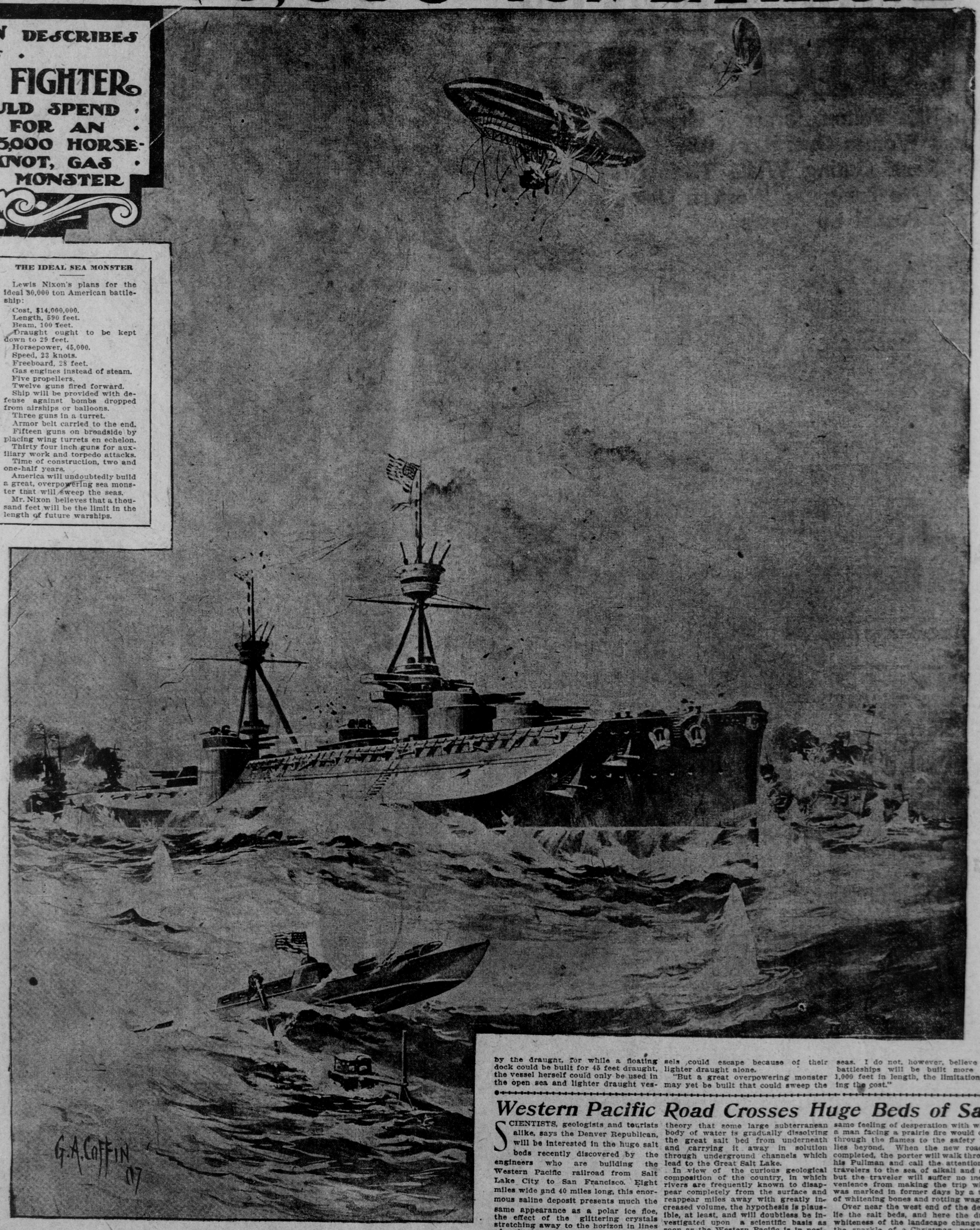
HERE'S THE 30,000 TON BATTLESHIP

LEWIS NIXON DESCRIBES HIS IDEAL SEA FIGHTER

HOW HE WOULD SPEND $14,000,000 FOR AN INVINCIBLE 45,000 HORSE-POWER 23 KNOT, GAS PROPELLED MONSTER



By Lewis Nixon

WHILE the doves of peace are flocking to The Hague warships are growing bigger in the great navy yards of the world. In view of the millions spent for the Dreadnought by England, it is safe to predict that other nations will soon have still more formidable vessels. What the final limit is to be no one can tell.

