

# SCIENTIFIC AMERICAN

[Entered at the Post Office of New York, N. Y., as Second Class matter. Copyright, 1896, by Munn & Co.]

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY, AND MANUFACTURES.

Vol. LXXIV.—No. 15.  
ESTABLISHED 1845.

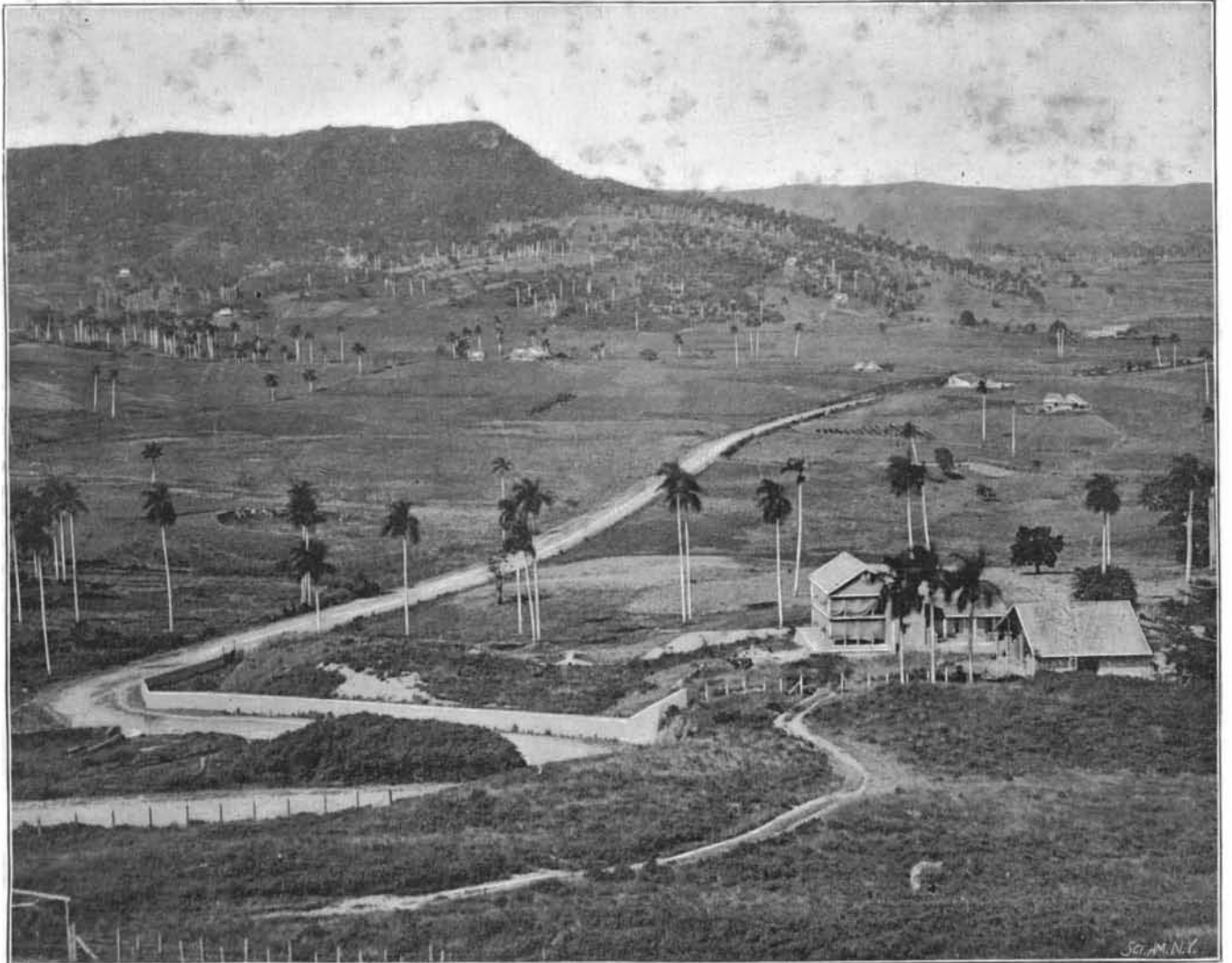
NEW YORK, APRIL 11, 1896

\$3.00 A YEAR.  
WEEKLY.

