

#### THE U. S. WARSHIP CHARLESTON PURSUES A CHILEAN REBEL SHIP.

The policy of the United States is to remain strictly neutral with relation to the affairs and quarrels of other nations. But the civil war now going on in Chile has given rise to an incident which renders necessary an indirect interference with one of the belligerents. We allude to the affair of the Itata, one of the vessels of the rebel party of Chile. This armed ship came into the harbor of San Diego, Cal., and, in defiance of law, took on board supplies and munitions of war. She was immediately seized by the authorities and taken possession of by the United States marshal. Unfortunately, our government had no vessel of war present and no adequate means of forcibly asserting its authority. So the Itata raised anchor and steamed off, carrying with her the representative of the government. This was on May 6.

The President immediately ordered the recapture of the Itata. The war-ship Charleston was promptly dispatched from San Francisco in pursuit; it is understood her commander has orders to take or sink the vessel wherever found, outside the jurisdiction of a friendly nation. It is quite possible the rebels may resist the capture, and bring on a battle between some of their own ships and those of the United States. News of the result of the Charleston's mission is soon expected. At last accounts she had reached Callao, in Peru, on her way to Chile.

The Itata is an iron screw propeller of 2,200 tons and was built in England in 1873. She has compound engines, but is said to be incapable of steaming more than nine or ten knots an hour. We are indebted to the *Illustrated American* for our picture of the vessel.

The United States cruiser Charleston, which was sent in pursuit of the Itata, was built by the Union Iron Works of San Francisco. She is 300 feet long, of 45 feet beam, with a mean draught of 18½ feet, and has a displacement of 3,730 tons. Her contract called for 7,000 horse power from her compound engines, driving twin screws, but the average reached on her trial was only 6,666, although her speed was greater than had been expected, exceeding 18 knots an hour for four hours, and reaching as high as 19 knots.

The battery of the Charleston consists of two 8 inch and six 6 inch breech-loading rifles, with a secondary battery of rapid-fire guns, besides two revolving cannon on each mast, short Gatlings. The 8 inch gun propels a 250 pound projectile with a 125 pound charge of powder, while a 10 inch gun of the same pattern propels a 500 pound projectile with 250 pounds of powder.

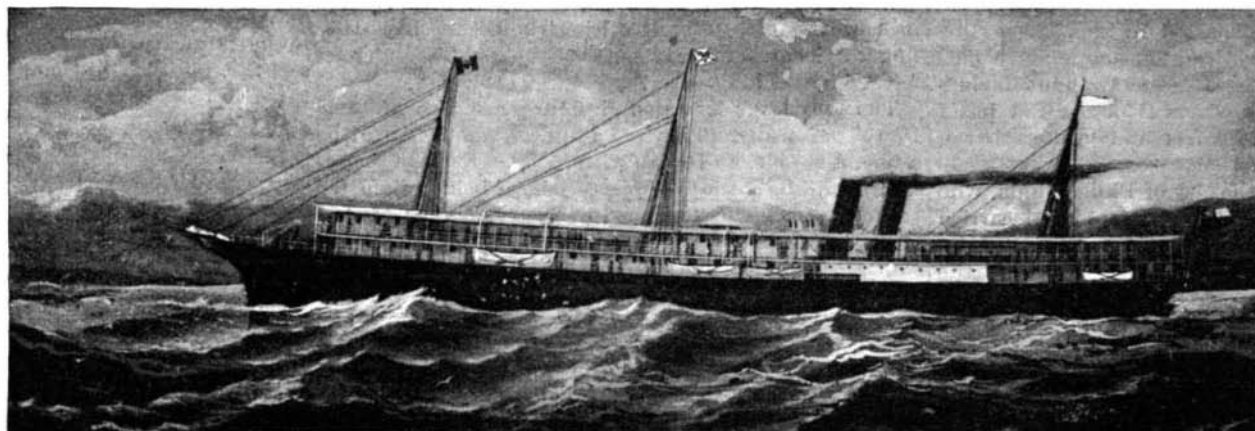
#### The Cause of Influenza.

