

## THE U. S. ARMORED BATTLE SHIP TEXAS.

The new cruiser Texas, which is now being built by the United States government at the navy yard, Norfolk Va., was designed by the Barrow Ship Building Company, and is of the belted type; that is, it has a belt of armor amidships to protect the vitals of the ship, and has an underwater armor deck extending from armor belt to the extremities of the vessel. It has twin screws. The principal dimensions are: Length between perpendiculars, 290 feet; extreme breadth, 64 feet 1 inch; depth moulded to upper deck, 39 feet 8 inches; mean draught of water, 22 feet 6 inches; displacement to this draught, 6,300 tons; displacement per inch at load line, 30 tons; complement of officers and men, 300; speed, maximum, 17 knots.

**Armament.**—The main battery consists of two 12 inch guns in turrets and six 6 inch guns protected by shields.

The secondary battery consists of four 6 pounders, four 3 pounders, and four 47 millimeter revolving cannon, protected by 1½ inch steel plating. Two Gatlings and two 37 millimeter revolving cannon. Two 1 pounders. Two Gatlings, with two 37 millimeter revolving cannon, are fought in the military mast tops to repel boarders and torpedo boat attacks. Two 37 millimeter rapid-fire guns are fitted in the steam cutters.

Torpedoes can be projected through six tubes, one through the bow, one through the stern, two through the side above water, and two through the side forward below water.

**Machinery.**—The motive power is furnished by two triple expansion engines, placed in separate watertight compartments.

The cylinders are 36, 51, and 78 inches in diameter, with a stroke of 39 inches. There are four double-ended boilers, 14 feet diameter by 17 feet long. Steam pressure, 150 pounds. Grate surface, 504 square feet. Indicated horse power, with an air pressure of 2 inches of water, equals 8,600.

Coal supply is 500 tons. With this supply the endurance for a speed of 17 knots is 1,110 knots; at 15 knots speed, 2,050 knots; and at 12 knots speed, 3,170 knots. With an increased coal supply to 850 tons and a speed of 11½ knots, the endurance is 6,000 knots.

**Quarters for Officers and Crew.**—This vessel is to be fitted as a flag ship. Directly aft, on the gun deck, is the admiral's private cabin. Forward of this, his dining saloon and sleeping cabin. Next, the admiral's bath and water closet and pantry. Forward of these are similar accommodations for the captain. Forward of this is an open space extending across the ship, with two passages leading forward. These passages inclose the wardroom, and the staterooms open into them from the outer sides. There are nine staterooms opening into these passages. Beyond the wardroom bulkhead is a large open space, which can be used by the steering officers. The crew are berthed on the gun and berth decks.

**General Construction of Hull.**—The ship has double bottom and transverse watertight bulkheads. Is built with vertical and flat keel plates. Longitudinal stiffeners for bottom and bilges. Above the armored deck the transverse frames are made of Z-bars.

## British Cottons and Hardware in China.

The British consul at Ichang, the most western port in the Yangtze, notices in his last report, that while the import of the lighter cotton goods has increased, that of the heavy and coarse textures has decreased. In the spring of last year there were rumors among the Chinese of bodily ailments, diseases of the skin, and even death being induced by wearing garments of foreign cotton stuff. In Szechuen province the story had much currency for a short time. He suggests that those who control the cotton goods trade should take means to prevent the presence of noxious or irritant matter in their goods. "The alleged use of baryta and its possible effects might be worth inquiry." Mr. Gregory further urges that some one from Birmingham should visit the China ports with a shipload of samples and wares for sale. "Two spades were in my hands lately for transmission to a brother officer; they bore the mark of a Pittsburg manufacturer. I wrote to a house (British, I believe) at Shanghai for weighing scales, and what were sent me were American. The stove in my office bears a name which means the 'stars and stripes.' Our own people could surely have supplied these things quite as well and as cheaply." He also suggests a trial of watches of gigantic size, say three inches diameter, of sound and very strong construction, so as to bear rough usage, set long, and not give much trouble in cleaning and repairing. The cases might be of copper or one of its alloys.