## THE ISLAND OF CUBA.

We present in this issue a series of views illustrative of the city of Havana and the adjacent country, which were gathered during a recent tour through the island. Cuba is larger in area and population and richer in natural resources than is generally supposed. It has a total area of 43,319 square miles and a population of one and a half million souls. The distance from its eastern to its western extremity is nearly equal to the distance from New York to Chicago. To a soil of unusual fertility nature has added a climate which is peculiarly favorable to the growth of certain special crops of great value. The country may be broadly divided into the region of plains, the rolling uplands and the forest lands. The lowlands form a practically continuous belt around the island, and in them are to be found the great sugar plantations. Above these, and on the lower slopes of the hills, are found the grazing and farm lands, upon which, among other things, is raised the famous Havana tobacco. The balance of the island, especially the eastern portion, is covered with a dense forest growth.

The sugar plantations form the chief source of wealth in Cuba. The cane grows best in the level bottom lands, which are cleared of all shrub and timber growth for this purpose. Some of the plantations are of vast extent, including as many as 10,000 acres, and they stretch away in unbroken monotony on all sides of the bay, which is the name by which the collection of sugar mills, dwellings, stables, etc., in the center of the plantation is known. Roads or driveways



A STRETCH OF UPLAND FARMING COUNTRY IN CUBA.

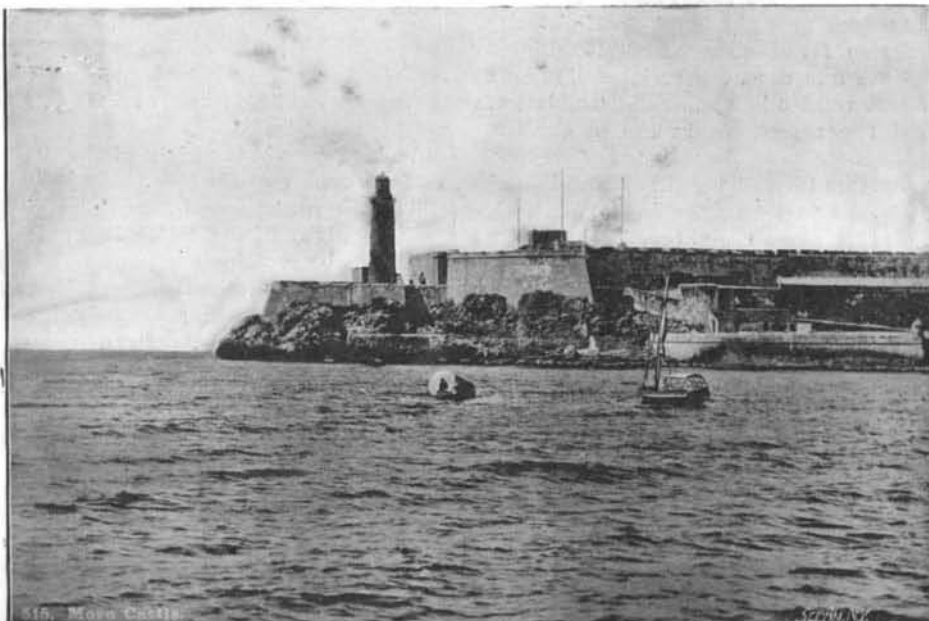


NATIVE HUTS OF THE COUNTRY POPULATION.

