THE NEW U. S. S. DETROIT.

This cruiser is the latest addition to the navy, and is an exponent of the class of so-called protected cruisers, which rely solely upon coal and a very minute subdivision of the compartments in the region of and below the load line for protection against serious injury. This is further secured by cofferdams worked in the vicinity of the machinery spaces to prevent the water, in case of injury, from finding its way to the larger compartments in the center of the vessel.

All the machinery, dynamos, and magazines are placed beneath a watertight deck of thin plating, which at its outboard ends is some three feet beneath the water line, but rises considerably above it in the central portions. The object of this deck is, not to afford resistance to a shot from an enemy, but to allow the side of vessel to be pierced near the load line, or even below it, without flooding the compartments containing the boilers, engines, and magazines. The dimensions are as follows:

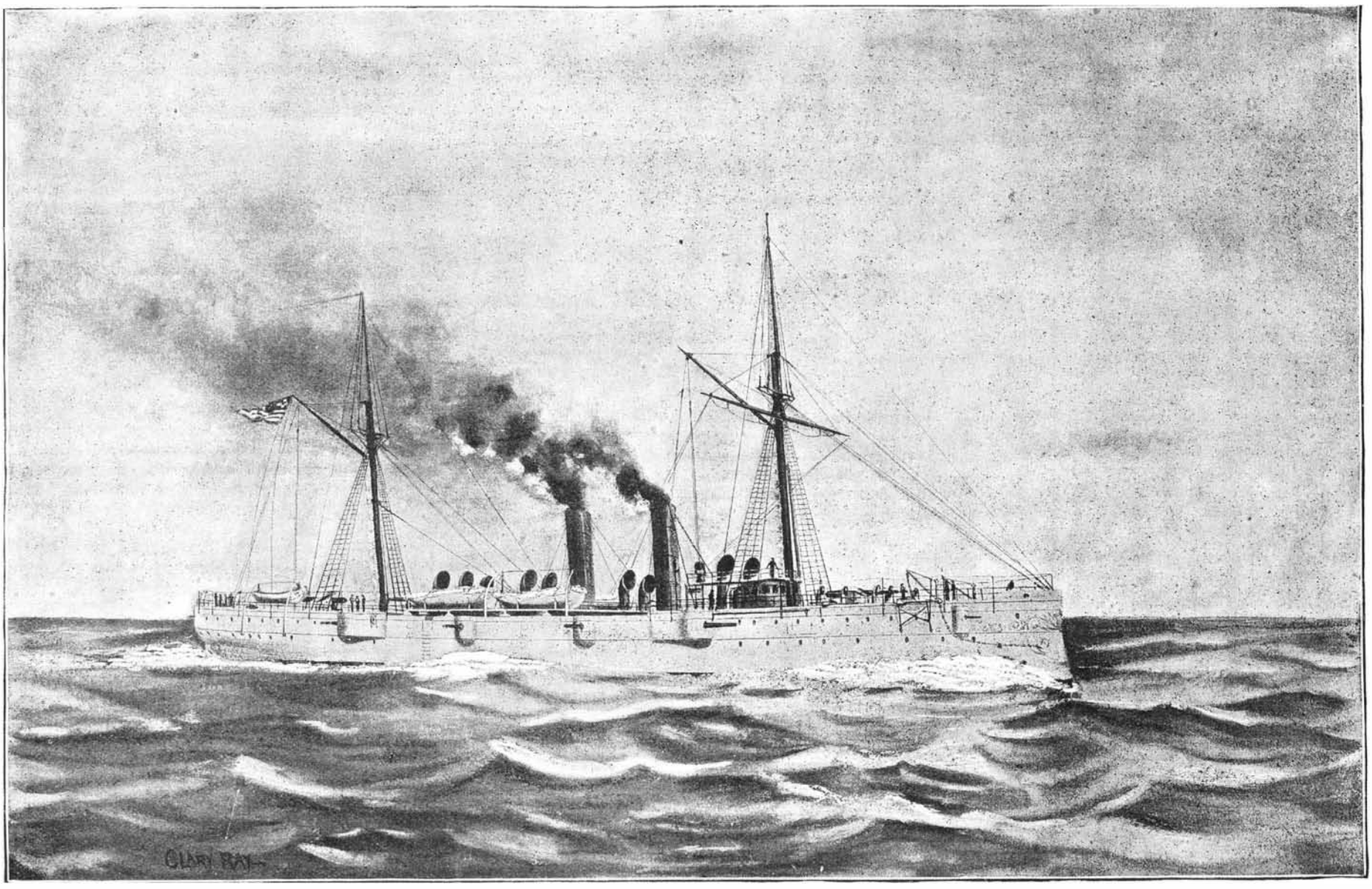
Length on load line	257	feet.
Beam, extreme	37	"
Draught, mean	14½	"
Displacement	2,050	tons.