To get the opinion of an expert as to the ideal warship of the future Lewis Nixon was called on. He was very busy, but showed much interest in the subject, and said it would be possible some day to build a warship perhaps a thousand feet long. An ideal one would be a 30,000 ton ship. Finally Mr. Nixon, who 17 years ago designed the 10,000 ton Oregon, which made that wonderful trip around the world, outlined a ship of 30,000 tons for the Sunday Herald. He said:

"Apart from whether one believes that the proper trend should be in the direction of greater displacement, the problem presented by the Herald of the best utilization of a greater displacement is a fascinating one.

"What can be done on 30,000 tons? The lesson of the Russo-Japanese war is that endurance must above all things be developed.

"As design has followed design, the fighting features have of course been developed, but the power to take punishment has not increased in the same ratio. A vessel may be very powerful, but if she cannot take as well as give punishment she must become weaker and weaker as she is hit.

"The power to keep afloat is as great a consideration as an overwhelming battery. A 30,000 ton vessel should be 590 feet long, 100 feet beam and 29 feet draught. An abnormal speed for such great displacement is impossible, but as the Dreadnought's speed is 21 knots, we shall make our vessel 23 knots, which requires a horsepower of 45,000.

Superior to Dreadnought

"This will be developed by gas engines driving five screws—one more than on the Dreadnought. The middle screw should be fitted for economy in cruising. The English are now decrying the gas engine, and one of the New York papers, which pays attention to the gas engine question, comments editorially on Mr. Dugald Clerk's discovery that the jacketed walls of gas engine cylinders must not be too thick, and hence there is a limit in their size.

"If Mr. Clerk will investigate he will find single cylinders producing 4,000 and 5,000 horsepower at work commercially in Europe. As the engines proposed will have six or 12 cylinders it will be seen that our proposals are far within the limit of good gas engine practice, as we shall have 1,500 as a maximum power to be developed by one cylinder.

"The marine suction gas producer will be used for making gas from coal. As the stoking of producers is far simpler and can be done by conveyers and the gas engines themselves require so many fewer men, the engine force will be only about half that of the Dreadnought.

"The armor belt will be 12 inches at the top to 10 inches at the bottom, 10 feet wide amidships to 8 feet wide at the ends.

"The casemate armor to be 8 feet wide, 10 inches thick for 400 feet, with transverse ends 10 inches thick. Protected deck 3 inches thick to 2½ inches at the ends; turrets and barbettes 11 inches.

"I have never approved of the overhanging balanced turret. I like the turret to be housed entirely within the barbette, so that it can have everything shot to pieces around it and not run the risk of being struck by a distorted beam or a piece of plate. A photograph of a vessel which has been through an engagement is a striking argument in favor of this type of turret.

"Had not the craze for changes and additions eaten up all margin in the Oregon class I should have advocated balancing the turrets by weights at the rear, and even now with the heel of the vessel caused by rotation the turrets are far superior to the later ones of overhanging type.

"A third gun is installed in each turret at a cost of about 1,500 tons additional over five turrets carrying two guns each.

"Smokestacks are done away with and exhaust hatches are used about four feet above the deck so that the turrets can fire over them.

"The upper military top is to carry guns for firing at airships or dirigible balloons. Two 60 foot high speed submarines and four 75 foot 20 knot torpedo boats and submarine destroyers are carried, and arrangements are made for launching them through the side.

"Magazines will be directly under the various turrets and 1,000 tons more ammunition are carried than in the largest existing types, so that, assuming the same number of firings on both sides, this vessel will have ample power to continue the battle after the enemy has expended all of its ammunition.