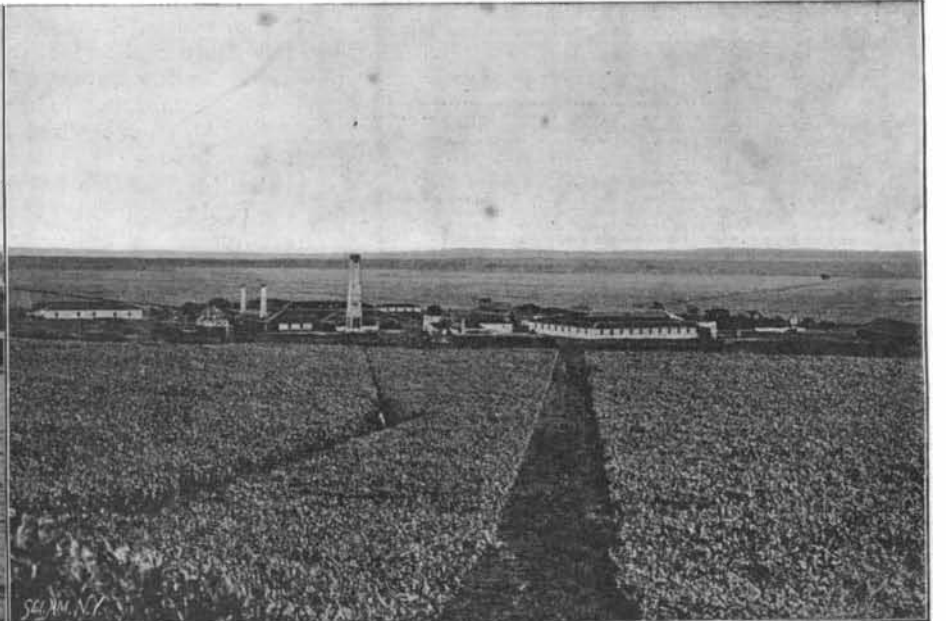
are cut through the cane and radiate in all directions, and along these the teams drag the heavily laden carretas to the mills. The Cuban does not place a heavy yoke upon the shoulders of the oxen, as we do, but uses a lighter yoke, which he lashes across the horns of each pair, so that a Cuban team pushes its load with the head. At the mill the cane is unloaded on to an endless belt, which carries it into the crushers.

The crushed cane, which is known as bagasse, is used for fuel, and the extracted juice is conveyed to large vats, where it is boiled. At a certain stage of the boiling it is transferred to pans, where it crystallizes to a brown sugar, which is then placed in long cylindrical moulds, where the molasses is allowed to run off. The sugar is now of a light yellow color, and, to further cleanse it, it is placed in centrifugal separators, where the molasses that still remains is removed, and the sugar, which is now fairly white in appearance, is ready for export. The average production is about 2,000 pounds to one acre. In former days, when the work was done by slaves, they were housed in quarters known as the barracon, which were located within the inclosure of the batey. Although in some parts of the island the laborers occupy the old slave quarters, it is now a common thing for the laborers to live in separate homes, scattered in the neighborhood of the plantations. They are very primitive dwellings, and consist of a square frame of posts, upon which is nailed a layer of boards, the interstices being plastered up with adobe clay. The roofs are thatched with palm leaf, the

(Continued on page 232.)



MORO CASTLE AT THE ENTRANCE TO HAVANA HARBOR.



A CUBAN SUGAR PLANTATION.

## THE ISLAND OF CUBA.

(Continued from first page.)

wood of this tree, which grows in great abundance, being used for the posts and frame of the house.

The celebrated Havana tobacco is grown on the western end of the island, and the choicest quality is raised a little to the west of Havana, chiefly on the banks of the San Sebastian. It is known as the "vuelta abajo" tobacco, and nearly the whole of it find its way to the royal courts of Europe, whose agents have for a long time past been in the habit of buying the whole crop many years in advance. Genuine vuelta abajo cigars will cost \$1.25 apiece.

Although there is a certain monotony about the appearance of the lowlands, with their miles of sugar plantation, there is no lack of beauty in the rolling uplands of the interior. These, as will be seen from the engraving, are picturesque and parklike in appearance, though it is impossible for an illustration to convey any impression of the luxuriance of the tropical vegetation or of its brilliant verdure. The grasses are rich, and cattle raising forms one of the staple industries of the country. Coffee is raised in considerable quantities, and the land produces annually two crops of Indian corn, which is the chief cereal of Cuba. The principal fruits are oranges, pineapples, plantains, bananas, and melons. The general agricultural industry, however, whether it takes the form of fruit or general farming, is in an undeveloped condition.

some system of direct drainage to the sea be carried out.