## An Active Centenarian.

Charles Clendenning, one of the pioneers of Allegheny County, Pa., celebrated his 100th birthday on May 24. Mr. Clendenning is in good health, and personally superintends the work on his large farm in West Deer township, and cares for thirty hives of bees. He has never worn spectacles, and still shaves himself. Upward of one hundred and fifty descendants and relatives were present at the reunion.

## Correspondence.

## Curiosities of Deafness.

To the Editor of the Scientific American:

In the SCIENTIFIC AMERICAN of May 26 there is an article entitled "A Curious Case of Deafness," which does not seem so very curious to me.

I am myself so deaf that common conversation is inaudible to me when in a room where there is no other noise, but when there is singing or instruments playing I can hear as well as any one; and when on board of railroad cars in motion I have frequently heard conversation from the seat behind me that those on the seat with me could not hear. I have known a number of people similarly affected.

I am seventy years of age, and have been deaf for more than fifty years.

Brockton, Mass.

CHAS. STONE.

## The Alleged Clay Eaters of North Carolina—A Refutation.

To the Editor of the Scientific American:

In your paper of the 19th of May, 1888, I find an article on page 311, under the head of "Carolina Clay Eaters," on the authority of Dr. Frank H. Getchell, which, in the interest of truth, deserves a brief notice.

I am a resident—a native—of Rowan County, in which Salisbury is located, and within the last sixty years have been in all parts of the county more or less, and am utterly at a loss to determine where Dr. Getchell found his community of clay eaters. If there be such a community, I ought to know of it. If there be such a place, either "back," front, or on the sides of Salisbury, some one—nay, many—in Salisbury ought to know where it is; and yet if any such place exists in this county, it is unknown to us. We have two little hills in the county, one of them 3½ miles south-southeast of Salisbury, which have been dignified by the name Dunn's "Mountain," and the other, 13 miles west, as Young's Mountain. Neither of them exceeds 300 feet above the waters at their bases. The snow and ice never lingers on them until spring, and in no particular do they answer to the description of Dr. G. In fact, the doctor's report as a whole or in detail cannot be made to apply to any part of Rowan County. Her people are prosperous farmers, and live as well and are as intelligent as those of any other part of this or other Southern State.

In conclusion, I will say that this story of Dr. Getchell has been going the rounds for two or three years, and has more than once been contradicted.

Salisbury, N. C.

J. J. BRUNER.

## A Royal Society Conversation.

At a recent conversazione of the Royal Society at Burlington House, under the presidency of Professor George Gabriel Stokes, among the exhibits of interest were samples of extremely hard carbon by the Woodhouse & Rawson Electric Supply Company, for microphonic and other purposes. It took a high polish like jet, and in pieces as thick as average metallic foil gave a metallic ring when dropped upon the table. Some samples of it, soldered into small disks of brass, were exhibited. The soldering had been effected by first depositing copper upon the carbon by electricity, then tinning the copper. This "adamantine carbon" was stated to be hard enough to scratch glass, and the exhibitors said that its mode of preparation is secret, but electrical deposition is brought into play in the process. The same firm exhibited Vernon Harcourt's new pentane standard lamp, in which part of a cylinder of flame is seen between two vertical tubes, which cut off from view the upper and lower part of the flame, gave a light in all directions equal to that of one average standard candle. Messrs. Woodhouse & Rawson also exhibited a holophotometer, for measuring the intensity of a light all round. It consisted of adjustable mirrors mounted upon a heavy kind of retort stand. The absorption of light by the mirrors themselves had been found to amount to 1.8 per cent.

Among the most interesting objects on view was a copy of M. Moissan's apparatus for the isolation of fluorine, exhibited by Professor T. E. Thorpe.

Mr. C. V. Boys, who is noted for his ability as a demonstrator, whether in drawing quartz silk by means of flying arrows or in managing straw skyrockets, performed various experiments with soap bubbles. He blew one bubble and placed it upon an iron ring, then with coal gas he blew another bubble inside the first one, which rose, carrying the outer bubble with it, also a piece of paper attached by a thread, as a sort of balloon car, to the lower part of the outer bubble. When two bubbles were blown independently of each other, and then rubbed against each other, they would not touch, but the slightest amount of electricity brought near them by means of a little electrophorus caused them to coalesce and burst. When one bubble was blown inside another, the electricity caused no coalescence, the outer bubble protecting the inner one from its action.

