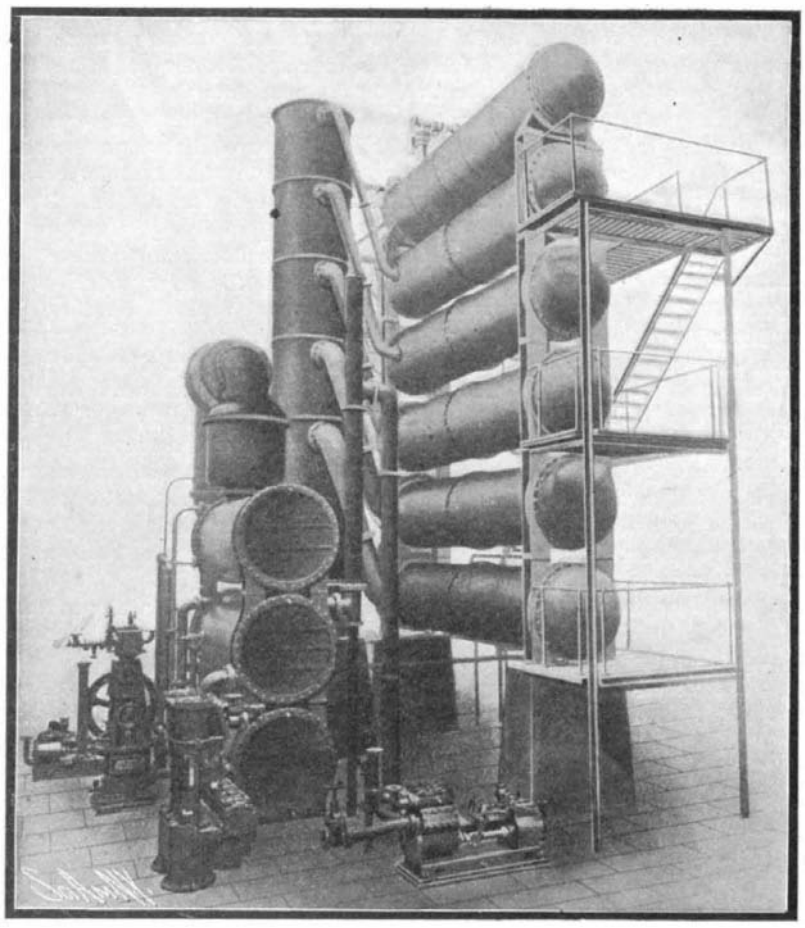
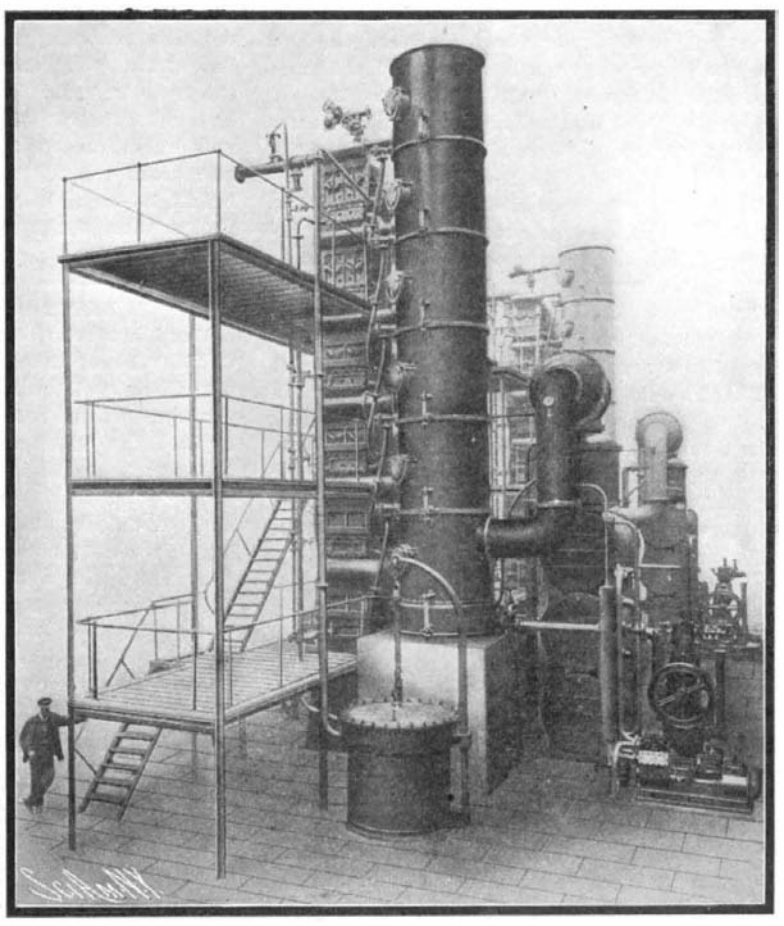
THE DISTILLATION OF SEA WATER AT SUAKIM.