In many respects Cubais behind the age, and on arriving there the first evidence of this is seen in the methods of discharging freight. Although there is an ample depth of water alongside, the ships lie out at some distance from the docks, and the cargo is discharged into lighters. All this expense and delay is incurred in order that the customs duties may be gathered in full. Immediately upon landing, the visitor is impressed by the strange novelty of the city and its inhabitants. There

is a romantic air of mediævalism about the older quarters of the city; he is at times conscious of having taken a step backward in the march of civilization, and the romantic impression is deepened by

the soft, dreamy atmosphere of the tropics and the sweet odor of tropical vegetation. At the same time the more modern portion of the city is well built, and presents a dignified and harmonious appearance. The Spanish influence is everywhere apparent, and a modified classic architecture prevails. The business block on the Avenue El Prado, which we have chosen for illustration, shows the general appearance of the best streets of Havana. It will be noticed that the front of the block abuts directly on the street and that the sidewalks are

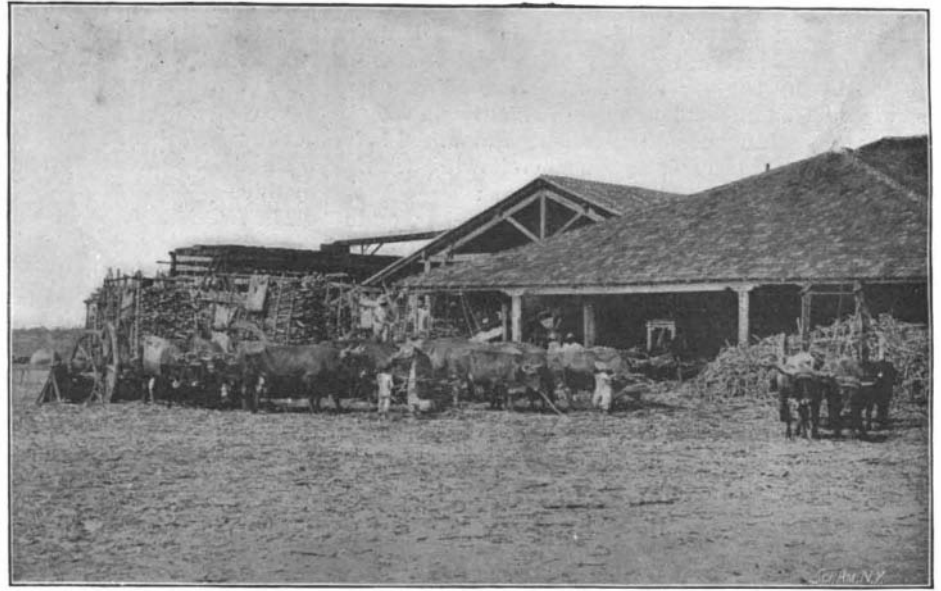
built beneath continuous arcades, which are open to the street, and have the stores located beneath their shelter. Architecturally, the effect is very pleasing, and they form a welcome protection from the

excessive heat and heavy rains of the summer season. The houses are built chiefly of stone and then plastered, this latter work being of a good finish and durable quality. The business people live over their own stores, the two upper stories being used for domestic purposes. The entrance to the better class of homes is often freely decorated with Moorish colored tiles, and stenciling is employed with good effect upon the outside walls.

In the older quarters the streets are narrow and very tortuous and the houses only one story in height. There are no sidewalks to speak of, and as the great heat necessitates the windows being kept continually open, they are protected by the prison-like iron gratings which are seen in the illustration. The interior of a Cuban home, even among the better classes, is very simple in its appointments. The excessive heat and the prevalence of insects necessitate the use of as little furniture as possible, and no hangings or draperies are to be seen.

The street scenes are novel and often ludicrous, as when, for instance, the milk seller drives the cow and calf (the latter muzzled) up to the door and milks the amount of his purchase in the presence of the customer and literally at his doorstep. The favorite luxury is "barquillo," a thin cake made of flour spiced with cinnamon. The barquillo vender goes through the streets beating a quickstep march on a musical triangle.

Havana is not as yet wrestling with a "rapid transit" problem. Travel is mainly carried on in "volantas," which are hired at the rate of 20 cents for the trip. Whether the trip be for two or three blocks or the whole length of the city, the price is the same. The city possesses a cathedral of moderate proportions, whose interior is rich in frescoes and colored marbles. In the wall of the chancel a medallion with an inscription marks the resting place of Columbus. The Tacon Theater, seating 3,000 persons, has witnessed the performance of some of the finest operas in the world, for the Cubans are lovers of music and the drama. The



UNLOADING SUGAR CANE AT THE PLANTATION MILL.



THE AVENUE EL PRADO—TYPICAL ARCADE IN THE BUSINESS PORTION OF HAVANA.

