

THE SUBMARINE VESSEL "LA FRANCE."

Trials have just been made at Cherbourg of a new submarine workshop christened "La France" and constructed after plans by M. Piatti. This apparatus, after being put in order and ballasted, was floated out of the dry dock in which our engraving represents it, and was towed outside of the roadstead by the "Ville de Cherbourg," which had on board several representatives of the Benjel Company. The trials were perfectly successful. The boat descended three times to a depth of a hundred feet, and each time remained submerged for at least an hour. On the first occasion, M. Piatti had a blacksmith as his companion. Some of the representatives of the company afterward descended and found that the apparatus operated perfectly and offered every security. The "La France" was afterward towed to the wreck of the "Compeador," a steamer that lies sunk at a depth of from 160 to 200 feet.

For the above particulars and the engraving, we are indebted to L'Illustration.

Submarine Photographs.

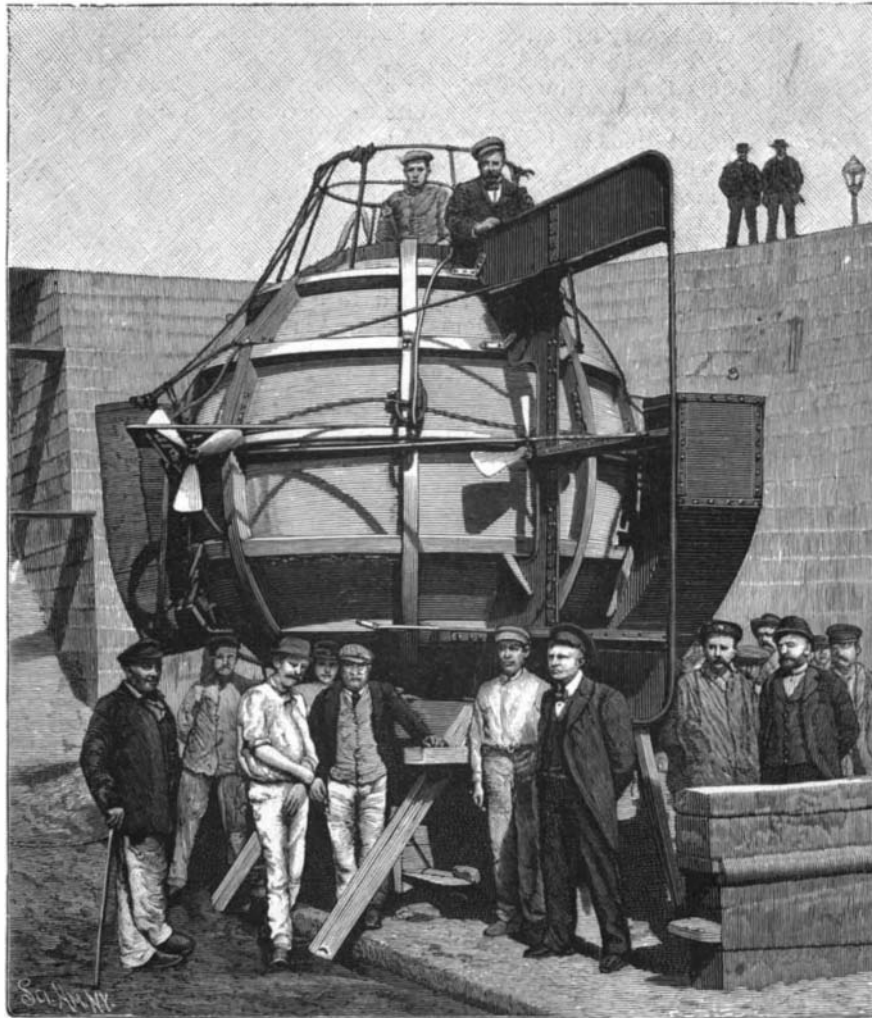
At a recent meeting of the Academy of Sciences, M. Louis Boutan, who is connected with the Arago laboratory at Banyuls on the seacoast, presented a series of instantaneous submarine photographs, taken with a camera 18 x 24 centimeters, having an anastigmatic objective and arranged to be operated under water. These plates have been obtained on a clear day when the sun was high in the horizon, and the results are very good; in several plates are clearly perceived bands of fish which have been taken at a distance of 150 to 2 meters from the objective, the camera being immersed to a depth of 3 meters. In order to form a background, a white screen was let down, before which bait was thrown in order to attract the fish into the field of the camera. This, however, is not indispensable, as on certain of the plates the fish are easily distinguished against the sandy bottom, and a diver placed against a background of seaweed, at a depth of 3 meters and a distance of 4 meters from the camera, gave a very good image. M. Boutan estimates that it is possible to take good instantaneous plates at a depth of 7 to 8 meters when the weather is favorable.