Mr. J. G. Symons exhibited some Geeselle's ther-

mometers, made to determine the present temperature of mineral springs in the Pyrenees, in order to ascertain whether there have been any small changes in their temperature during the present generation.

Mr. Shelford Bidwell exhibited apparatus for measuring the changes produced by magnetization in the dimensions of rods and rings of iron and other metals. It has long been known that an iron rod when magnetized is at first slightly lengthened, but Mr. Bidwell has discovered that if the magnetizing force be sufficiently increased the bar again contracts, and ultimately becomes actually shorter than when unmagnetized. A cobalt rod contracts at first under magnetization, and then becomes longer; a nickel rod contracts, and the limit of its contraction has not yet been reached; bismuth is slightly elongated in intense fields. These results were rendered visible by means of lever motion applied to a little reflecting mirror; the instrument would measure changes in length amounting to the twenty-five-millionth of an inch.

Mr. A. A. Common, of Ealing, exhibited photographs of the polar axis of a 5 foot telescope. The axis of the telescope consisted simply of an ordinary iron boiler floating in water, so that it would turn easily, and loaded with pig iron.

Professor George Forbes exhibited a coulomb meter, in which an electric current passing through an iron conductor creates heat, which sets up a convection current in the air, and this causes vanes to rotate about a vertical axis and drive clockwork. The number of revolutions indicated on dials is, through a considerable range of currents, an exact indication of the number of coulombs or ampere hours which have passed through the conductor. The friction of a ruby cap on a pivot determines the smallest current which can be accurately measured, and the friction of the clockwork is barely perceptible. The resistance of a meter to read from 1 ampere upward is 0.02 ohm.

Mr. E. S. Bruce had on view a translucent captive balloon for flashing signals by night. Some glow lamps were placed inside the balloon, and flashes could be produced from the earth by means of two fine conducting wires and a commutator; some experiments with the system have been conducted in the presence of the English and Belgian military authorities.

## The Great Philadelphia Sugar Refinery.

The plans for the great sugar refinery to be erected by Mr. Claus Spreckels, at Philadelphia, are rapidly assuming shape. The pile driving has been begun, and very soon the foundation walls will give the outlines of the great structure. In twelve months, it is hoped, the refinery will be in working order. It will then be started, and be able to turn out every day two million pounds of refined sugar.

The main refinery building is to be 60×160 feet in area. Its height of 132 feet will include thirteen stories. The finishing house, warehouse, boiler house, filtering works, and other structures will greatly extend the works, the entire area to be covered by buildings being in the neighborhood of 100,000 square feet.

In its effects, even upon so large a city as Philadelphia, the gigantic establishment will be impressive. With its workmen and their families, the shipping and dock employes, and the allied industries of cooperage, etc., many thousands of individuals will be supported by it.

In California Mr. Spreckels has given every evidence of his enterprise and progressive nature. He has encouraged, by free distribution of seed and otherwise, the cultivation of beets for sugar, and he may yet play in this country the same role that Napoleon filled for France. The enormous development that the beet root industry has attained in Germany and France is almost without parallel in its widespread effects. It has given the farming population a remunerative crop. The requirements of the root have been studied, and the fertilizer manufacture has been greatly increased by the demands of the beet root farms. Even on metallurgy its influence has been felt in the utilization of the phosphatic basic steel process slags as a source of plant food.

It is not easy to predict the effects upon this country of the introduction of so important an industry. If Mr. Spreckels succeeds in establishing it here, his influence on the prosperity of America may be very deep and lasting.

## De Haen's Antimony Salt.

This salt is a combination of antimony terfluoride and ammonium sulphate readily soluble in water, containing 47 per cent antimony sesquioxide, and having a strongly acid reaction. Its solution attacks glass and metals, and should consequently be used only in wooden vats. If employed for fixing tannin, it should be neutralized with half its weight of soda crystals. The quantity to be used per liter is 4 grms. of the antimony salt and 2 grms. soda crystals, taking the pieces through the solution at 50°; 4 grms. of the antimony salt take the place of 5 grms. of the double tartrate. The shades are brighter than those obtained with tartar emetic, and the whites purer, which proves that the coloring matter is better fixed.