The annual meeting of the Michigan State Board of Health was held at the capitol, April 14, 1891. Professor Fall, Drs. Avery, Hazlewood, Vaughan, and Baker were present. Dr. Avery was re-elected

president. Dr. Baker reported that he had worked out the cause of influenza. He said its greatly increased prevalence during the last three months is alarming, because so many other diseases follow that disease, and increase after it increases, the diseases which so increase being consumption, pneumonia, cerebro-spinal meningitis, rheumatism, osteomyelitis, etc., influenza seeming to bring in its train all of these most important diseases. Dr. Baker explained the causation of influenza. He stated that the germs of influenza are generally at all times present, and the germs of pneu-

monia, tuberculosis, and of the other specific diseases are somewhat widely disseminated; but that there must be certain coincident meteorological conditions to irritate the throat and air passages sufficiently to let the germs gain an entrance to the body. These meteorological conditions in this instance were the excessive prevalence of north and northeast winds, and the excessive amount of ozone during the past three months.

The prevention of influenza, and of the coincident rise in the other more dangerous diseases, has not been possible, because of ignorance of the causes. Now the



THE CHILEAN INSURGENT TRANSPORT STEAMER ITATA.

causes are known, and the study of the measures for the prevention can begin.—*Therapeutic Gazette*.

#### Electricity in Ships of War.

The extent to which electricity is employed in modern warships may be gathered from the following particulars of the electrical outfits of eight vessels recently built and armed by Messrs. Sir W. G. Armstrong, Mitchell & Co., Limited, at their Elswick shipyard. In each of the three 2,675 ton, 19.5 knot, colonial cruisers, Katoomba, Mildura, and Wallaroo, the electric light installation comprises 267 lamps of 16 C. P. and 37 of 50 C. P.; 262 small and 24 main switches; 240 small and 24 main cut-out fuses. Each vessel is fitted with two yardarm reflectors, containing 8 lamps of 50 C. P., and two semaphore signaling arrangements, consisting of a box fitted with a mirror reflector which throws the light from four 16 C. P. lamps on two movable arms of a semaphore. All the instruments, such as compasses,

Q. F. guns are also fitted with two alternative methods of electrical firing. In four smaller, 739 ton, 21 knot, colonial warships, also recently completed by Messrs. Armstrong, viz., the Boomerang, Karakatta, Plassy, and Assaye, internal electric lighting has not been considered necessary, but each has been fitted with a "Tower" engine and a "Siemens" dynamo, giving 100 amperes and 80 volts, one search light projector, one yardarm reflector with eight 50 C. P. lamps and semaphore reflector, etc. Each has, moreover, five torpedo tubes, fired electrically from the conning tower, and two 4.7 inch quick-firing guns also fired by electricity.

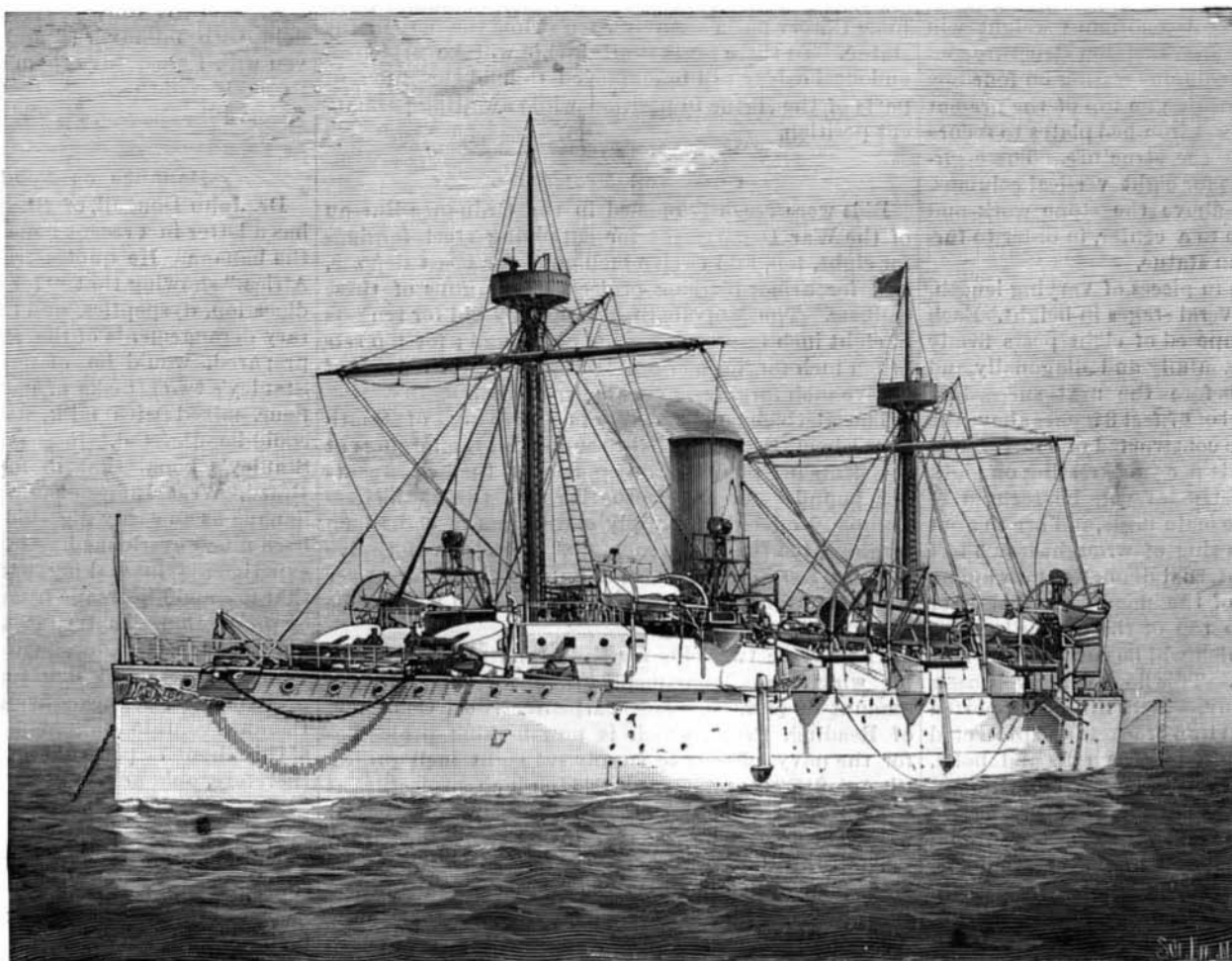
In another recently completed cruiser of Elswick build, the 25 De Mayo—a vessel of 3,200 tons displacement, 13,500 I. H. P., and 22.47 knots speed—the electrical outfit consists of three steam turbine dynamos, manufactured by Messrs. C. A. Parsons & Co., each capable of giving 200 amperes of current at 80 volts, 190 lamps of 16 C. P., 12 lamps of 50 C. P., and two yardarm reflectors; three search light projectors, one of