THREE-POUNDER SEMI-AUTOMATIC GUN.

The gun shown in the accompanying illustration forms part of the miscellaneous assortment of war material which was purchased in England in the early part of last year, when hostilities were threatening. It will be remembered that a government agent was dispatched in haste to buy up everything in sight in the way of ships, guns, and ammunition that would be suitable for our necessities, and it will also be remembered that the amount of purchasable material was surprisingly small. It had been popularly supposed that with the great financial resources possessed by this country we should be able at the approach of war to greatly strengthen our naval and military equipment at short notice. Our late experience has dispelled this illusion; for we found that other nations were very loth to part with ships and guns which, in the unsettled and threatening state of affairs, might be sorely needed by themselves. We were only able to purchase one completed modern cruiser, the "New Orleans," an out-of-date gunboat, the "Topeka," and a few rapid-fire rifles and machine guns of various patterns and sizes.

The semi-automatic gun, herewith illustrated, is one of four which were secured from the Maxim-Vickers Company. It is a gun which in the rapidity of its fire comes midway between the ordinary rapid-fire type of gun, of which the 6-pounder that did such good work in the late war is the most familiar to the American people, and the fully automatic gun, as represented by the Maxim 1-pounder, one hundred of which have just been finished for our navy at the Washington

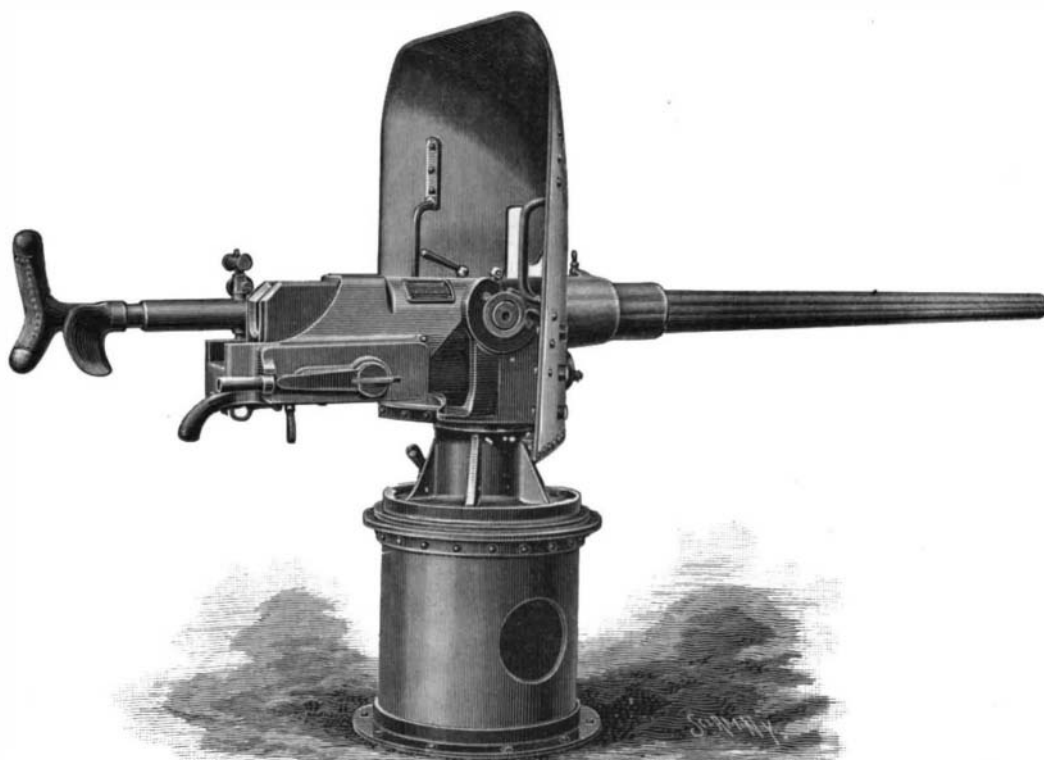
gun-shops. In the simple rapid-fire gun the three operations of opening the breech, inserting the cartridge, and closing the breech are done by hand. In the semi-automatic gun the opening and closing of the breech is done automatically, the only manual operation being the insertion of the cartridge, while in the



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fully automatic type the opening of the breech, insertion of the cartridge, extraction of the cartridge, and closing of the breech are carried on automatically and continuously by the gun itself as long as there is a feed of cartridges in the belt or hopper.