BY OUR BELGIAN CORRESPONDENT.

The Egyptian government has recently installed at Suakim, on the shore of the Red Sea, two very large plants, one for the distillation of sea water and the other for the distribution of fresh water, not only for individual consumption, but also for the supplying of locomotives and steam generators. The plants were installed by the Mirrlees Watson Company, of Glasgow, which had already done work of the same character at Kossier, Camaran, Mombassa, and elsewhere. Each of the two installations is designed for the daily furnishing of 350 tons of pure water. Each pound of coal burned should produce 45 pounds of pure water.





TWO VIEWS OF A SEXTUPLE SEA-WATER DISTILLING APPARATUS USED AT SUAKIM.

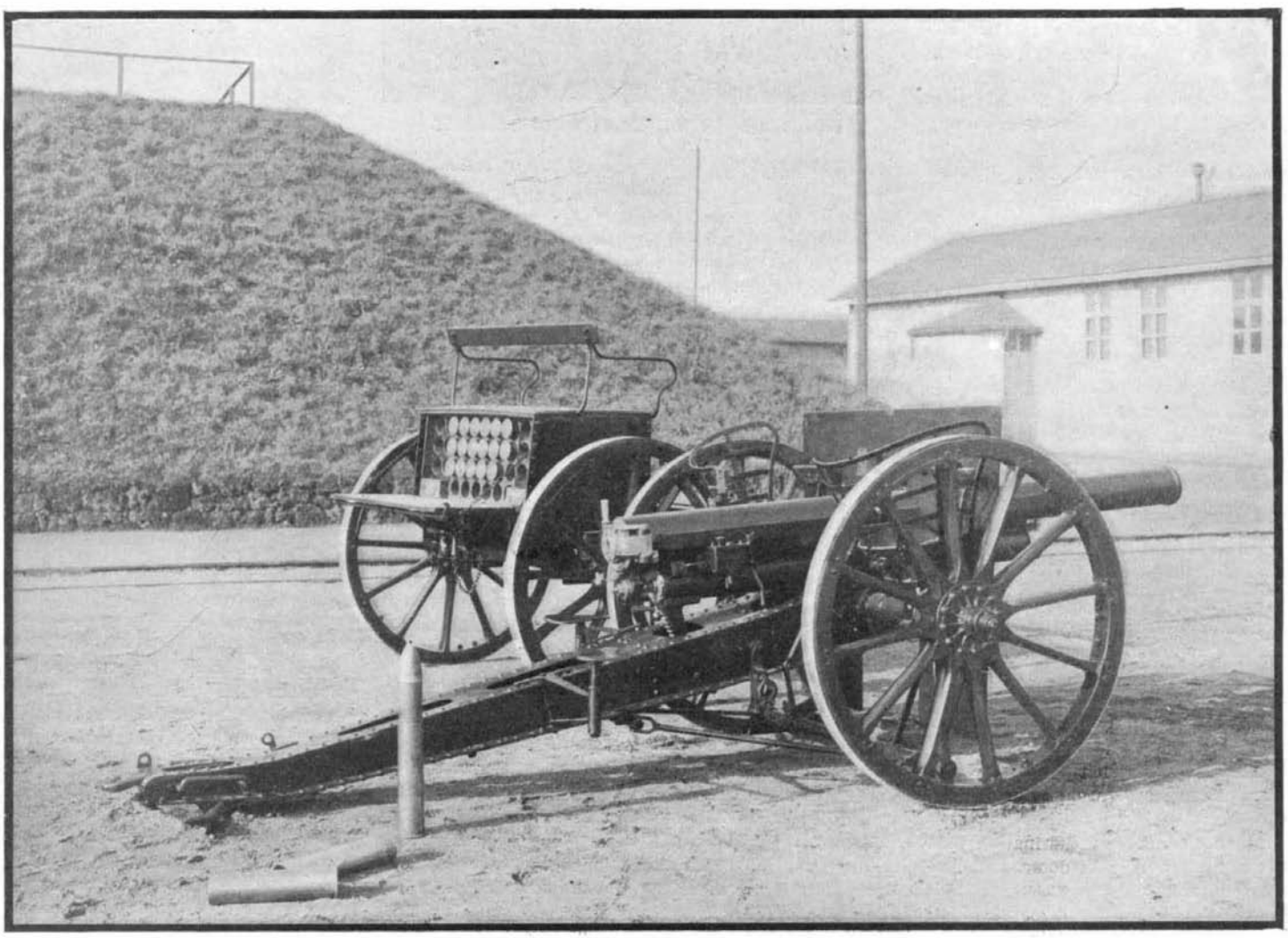
The distilling apparatus are of the well-known Yaryan multiple evaporation type. There are two sextuple-acting distillers, besides auxiliary and air pumps, surface condensers, and feed-water heaters. Each apparatus is warranted to give a daily discharge of 350 tons of potable water. The steam produced in the first part of the apparatus serves for partially heating the second, and so on. The pressures are 40 pounds to the square inch in the first reservoir and 27 inches of vacuum in the last. Each apparatus is provided with an independent battery of boilers, a mechanical salt water filter, and a series of filters for aerating the distilled water before it is sent to the storage tanks.