The forests of Cuba form one of its most striking natural features. They are estimated to cover fully two-thirds of the total unreclaimed land, or some 12,000,000 acres in all; and they are so dense as to be almost impenetrable. They are made up largely of hard woods, such as mahogany and the Cuban ebony, and a certain amount is cut down for export. The most valuable growth in the Cuban forests is the palm, of which the most common species, the Palma real, is found throughout the whole island, but more particularly in the western half.

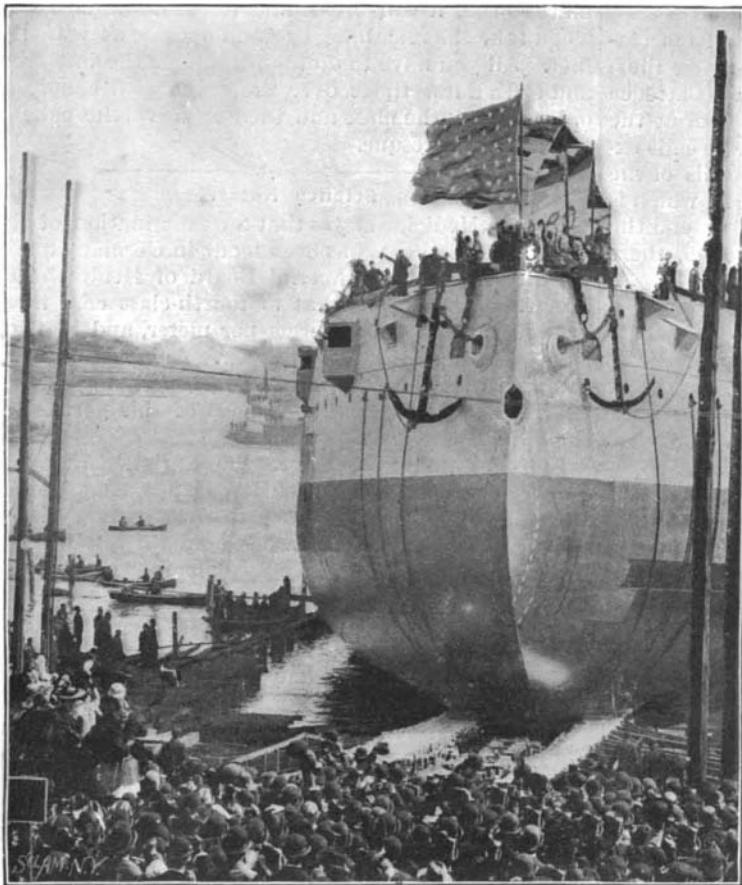
Cuba possesses the usual wet and dry seasons of the tropics, and the range of temperature is very small, varying between 87° in the summer and 72° in the winter. There is no snow, and the frosts are confined to the higher altitudes of the mountains. The best time to visit the island is from the first of November to the first of April, or during the dry season, when the climate is a delightful one. During the rest of the year, however, the season is not healthy for foreigners. The rains are positive cloud bursts, and the country roads are rendered all but impassable.

The cities of Cuba are fully as picturesque in their way as the surrounding country. By far the most important of these is Havana, which is the capital and the chief seaport of the island. It is admirably situated, both for military and commercial purposes, on the shores of a land-locked harbor, the entrance to which is narrow and tortuous and defended by two forts, known as the Moro and the Punta castles. The most celebrated of these is Moro Castle, which is situated on the northeastern side of the entrance. It is in the courtyard of this fortress that many a Cuban patriot has suffered death for his country.

The harbor is one of the finest in the world, and could float a thousand ships of the largest size. Unfortunately, it is being contaminated by the discharge into it of the whole of the sewage of Havana, and, as there is not sufficient scour of the tide to carry it out to sea, the filth is constantly accumulating. The result will certainly be disastrous to the city, unless



NARROW STREET IN THE OLD QUARTER, HAVANA.



Photographed and copyrighted, 1896, by W. H. Rau.

**LAUNCHING OF THE IOWA.**

various promenades, drives and gardens are exceedingly fine, and no visitor should miss seeing the botanical gardens and palm tree avenues of Los Molinos.

It is difficult to get an exact estimate of the population or the relative proportion of its different elements. It is broadly divided into the Insulares or native Cubans of Spanish descent, the Peninsulares or imported Spanish element, which is made up mainly of office holders, merchants and speculators, who do not and never intend to make Cuba their permanent home, and lastly the mixed races, such as the mulatto, negro and Chinese. It is roughly estimated that there are 1,000,000 residents of Spanish extraction, 500,000 colored people and 50,000 Chinese coolies.