which is in the military top. The three torpedo tubes, two 21 cm. guns, and eight 4.7 inch quick-firing guns, are all fired electrically, while the sights are illuminated by minute incandescent lamps for night service. All these vessels are wired on the double wire system, with lead-cased cables, on the plan originally introduced at Elswick, and the whole of the work has been carried out by Messrs. Sir W. G. Armstrong, Mitchell & Company's electrical staff, under the able superintendence of Mr. L. Newitt, with Mr. A. A. Campbell Swinton as electrical adviser.—*Electrical Review*.

#### Age of the Glacial Period.

In discussing the cause of the glacial period, Mr. Warren Upham discards the astronomic theory, since it seems wholly untenable in view of the geologic evidences that not many thousands of years have passed since the departure of the ice sheets. The measurements of the gorge and falls of St. Anthony, the surveys of Niagara Falls, the rates of wave cutting along the sides of Lake Michigan, the rates of filling of kettle holes, and the rate of deposition in the Connecticut valley at Northampton, Mass., all indicate that the time since the glacial period cannot exceed 10,000 years. Mr. Upham cites evidence in proof of the theory that the cause of the glacial period was great uplifts of the glaciated areas, probably in conjunction with important changes in the course and volume of the warm ocean currents.—*Am. Geol.*

ACCORDING to Census Bulletin No. 68, relating to manganese, prepared by Mr. Jos. D. Weeks, the production of manganese of the entire United States to be 23,927 long tons, with a total value of \$238,939. This product is principally from the localities of Crimora (Virginia), Cartersville (Georgia), and Batesville (Arkansas), these districts having yielded



THE U. S. CRUISER CHARLESTON.

engine room telegraphs, steering wheels, electrical indicators, etc., are specially lighted. Each vessel has three search light projectors—two of which are movable—and a generating plant consisting of two combined sets of "Willans" engines and "Siemens" dynamos, running at 415 revolutions per minute, and giving 300 amperes and 80 volts.

With reference to the armament, the four torpedo tubes in each ship are fired electrically from a distance—a duplicate system of wiring being provided in case one wire should be damaged—and the eight 4.7 inch

20,325 long tons. The ores are treated under three general classes, namely, manganese ores, mangiferous iron ores, and argentiferous manganese ores, and valuable information and statistics concerning each class are given.

MOULDS for casting iron can only be made in sand. Iron or other metallic moulds chill the iron, and it does not fill well. The great heat at which iron melts will burn any other material, or will stick so as to break the mould.