The salt water is drawn from the sea by the circulation pump. During its passage through the tubes of the condenser, it is slightly heated and is then sent to a reservoir, whence it is forced into the first and second heaters. In the first it is heated by the steam coming from the sixth, and flowing to the condenser. In the second it is heated by the hot distilled water of the sixth, which also goes to the condenser. The feed water then passes into a heating coil arranged upon the bottom of the last part of the apparatus, and afterward ascends through analogous coils into the successive receptacles, becoming gradually heated until it reaches the last, where it is exposed to the heat given off by the steam of the boilers. It passes thence into a special apparatus called a "lime catcher," which is heated directly by a coil coming from the boilers. All the impurities that have not been eliminated by cold filtration, deposit in the "lime catcher" upon a carbon filter. The water is now at its point of ebullition, and in this state it passes through the evaporating coils of the first-acting part of the apparatus.

The hot water and the steam then enter the separator. The steam that is produced therein goes to the jacket of the second-acting part of the apparatus, where it is employed anew for evaporating the water taken from the first separator. The same thing occurs with the following acting-parts of the apparatus up to the sixth. What then remains—about 25 per cent of the original volume—is removed by special pump. A large number of cocks and valves permit of regulating the flow of the feed water into the various receptacles, so as to make the system as automatic as possible. A scaffolding is so arranged as to allow of easy access to all the parts and permit of the cleaning of the tubes of the receptacles. These latter are 3 feet in diameter and are provided with bronze tubes 3 inches in external diameter, and 17½ feet in length. The distillation, it seems, may be employed conjointly with machines for the production of pure ice.

THE RUSSIAN ARMY AND ITS GUNS.

Every year about 850,000 Russian youths reach the age of twenty-one, when they are liable to service either in the Czar's army or his navy. For twenty-two years thereafter they are either under military or naval training, or are subject to a call to arms. The government, however, is quite lenient, and for one reason or another a large number of men are exempted from service. No clergymen, doctors, or teachers need serve. About 220,000 men are annually taken into the navy or the active army, while the remainder form a vast reserve. The term of service varies in different parts of the empire. In European Russia the period of active service is five years; in Caucasia, three years; and in Asia, seven years. The reserve is formed of two divisions, the first being composed mainly of those who have received



THE SCHNEIDER-CANET 3-INCH, RAPID-FIRE FIELD GUN, UPON WHICH THE LATEST RUSSIAN FIELD GUN IS MODELED.