"The turret arrangement from forward is first a barbette and turret carrying three 12 inch guns on the center line. Back of this, but firing over it, another three gun turret on center line. Then two wing turrets en echelon at same level as forward turret. The one three gun turret aft on center line.

"The arrangement of turrets gives 12 guns for forward firing or chasing—15 guns on either broadside and nine guns aft. The vessel will have a six foot deep double bottom under the flat bottom, but the internal bulkheads will be so worked as to give three skins from the lower bilge up. The vessel will be subdivided as minutely as possible, but I should not advocate any internal armor to provide against torpedo attacks. Shaded searchlights to be located along the sides of the vessel would inclose her in a pinafore of rays when desired in addition to the regular searchlights on the bridges or masts.

"The magazines should be insulated so that the possible development of projection of electric impulses cannot possibly fire the magazines, and besides the magazines will be kept cool by the usual refrigerating methods.

"All auxiliaries except those in the engine spaces should be worked by electricity, such as the windlass steering gear, winches, elevators, turret gear and ammunition hoists; cooking and lighting to be done by electricity, and also heating, but the electric heaters to be supplemented by hot water heated by the exhaust.

"The labyrinth of pipes for drainage and pumping, with their weight, unhealthfulness, deterioration and general inefficiency, will be done away with in large measure by fitting special local centrifugal pumps worked by vertical shafts turned by electric motors to all the principal compartments. These pumps will be controlled from a central station.

"The secondary battery to be made solely of four inch guns, 30 in number, as anything smaller will not be efficient in attacking or repelling torpedo boats.

"In coaling large hatches in the decks will be opened leading to hoppers or chutes to the coal spaces.

"Large compartments in the wings will be fitted with quick opening valves controlled by power appliances for quick flooding or quick freeing by use of compressed air. These are for the purpose of trimming ship in case of such injury as admits water. No wood will be used in the vessel on any deck.

"The cost of such a vessel would be about $14,000,000. Time to complete, two and a half years.

"The construction of such vessels would render obsolete battleships of less power than the Michigan and Dreadnought types, as a fleet of four 12 inch gun vessels as now exist would be eaten up by two such vessels. Will they be built? Certainly they will. When? As soon as some nation takes the first step.

"When the 30,000 ton vessel is built there will, of course, be others to follow of larger size. Taking into account the best shape of boat, ignoring other considerations, the 30,000 ton ship should be not less than 35 feet draught, but 29 feet is more efficient and serviceable.

"The final length will be determined by the draught, for while a floating dock could be built for 45 feet draught, the vessel herself could only be used in the open sea and lighter draught vessels could escape because of their lighter draught alone.

"But a great overpowering monster may yet be built that could sweep the seas. I do not, however, believe that battleships will be built more than 1,000 feet in length, the limitation being the cost."

THE IDEAL SEA MONSTER

Lewis Nixon's plans for the ideal 30,000 ton American battleship:

Cost, $14,000,000.
Length, 590 feet.
Beam, 100 feet.
Draught ought to be kept down to 29 feet.
Horsepower, 45,000.
Speed, 23 knots.
Freeboard, 28 feet.
Gas engines instead of steam.
Five propellers.
Twelve guns fired forward.
Ship will be provided with defense against bombs dropped from airships or balloons.
Three guns in a turret.
Armor belt carried to the end.
Fifteen guns on broadside by placing wing turrets en echelon.
Thirty four inch guns for auxiliary work and torpedo attacks.
Time of construction, two and one-half years.
America will undoubtedly build a great, overpowering sea monster that will sweep the seas.
Mr. Nixon believes that a thousand feet will be the limit in the length of future warships.