The battery carried is eight 5 inch R. F., two 6 inch breech-loading rifles, six 6 pounder Hotchkiss guns, two 1 pounder, two Gatlings, and five tubes for launching automobile torpedoes. The 6 inch guns are mounted in the open on the poop and forecastle deck, and protected by flying shields of light armor. The 5 inch guns are mounted in an open waist, and beneath the poop and forecastle, as shown in accompanying picture, the machine guns are so disposed as to command all points of approach to the vessel. The machinery was designed to develop 5,400 I. H. P., and the estimated speed with this power was 18 knots per hour; but under the stimulus of a bonus of $25,000 offered by the government for each quarter of a knot in excess of the speed contracted for, the builders succeeded in making a speed of 18·7 knots with a developed power of 6,000 horses, thus netting them the handsome bonus of $150,000.

The Montgomery is a sister ship, and the builders have great hopes on her trial of exceeeding the performance of the Detroit. This class of vessels is among the most useful we possess in times of peace, on account of the small cost of keeping them in a high state of efficiency, and that, owing to their light draught, they are able to enter all ports of any importance, representing our country and protecting its commercial interests.

As naval vessels are necessarily the homes of the officers and men for cruises of at least three years, the matter of comfort in the accommodations and improvements that tend to make the vessel more habitable and healthful are of more importance that at first view we, who at most are accustomed to trips across the ocean, are disposed to give them; therefore, in the Detroit, we find the quarters commodious, heated by steam, ventilated by huge fans near the center of the vessel, which draw the heated and vitiated air from the living spaces and discharge it overboard, allowing fresh and pure air to find its way in through the hatches and air ports. The vessel is also lighted in all parts by incandescent electric lights, and provided with powerful steam pumps which can in a necessity, at a moment's notice, draw water from any portion that may be injured.

The contract was made with the Columbian Iron Works and Dry Dock Company, of Baltimore, Md., for the building of the hull and machinery at a cost of $612,500. The vessel is now in commission, under the command of Captain Brownson.



THE NEW PROTECTED CRUISER DETROIT.

Chloride Accumulator Plates.

The plates of the Electrical Storage Battery Company, of Philadelphia, are made, so says *Electricity*, as follows:

The chloride accumulator plates are manufactured in the following manner: Chloride of lead and chloride of zinc mixed in the proper proportions are cast into rectangular tablets, which may then be subjected to such treatment as will withdraw the chloride of zinc and at the same time decompose the chloride of lead, and thus convert the tablets into plates suitable for use in storage batteries without any further mechanical treatment.

It is customary, however, to first incase the tablets in a frame of metal, which serves to hold them rigidly and protect them from injury in handling. This is accomplished by placing the tablets of chloride of lead and chloride of zinc in a suitable mould and pouring in a melted alloy of lead and antimony, which flows around the tablets, forming a frame in which they are firmly and permanently fixed.

The above constructed plates of chloride of lead and chloride of zinc are not capable of use in a storage battery. They are not capable of serving as oxygen plates, as they will not absorb oxygen.

They are not capable of use as hydrogen plates, as not only would their immersion in the dilute sulphuric acid of a storage battery cell result in contaminating the fluid with chloride of zinc, which would be fatal to its proper action as a storage battery fluid, but the effect of hydrogen liberated would, if any action took place, be to form hydrochloric acid with the chlorine of the chloride of lead, which hydrochloric acid would further contaminate the fluid and make it inoperative as a storage battery fluid; moreover, these tablets are non-conductors of electricity.

It is evident, therefore, that the plate of tablets consisting of chloride of lead and chloride of zinc is worthless in its present condition as a storage battery plate, and cannot be used as such. Its chemical composition must first be radically changed in order to fit it for service in a storage battery either as an oxygen or as a hydrogen plate. This chemical change is brought about by means of a bath of chloride of zinc or some equivalent substance in which the plate of tablets is to be immersed in connection with a slab of metallic zinc. This arrangement is in fact a primary battery in which the zinc acts as the positive element, while the tablets constitute the negative element.

The chemical action in this combination results in withdrawing the chloride of zinc from the tablets by simple solution in the bath, and the withdrawal of the chlorine of the chloride of lead from the tablets and the fixing it in combination with the zinc with the formation of chloride of zinc.

The chloride tablets in the plates are not in any sense active material, nor are they material capable of becoming active in a secondary battery fluid.

They only constitute material which may be subsequently rendered active by the electrical disintegration which is brought about when they are connected with the zinc plates in the bath of chloride of zinc. When the process of electrical disintegration is complete and we have washed all the chloride of zinc out of the plate, we have a mass of metallic lead which is suitable for immediate use in a storage battery without the tedious forming process of Plante, and without the application of any active material or material about to become active by the processes of Brush or Faure.

Phytoline for Obesity.

An excessive amount of fat, says Dr. I. N. Love, M.D., of St. Louis, is not only unsightly, but is unhealthy; in fact, as an evidence favoring the thought that fat is a low grade tissue, we speak of other tissues degenerating into fat. Certainly, the tendency toward the accumulation of an extra, unnecessary amount of fat favors a dangerous fatty degeneration of the heart and the tissues forming other important organs. The proper selection of diet, with exercise, can do much toward the diminishment of fat; but the profession and the laity have long looked for some remedy which could be depended upon to assist toward the consummation devoutly to be wished. In phytoline we have such a remedy. It is prepared from the active principle of the berries of the Phytolacca decandra after having been touched by the early frost.