In the semi-automatic gun the first opening of the breech is done by hand, by pressing down the lever which is attached at the right hand side of the breech. When the gun is fired a portion of the powder gases enters a small cylinder, and, acting on a piston, serves to throw down the breech-block and eject the empty cartridge case. The act of pushing in a fresh cartridge disengages the breech-block, which is at once closed by a spring. The gain in time occurs through the substitution of automatic for manual closing and opening



THREE-POUNDER SEMI-AUTOMATIC MAXIM GUN.

of the breech. It is not likely that this type of gun will be introduced on our battleships, for it is considered that the increased complication of the breech mechanism and the greater risk of disablement more than offset the greater rapidity of fire. Moreover, the gain in rapidity is not so great as might be sup-

posed, for the speed of fire is determined by the rapidity with which the gun can be sighted, and as the loading in the case of the simple rapid-firer, has to wait on the sighting, it is not clear that any advantage is gained by the semi-automatic principle except in special emergency.

It has been suggested that, in view of the greater carrying power of the 3-pounder, it would be a better weapon to mount in the tops of our warships, and in this connection it is pointed out that very few hits were scored by the 1-pounders in the battle of Santiago. As a matter of fact, however, the 3-pounder, which weighs 1,440 pounds complete, and its saddle and stand, is too heavy and too cumbersome a weapon for the tops. It has also been suggested that, on account of its high velocity, rapidity of fire, and carrying power, the 3-pounder should replace the 6-pounders on the superstructure and bridges. This is not desirable, and indeed would be a step backward, for the tendency to-day is to greatly increase the weight of the secondary armament. In the British and Russian navies the 6-pounder has given place to the 12-pounder 3-inch gun, and it is probable that if a change is made on our ships it will be from 6-pounders to 12-pounders. The 12-pounder is a very formidable weapon at any of the ranges at which a naval fight is likely to take place.

The "Kaaba" and the Holy Carpet.

The "holy carpet," which has just been captured by the Bedouins while on its way from Cairo to the great mosque at Mecca, is really a covering for the "Kaaba," or "House of the Sacred Black Stone," that stands in the courtyard of the mosque. The "Kaaba," which is Arabic for cube house, is an oblong, massive structure built of fine gray granite, with a flat roof, and has the appearance of a perfect cube; hence its name. The only door is on the north side; it is about seven feet from the ground and is coated with silver. The Moslems believe that the original Kaaba was built in heaven two thousand years before the creation of the world, and that at the command of the Almighty, angels walked around it in adoration. Furthermore, they said that Adam built the first Kaaba on earth, on its present site, directly under the one in heaven. His sons repaired it, and Abraham rebuilt it after the Deluge. He needed a stone to fix in the corner, so he sent Ishmael out for one. The lad met the Angel Gabriel, who gave him the famous "black stone," which Moslems believe was once white but has become black on account of human sins. Long before the time of Mahomet, the Kaaba was a place of worship for the idolatrous Arabs, and in it they had no less than three hundred and sixty idols, one for each day of the Arabian year. The Arabs are naturally a most superstitious race, and when Mahomet found, after destroying the idols, that the custom of worshiping and making pilgrimages was not likely to cease, like a wise man he grafted its worship on to his own "ism," and now the pious Mussulmans still continue to make pilgrimages from all parts of the world to the shrine of the old Arabs. The "holy carpet" is the covering of the Kaaba and is renewed annually, and is made at the expense of the Egyptian government, and is forwarded to them with great ceremonies. This year, while being sent from Cairo to the great mosque at Mecca, it was captured by the Bedouins, who are holding it for a ransom of \$3,000. It is made of eight pieces and the material is of coarse, black damask.

THE Dominion government telegraph line is now completed to Five Fingers, and is progressing so rapidly that it is believed that messages can be sent over the line to Dawson City by the middle of September. It is thought that a cable will be laid from Vancouver, B. C., to Skagway, Alaska, to connect with the new telegraph line. London capitalists desire the cable in order that the mining market may be in telegraphic communication with the gold fields.