# SCIENTIFIC AMERICAN

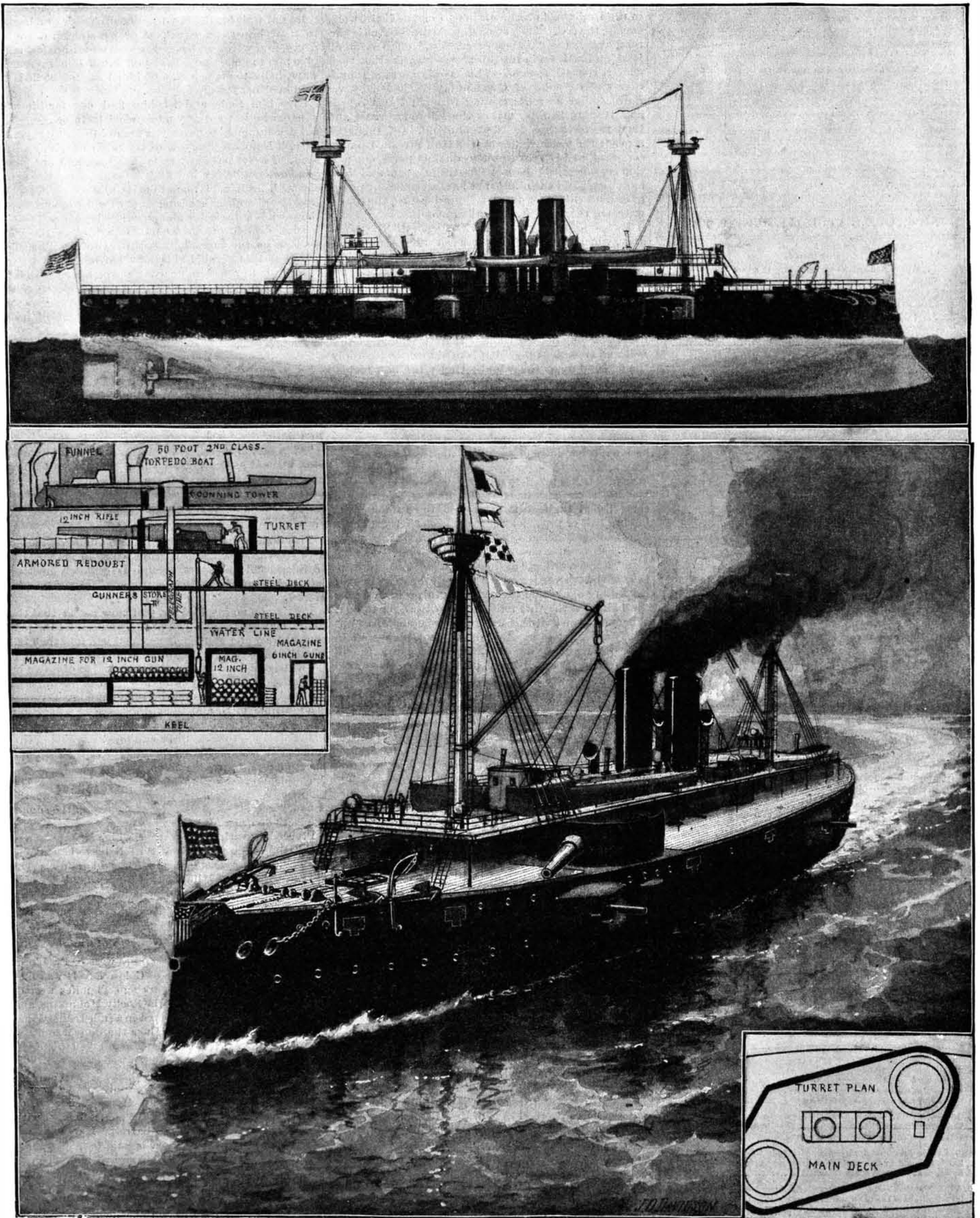
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