EXPERIMENT AT SHERBROOKE, QUE.

Professor Barnes, of McGill University, and Lieutenant Daw, a post-graduate student of the same institution, have studied the flood question at Sherbrooke, Que., and believe that a proposed scientific experiment will prove a solution to the problem. Every spring the country at Sherbrooke is flooded by the anchor ice in the rivers, which causes the pack ice to form and, thereby, holds back the water, which spreads over the low lying country to its great detriment.

Lieutenant Daw has been given permission from his commanding officer, Lieutenant-Colonel Harrison, of Montreal, to form a field corps of Canadian engineers. The matter has been submitted to head authorities by Colonel Harrison, and Lieutenant Daw has been informed that the authorization of his scheme is expected to be in orders within two months.

The services of forty-two engineers will be utilized, in conjunction with those of Professor Barnes, to relieve Sherbrooke from its annual floods. The scheme is that at a crucial moment, when the anchor ice is about to accumulate the pack, this troop will be summoned by alarm bombs from the armory to assemble post haste and proceed by motor, oar, or horse to the scene of danger, either in the night or day time. Arriving at the anchor ice field, they will drill the ice in a scientific manner, place gun cotton primers in the holes, attach electrical connection carrying leads to a safe point of observation, and after receiving the trumpet calls from up and down the river, on both sides, to the effect that the inhabitants within range of the explosion are out of danger, and have opened their windows to prevent them being broken by the dynamic and static shocks of the explosion, the mine will be fired.

Lieutenant Daw has received a request from the town of Richmond asking him to organize a corps on similar lines for that town's benefit; and also letters from the Minister of the Interior informing him that he is so interested in the matter that he has laid the scheme before the Ministers of Public Works and Militia.

If the scheme is successful, and those who advocate it are very confident that it will be, it may also be tried on the St. Lawrence River to prevent the floods on the South Shore, which also take place in the spring every year, through somewhat similar causes.

ARCH BRIDGE AT SASKATOON.

Though the contractors—the R. J. Lecky Company, of Regina—were delayed in getting their outfit on the ground, good progress has been made on the construction of the arch bridge over the Saskatchewan River from the intersection of 25th Street and Spadina Crescent on the west bank to the intersection of Clarence and Saskatchewan Streets on the east bank. The work was commenced on September 2nd, and already the excavation for five piers has been completed; and one pier, one retaining wall, and one pedestal, have been finished. Boring tests have been put down in all the excavations with a view to determining the nature of the foundation and all were found highly satisfactory.

Throughout the winter months, a force of 80 men will continue building operations; but in the spring this number will be greatly augmented. And by December 1, 1914, Saskatoon is to have an arch bridge unsurpassed by any like structure in Canada, being the largest reinforced concrete bridge in this country, and taking high rank among the great bridges of the North American continent. Its approximate cost is $400,000; and under the terms of the agreement entered into between the city and provincial government, the former is to pay one-third and the latter two-thirds of the cost of the structure.

The plans prepared through the instructions and under the direction of the highways commissioners, call for a bridge consisting of a series of arches with a floor on practically a 3 per cent. grade from east to west, in order to meet the rise on the university side of the river. The total width of the structure is to be 65 feet. Two 8-foot sidewalks are to be cantilevered from the roadway, while provision is made for two street car tracks and two 14-foot roadways, making ample room for each section.

The arches of 150 feet are notable as being longer in span than any in the Dominion of Canada. The total length of the bridge and the retaining walls at its approaches is to be about 1,490 feet. It consists of one arch of 25 feet span, one arch of 66 feet span, one arch of 92 feet span, one arch of 103 feet span, one arch of 136 feet span, four arches of 150 feet span, and one irregular arch of 94 feet span.

Special care was used in working out the design and the allowable stresses are considered most moderate. The variations of temperature cause the concrete to expand or contract, the bridge being designed for a temperature range from 50 degrees below Zero to 90 degrees above. In all probability this variation of temperature is larger than that contemplated for any other concrete bridge ever built.

The site selected presented various engineering difficulties. Chief among these was the elevation of the east side bank about fifty feet higher than on the west bank. During high water the river is 1,100 feet wide at this point. Special care also had to be exercised from an aesthetic standpoint, for the bridge will cross from a park on the east side to the University grounds on the opposite side of the river.

A new company has been formed to connect North and South Shields, Eng., by tunnel, through which an electric railway will run. A quarter million pounds sterling has been assured and the sanction of Parliament for the project is to be asked at the next session. At present communication across the mouth of the Tyne is by ferry only, and the service is frequently interrrupted by stormy weather. Liverpool and Birkenhead were successfully linked by tunnel some years ago.

A concrete hardening material now being introduced contains 95 per cent. iron dust or iron flour, which is mixed with cement for finishing the surface of concrete floors, says "Engineering News." From 15 to 25 lbs. of the material is mixed with 100 lbs. of the cement while dry, and one part of this mixture to two parts of sand makes the slush for the top coat, which varies from ½ to 1 in. in thickness. It is said to make a hard and durable floor, which is waterproof and not slippery. The hardening material is used also to make new concrete adhere to old concrete in repair work. This concrete hardener is made by the Globe Steel Company, of Mansfield, Ohio.