

Second, he has found that the tripod mast of the enemy, although a smaller target, has a better chance of coming down, as a chance shot displacing one leg puts out of commission the entire fire control system.

Consequently he is against abandoning the military masts and against the advocates of the British system.

But there has been one phase of the battle which has particularly impressed him and provided room for thought. It is the frequency with which the skeleton structures have been hit by highly explosive hostile sells. He finds, he must admit, that the masts form a large target for the enemy's guns.

"Couldn't these masts be smaller, though not lower, and yet give the advantages which we do not wish to lose?" he reasons. "Would it not be possible to have a frailer structure and one not so easily hit by the enemy? Is it necessary to have two of these masts, or would it, perhaps, be better to have only one?"

With one mast, he reasons, the initial advantage of the first blow at long range would still be there, and yet the target would be but half the size. The officer following the theoretical battle is deeply interested in the possibilities of gaining an advantage by having one instead of two of the skeleton masts.

But he realizes that perhaps his judgment may not be the best. Naval officers engaged in the very important work of training modern dreadnoughts to fight are far too broadminded to believe that their judgment is necessarily without fault. They are open to all the suggestions and arguments and objections they can get from men in a position to advise with them. Consequently the idea of one skeleton mast will be very thoroughly threshed out before this officer will be convinced that he is right in advocating it.

This idea of one mast instead of two is now commanding serious consideration by ordnance experts and officers who have to do with gunnery in the navy. There is a pronounced opinion on the part of some officers in favor of the plan. It will be further discussed, and if the best brains in the service favor it it will be adopted. If it be adopted it will result from the quiet but effective brain work of those who make it a business to teach the American dreadnoughts how to fight.

THE INTOXICATED PIGEONS

A HEAVY truck loaded with kegs of liquor was jolting across a line of downtown car tracks when one of the kegs toppled and fell from the top of the pile into the street. It was thoroughly smashed, so the truckman whipped up his team and went his way without stopping. The rum flowed out over the street—one little dent in the paving collecting a visible puddle of it.

In a few minutes a pigeon came fluttering down to drink at the pool thus fortunately provided for thirsty birds. The initial taste was a surprise, but a second and a third soon followed and soon the pigeon tottered fluttering away, too overcome to fly. Other birds, seeing him there and anxious to wet their parching throats on so sultry a day, followed their brother in his path of wicked intemperance.

Five minutes later a passerby was astonished to see a dozen pigeons in the gutter of the otherwise deserted street, some dancing drunkenly, others already sound asleep. A few feet away a hound of disreputable appearance was creeping up, slowly and a trifle unsteadily, on his unsuspecting and bibulous quarry. As he was almost among the birds his feet went suddenly in several directions and he lay in the gutter among the pigeons, growling sleepily to himself, for he, too, was drunk.