

have voted on the question, including the cities of Hamilton, Kitchener, Galt and Guelph, all carried it by large majorities with the exception of West Flamboro, which may either re-vote or have its guarantee absorbed by the other municipalities.

#### Welland-Bridgeburg Line

The proposed Welland-Bridgeburg line will extend from East Main street, Welland, along the east bank of the Welland canal, through Humberstone and Port Colborne. From Port Colborne eastward, the railway will run south of Sherkston, north of Crystal Beach, east of Ridgeway and past Crescent Beach and Erie Beach to Fort Erie, thence northward to Central avenue, Bridgeburg. The length of this proposed line is 28 miles and the estimated cost \$2,208,716.

Eight municipalities carried the necessary by-laws in January, 1917, but owing to unnecessary paralleling which would otherwise be caused, no work can be undertaken until the route of the Niagara-St. Catharines line and the disposal of the G.T.R. have been decided.

#### Sandwich, Windsor and Amherstburg

For three years the municipalities of Sandwich, Windsor and Amherstburg have been trying to persuade the "Hydro" to take over the operation of the Sandwich, Windsor and Amherstburg Railway, but the Detroit United Railway, who were the owners, were not prepared to sell. An attempt was made to effect a deal, but the price asked by the D.U.R. was considered too great. Later negotiations were renewed and the company decided to accept \$2,039,000 in 40-year 4½% "Hydro" bonds.

Eight municipalities obtained a large majority in favor of this deal. Anderton township opposed the by-law, but the others have agreed to absorb the guarantee and the "Hydro" is now taking over and will operate the railway.

The "Hydro" has estimated the value of the lighting and power system belonging to the railway as \$190,000, and that amount will be charged against the Windsor hydro-electric system and the power placed at its disposal. It is anticipated that \$250,000 will soon be spent on improvements to this railway.

#### Other "Hydro" Railway Activities

Among other radial railway activities of the Hydro-Electric Power Commission of Ontario have been the electrification of the London and Port Stanley railway, the operation of the Peterboro street railway, and the Niagara construction railway. The last mentioned railway is one of the busiest lines on this continent. It consists of nearly 45 miles of tracks, 28 locomotives and 200 large dump cars.

The total mileage of the London and Port Stanley railway is now 44.5 miles, and the cost of rehabilitation, electrification, equipment, new buildings, park improvements, etc., up to June 30, 1919, totalled \$1,234,866. This amount was provided through advances of \$1,131,000 guaranteed by city debentures, and the reinvestment in the property of \$103,866 from the surplus earnings of the railway.

The Peterboro street railway was acquired along with the central Ontario power system. The "Hydro" recently made minor extensions to its trackage.

B. Stuart McKenzie, consulting engineer, Winnipeg, has reported to the administrative board of the Greater Winnipeg Water District that he has investigated the section of the Shoal Lake aqueduct which is being affected by alkali, and he urged the board to undertake drainage as early in the spring as possible, stating that a certain portion of the aqueduct is in serious danger.

Applications will be received by the Board of Control of the city of Toronto until January 20th for the position of city architect and superintendent of building for the city of Toronto. Applications must state qualifications, experience, etc., and must submit references as to capability. Applications are to be addressed to the chairman of the Board of Control, Toronto, and the envelopes should be endorsed "Re city architect."

## PILE DRIVING WITH MOTOR LORRY ON THE SALONICA FRONT

BY CAPT. L. S. DAYNES, D.C.M., R.E.

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PREVIOUS to the allied offensive in April, 1917, it was necessary to have the main road running parallel to the Karasule-Dorian railway put into a fit state for all traffic up to 6-in. guns. This entailed the driving of several pile bridge and spans on the old Turkish road to replace those which had been previously destroyed.

The work was assigned to the various field companies in their respective areas. The crossing of the Selimb river was urgently needed, being subject to mountain torrent. The river sometimes rose from 7 to 10 ft. in less than 12 hours. The bed of the river was gravel, clay and quicksand, so a four-pile bent bridge was decided upon and the work was given priority.

The equipment supplied was a frame driver with 30-ft. leads, a 1,200-lb. hammer, and a hand-winch worked by four men. This winch was discarded after the first hour's driving and a team of horses was used, but owing to the heavy rains the ground was in such bad condition that progress was very slow.

The motor transport companies were getting uneasy, and being anxious to see the bridge completed, generously offered a four-ton Peerless lorry if we could use it. Their offer was quickly accepted. The lorry was set up on the west bank, the left-hand rear wheel was jacked up and blocked 10 ins. from the ground, and the other three wheels were snubbed and staked to the ground. The lead rope was given a turn on the brake drum inside the wheel, one man operating the loose end.

The distribution of labor was as follows: One motor driver, one signal man, one on lead rope, three on pile driver and two sharpening and putting on pile rings.

The piles used were 12 by 12 ins., 40 ft. long, and were placed in leads by the lorry. The number of piles driven was 48 to a penetration of 24 ft. Work was continuous in three 8-hr. shifts, and the bridge was completed for traffic in twelve days. None of the sappers had had any previous experience with a pile driver. After the completion of the bridge, the lorry was tested for strain or deflection of axles, and was found to be in as good condition when returned as it was when received.

## NORWOOD CO. OPENS MONTREAL OFFICE

ARRANGEMENTS have been made by the Norwood Engineering Co., of Florence, Mass., manufacturers of water purification plants, mechanical filters for industrial purposes and paper-finishing machinery, to transfer their Canadian office from Cowansville, Que., to 71A St. James St., Montreal. Archambault & LeClair, contractors, Montreal, will be their representatives for the province of Quebec.

In 1914 a Canadian company, the Norwood Engineering Co. of Canada, Ltd., was organized and purchased a factory at Cowansville, Que. Owing to the war, very little filter work was obtained and the company devoted its factory to the making of shells. Since the armistice the factory has been almost entirely idle and the Norwood Engineering Co. recently sold it to the Colonial Machinery Co., Ltd., and made arrangements with that company to manufacture the Norwood products in Canada.

Last year the Norwood company completed a modern filtration plant for the town of Hawkesbury, Ont. They have also installed filters for municipal purposes at Dorval, Que., Shawinigan Falls, Que., Lindsay, Ont., and Niagara-on-the-Lake, Ont. They recently obtained a contract from the St. Maurice Lumber Co., Three Rivers, Que., for one of the largest industrial mechanical filtration plants in Canada, to filter twenty million gallons of water per day.