Western Pacific Road Crosses Huge Beds of Salt

SCIENTISTS, geologists and tourists alike, says the Denver Republican, will be interested in the huge salt beds recently discovered by the engineers who are building the Western Pacific railroad from Salt Lake City to San Francisco. Eight miles wide and 40 miles long, this enormous saline deposit presents much the same appearance as a polar ice floe, the effect of the glittering crystals stretching away to the horizon in lines of unbroken white, being one which cannot be obtained anywhere else in the world except in the zones of eternal ice.

So closely are the salt crystals packed together that the ties for the railroad are laid on the surface and the 150,000 pound engines pass over them without making any impression. In placing the telegraph poles along the line of the road, it was found necessary to blast out the salt with dynamite, its rock-like hardness making it impossible to dig down the eight feet required to give secure support to the poles. Eight feet is the deepest bore which has been made into the deposit, and its true depth remains unknown as yet.

The commercial value of this salt deposit, said to be 98 per cent pure, is something enormous.

Engineers who have studied the topography of this part of the country are inclined to the belief that a large body of water underlies this enormous salt bed, and that herein lies the explanation for the well known saline quality of Great Salt Lake. The salt body is situated 27 feet higher than the lake at the Mormon capital, and the slope of the land near the deposit is such that if water existed there it would flow in the direction of the lake. With this as a basis for their deductions, the engineers who laid out the road have evolved the interesting theory that some large subterranean body of water is gradually dissolving the great salt bed from underneath and carrying it away in solution through underground channels which lead to the Great Salt Lake.

In view of the curious geological composition of the country, in which rivers are frequently known to disappear completely from the surface and reappear miles away with greatly increased volume, the hypothesis is plausible, at least, and will doubtless be investigated upon a scientific basis as soon as the Western Pacific is in position to handle passenger traffic. Borings through the salt, while similar in difficulty to boring through solid rock, should determine in large measure the formation of the salt beneath the surface and should settle the question as to whether or not a body or stream of water is eating away the salt body on its lower side.

Government officials from the weather bureau are at present in the Salton basin studying evaporation, and may take up the study of the salt deposits when their present investigations are concluded.

Leaving Salt Lake City, the Western Pacific skirts the south end of the lake, crossing it at one point for a distance of six miles, where the water lies on both sides of the track, and at milepost No. 80 enters the Great American desert. Here, for nearly 40 miles, the trains cross a vast sea of white alkali, gleaming in dry, dazzling whiteness in all directions. Looked upon with dread in the days when the prairie schooner was the best means of transportation, the desert will now become simply an object of curiosity, to be viewed in the same light as any of the other scenic wonders that are to be enjoyed from western railroads. The forty-niner when he reached the edge of this desolate stretch of drought-ridden territory, figuratively drew a long breath and plunged across it with something the same feeling of desperation with which a man facing a prairie fire would dash through the flames to the safety that lies beyond. When the new road is completed, the porter will walk through his Pullman and call the attention of travelers to the sea of alkali and salt, but the traveler will suffer no inconvenience from making the trip which was marked in former days by a trail of whitening bones and rotting wagons.

Over near the west end of the desert lie the salt beds, and here the dusty whiteness of the landscape changes to the sparkle of a Christmas postcard. Despite its rocklike hardness, the salt deposit evidently contains a large proportion of moisture, for it has been observed that all ties, telegraph poles and other wooden objects which come in contact with it become moist to a point four or five inches above the surface. This is another fact in support of the theory that the deposit is being undermined by a body of water, there being scarcely enough water in the air in that climate to keep the huge deposit moist at all times.

All over the deposit, since the advent of the Western Pacific tracks, are to be found placer claims staked out, with the owner's little notice of location fastened to one of the stakes.

Though situated higher than the Great Salt lake, the salt deposit has no grade in either direction, evidence that it was at one time in solution in some body of water which evaporated, that, in fact, being the only way in which such deposits usually occur. Track laying over this hard, level surface, which required no ballasting and no blasting, except for the telegraph poles, was a simple and rapid operation, and the work occupied a remarkably short time. It is hoped that the Western Pacific will be completed by the end of next year, and after that the tourist and scientist will have no difficulty in visiting and observing this remarkable product of nature's laboratory.