

or 40 cells in all. As the liquid passes through the troughs it is subjected to the action of a regulated current of 15 to 17 amperes at 230 to 250 volts, being 5.7 to 6.2 volts per cell. The balance sheet shows that 17,000 gallons of fluid have been manufactured of a strength between 4.0 and 4.5 grammes of available chlorine per litre—1,000. There have been required 2,543 units of electrical energy at $1\frac{1}{2}$ d. per unit.; 4 tons of salt at 25 shillings per ton; two tons of chloride of magnesium at £3 17s. 6d. per ton; caustic soda, costing £4 os. 8d.; together with water costing £2 15s. 8d. After making allowance for the small quantity sold, the cost to the borough for this disinfectant which is given away, has been £597 14s. 3d. for the past year, compared with £664 2s. 9d. in 1903; £711 6s. 11d. in 1904; and £862 5s. 7d. in 1905; these latter figures being, of course, for carbolic disinfectant.

London Traffic.

The appointment of a Royal Commission to enquire into any particular subject is more and more becoming regarded as a means of delay. A glaring example of this is the Royal Commission on London Traffic, which sat from 1901 until 1904, taking evidence, and even now its recommendations have not been acted upon. In consequence, so acute has a certain aspect of the traffic question become that the companies giving transportation facilities have joined forces and have created a standing committee to deal with urgent questions. The Board of Trade has also established a temporary department to give assistance and advice on matters relating to traffic in London generally.

Wireless Telegraph Convention.

The decision of the Government to ratify the wireless telegraph convention signed in Berlin last October, without further discussion, and on the strength of a report carried by a majority of only one, has given rise to considerable adverse criticism, even The Times taking sides against the Government. It is suggested that the Government has acted precipitately in the matter, and should have summoned a conference of the colonies before coming to any definite decision. At the same time it should be pointed out that it still rests with the colonies to adhere to the convention or not as they think fit. The action of Great Britain in no way binds them. The committee in their report find themselves unable to admit that the Marconi Company will be injuriously affected, but recommend compensation on the basis of three years' profits at the British stations, should financial damage be proved after the convention is put into operation.

A Large Pumping Engine.

The illustration herewith depicts a set of pumping engines supplied by Messrs. Fleming & Ferguson, of Paisley, to the Falmer pumping station of the Brighton Corporation. It has a capacity of 50,000 gallons.

Messrs. Yarrow's New Works.

Operations have been commenced at Glasgow in connection with the new works which the well-known firm of Yarrow & Co. are building in substitution of their present London establishment. The land is at Scotstown. So advanced is the work that the keels of two new torpedo boats have been laid down. All the shops are constructed of steel filled with brick. There is a river frontage of 780 feet. All the machinery will be electrically driven, power being supplied by the Clyde Valley Electrical Power Co., and many of the motors will be transferred with other machinery, from London. The launching slips occupy 350 feet of the river frontage, the slips being inclined at an angle of 60 degrees. There is an engineers' shop 210 feet long, a boiler shop 300 feet long; a platers' shed 180 feet long; a galvanizing shop, patternmakers' and joiners' shops, smithy, etc. The main reason for the transfer from London was the heavy rates and high cost of land.

The new German torpedo boat, "G. 137," is declared to be the fastest war vessel afloat. She has attained a speed of 33.9 knots, with Parsons turbine engines. Another torpedo boat, with turbine engines of the Curtis type, is being built at the Vulcan yards at Stettin. It will thus be decided which type of turbines will be adopted by the German Navy.

INVESTIGATIONS OF STRUCTURAL MATERIALS BY THE UNITED STATES GEOLOGICAL SURVEY.*

With the problems arising from the growing scarcity and consequent increase in the price of wood, principally lumber used in building construction, the search for a desirable substitute becomes a matter of prime importance and justifies the work now being done by the United States Geological Survey at its structural materials testing laboratories at St. Louis.

The increased use of concrete in many forms during the past few years, especially for building purposes, has created a great demand for information regarding the structural value of this material. For a number of years limited investigations designed to obtain this information have been carried on by a number of investigators throughout the country, but no serious attempt at co-operation in this work had been made until a few years ago, when the United States Geological Survey, recognizing the need of information and co-operation, procured a small appropriation for making tests of structural material and invited various technical societies to take part in the work.

A committee, called the Joint Committee on Concrete and Reinforced Concrete, was invited to assist in outlining the work at the laboratories. This committee is composed of members of the American Society of Civil Engineers, the American

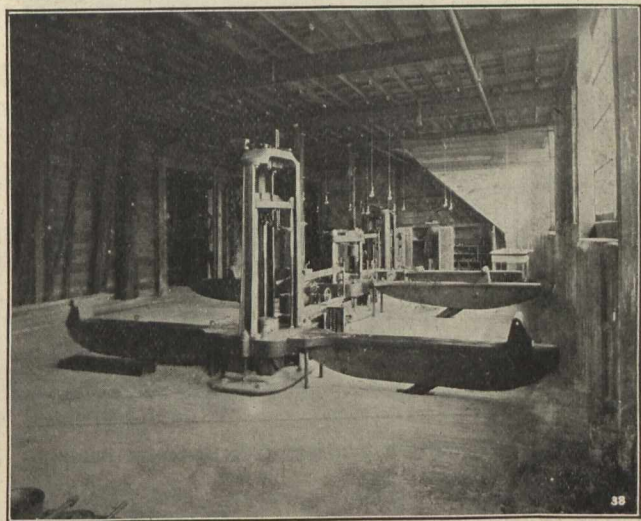


Fig. No. 1.—Three Concrete-beam Testing Machines.

Society for Testing Materials, the American Railway Engineering and Maintenance of Way Association, and the Association of American Portland Cement Manufacturers. The leading professors of engineering from almost all of the large colleges in the country are members of this committee, and they exercise general supervision over the work.

An Advisory Board, composed of leading engineers throughout the country was at once created, and has had general supervision of the work.

Tests are being carried on to determine the value of different sands, stones, and other materials used in the manufacture of concrete. The material is shipped from all parts of the country by geologists connected with the work, and a complete record of the material is sent in by them. At the laboratories this material is made into mortar and concrete by using the different percentages ordinarily employed in practical work, and following as closely as possible practical conditions.

In addition to the study of the constituent materials of mortars and concretes, structures of various kinds similar to those used in buildings are made and tested.

The equipment of the laboratories at St. Louis for carrying on this work is very complete. In addition to all needed smaller apparatus there are four testing machines of 200,000

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