**THE LAUNCH OF THE SEAGOING BATTLESHIP IOWA.**

On March 28, at 1:14 P. M., the seagoing battleship Iowa was launched at Cramps' yard in Philadel-

phia. The occasion was a memorable one, as it marked the most important step in the addition to the United States navy of a ship the first of her class in our navy, and a vessel destined to be one of the most formidable men-of-war afloat. Hitherto she has been officially known as "Seagoing Battleship No. 1," her number indicating the newness of her type. Our battleships up to the present day have been designed for coast service and have been designated as coast line ships. But the Iowa, while in armor and armament a battleship, is somewhat lightened and is very materially modified as referred to her predecessors, so as to be capable of prolonged sea service. She partakes of the qualities of such a ship as the cruiser New York together with those of the typical battleship.

The launch, which was a most successful one, was attended by a very large assemblage, including a party of representative statesmen from the State of Iowa and one from the national capital. Many other distin-

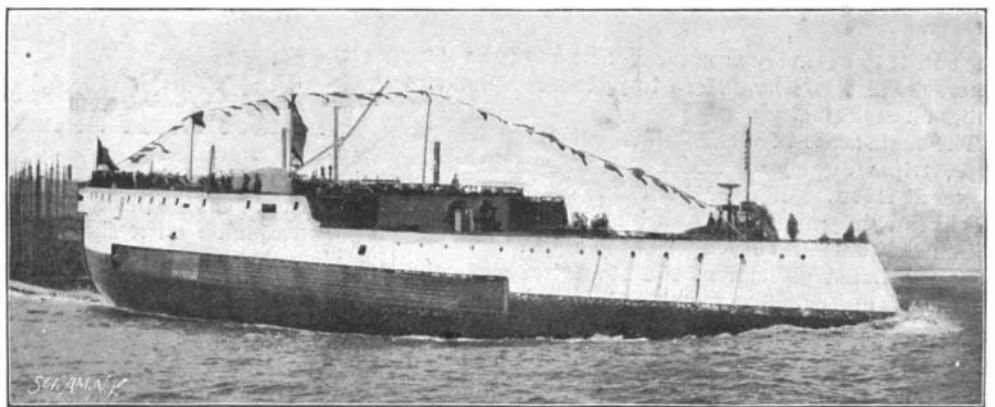
among them the lady sponsor of the ship. The other cut shows the side view of the ship as she took the plunge. The wave thrown by the stern is specially to be noticed. On the side is a long dark rectangular space. This marks the protected region of the ship. This area is to receive the heavy side armor of 14 inch nickel steel. Both views are reproductions of photographs taken under unusually favorable auspices. In her descent down the ways the ship is calculated to have made almost exactly her contract speed of 16 miles per hour.

The following are the principal dimensions of the Iowa :

Length on load water line.....	360 feet.
Extreme breadth.....	72 " 2½ inches.
Moulded depth.....	39 " 4½ "
Mean draught.....	24 "
Displacement.....	11,296 tons.
Indicated horse power.....	11,000
Coal bunker capacity.....	2,000 tons.
Speed in knots guaranteed.....	16

For each quarter knot in excess of the above speed, as shown in a four hour sea trial, a bonus of \$50,000 will be paid.

The ship was built under the provisions of the naval appropriation bill of July 19, 1892, her limit of cost being placed at \$4,000,000. The contract price was \$3,010,000. She is of design furnished by the Bureau of Construction of the United States Navy Department,



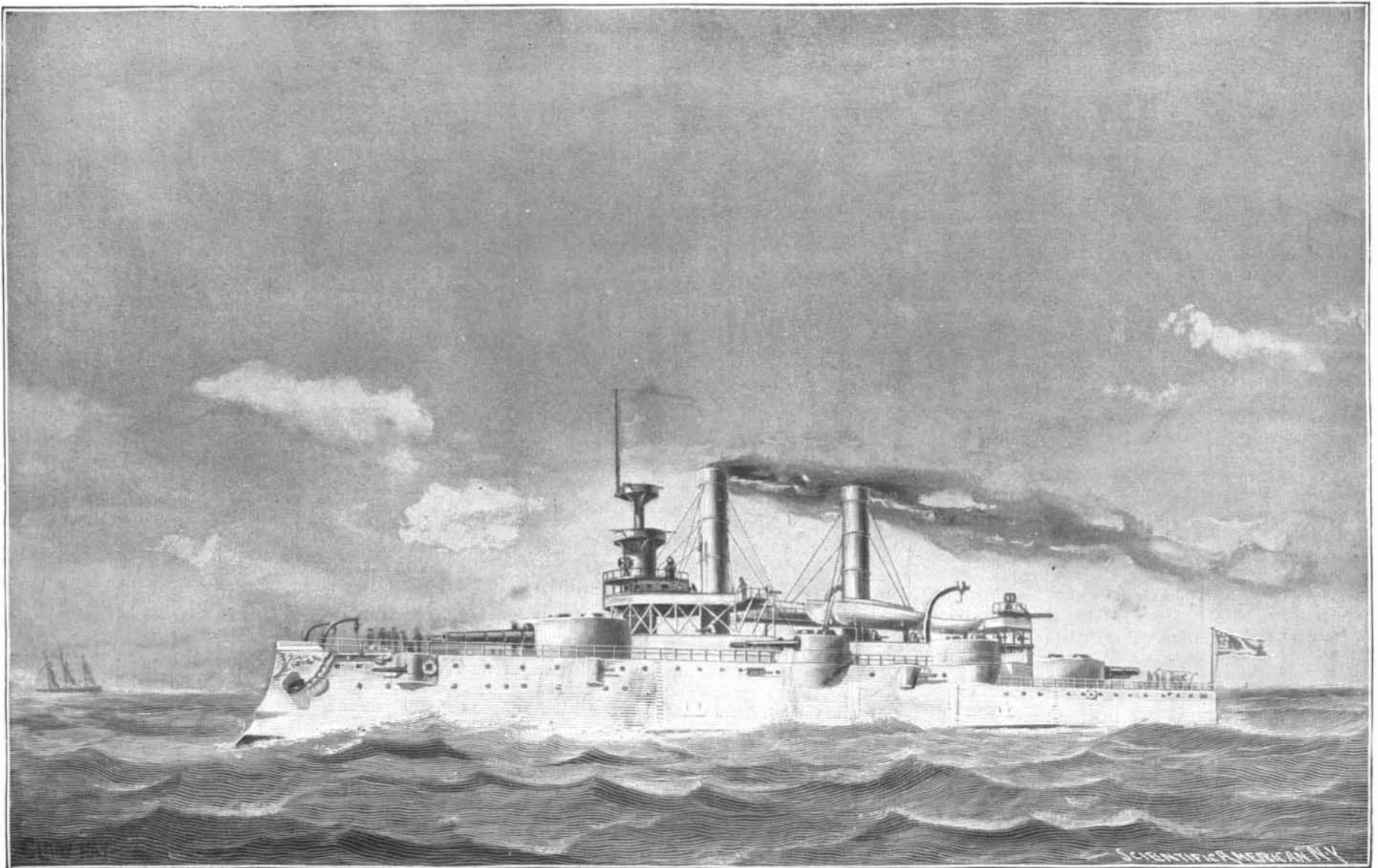
Photographed and copyrighted, 1896, by W. H. Rau.

**THE IOWA LAUNCHED MARCH 28, 1896.**

guished guests were present. At the bow was erected the launching platform, which was occupied by the Secretary of the Navy, the Governor of the State of Iowa, and others. Miss Mary Lord Drake, daughter of the Governor, was appointed to break the traditional bottle of champagne upon the bows of the ship as she started, and to name her Iowa. All went smoothly. Our cuts show two views of the launch. In one the bow of the great ship is toward the spectator and her stern is just taking the water. To the left of the view is seen the party on the platform,

and has exceeded her required dimensions by some 2,000 tons, while the bid for her construction came nearly \$1,000,000 under the legal maximum of cost.

The water line is protected for 196 feet of its length amidships by a belt of armor 7 feet 6 inches wide. This belt has a maximum thickness of 14 inches, on 12 inches wood backing. Belts of armor 12 inches thick run across the ship, connecting the ends of the side



**THE SEAGOING BATTLESHIP IOWA.**