

fugal pumps, and the motors are the Bullock 800-horsepower, 6,300-volt, 68-ampere, 3-phase, 25 cycle, 4-pole, and will run at a speed of 735 revolutions per minute.

#### DISTRIBUTION SYSTEM.

The general distribution scheme is to have two 24-inch discharge mains leading from each station. These mains bound almost the entire area to be protected and run from one station to the other. Sixteen-inch and 12-inch mains are to run in streets parallel and intersecting these mains, and they are cross-connected at frequent intervals by 20-inch mains. The 12-inch mains are only used for lateral branches and are not depended upon as arteries for carrying the supply. These mains, together with the 16-inch mains, are connected at short intervals with 20-inch mains, so that the water only has to travel a short distance through a main smaller than 20 inches before it reaches the hydrant from which it is to be drawn.

All mains are cross-connected at the points of intersection, so as to obtain the most perfect circulation possible. With this cross-connection and with the gates located at the end of every block, except for the very large mains where the gates are spaced about two blocks apart, it is possible to repair a break in any single block without affecting any hydrants except those located on the block in question.

Careful computation of the frictional losses in the mains show that the full capacity of both stations can be delivered in any section within the area at present proposed with a pressure on the base of the hydrant of about 250 pounds per square inch.

#### HYDRANTS.

Under the proposed plan the hydrants are always within 400 feet of any building in the district, and there are sufficient hydrants so that if any block were on fire sixty streams of 500 gallons per minute each, or the full capacity of both stations, could be concentrated with a length of hose not exceeding from 400 to 500 feet, assuming the use of 3-inch hose and 1 1/4-inch nozzles. This affords adequate protection.

At the official test all valves, valve seats, spindles, etc., were removed from the hydrant and the same re-assembled and then subjected to a final test under a static pressure of 300 and 600 pounds. After a competitive test, the hydrant submitted by the A. P. Smith Manufacturing Company was adopted. Each hydrant has three 3-inch nozzles (instead of three 2 1/2 inch nozzles, as originally intended) and one 4 1/2-inch steamer nozzle. The steamer nozzle is provided with a 3-inch reducer, so that each hydrant can produce four 3-inch streams. There will be 1,050 four-nozzle post hydrants and forty two-nozzle fire-boat connection hydrants.

#### FIRE-BOAT CONNECTIONS.

Fire-boat connections will be located on the river front at places where they can render the best service, and on the end of the piers when practicable. A double female swivel increaser is provided for the use of the fire-boats in connecting their larger hose with the smaller nozzle of the hydrants on the docks.

#### SYSTEM OF TELEPHONE BOXES.

The system of telephone or signal boxes has been so designed that a fire in any part of a district can be watched from at least one telephone box and orders readily transmitted to the engineer at the

pumping station in regard to the requisite pressure and quantity of water needed, as well as to the use of fresh or salt water, thus saving time. These telephone boxes have been successfully installed and operated in the Philadelphia system.

#### LIFE UNDERWRITERS CONVENT.

##### Important proceedings of Canadian Association's first Annual Convention.

That the Life Underwriters' Association of Canada is much more than a "paper organization" is evident from the number and the enthusiasm of the delegates attending its first Annual Convention on Monday and Tuesday of this week. Over two hundred of the Association's 400 or more members were to be found in the corridors of the King Edward Hotel, Toronto, on Monday morning, in addition to fifty visitors from the United States—an advance guard of the delegation of 500 expected for the National Convention beginning on Wednesday.

There was a large attendance at the meeting of the Executive Committee on Monday morning, those present being:

Hon. President—Mr. T. G. McConkey, Toronto, North American Life Assurance Company.

President—Mr. Geo. H. Allen, Montreal, Mutual Life Assurance Company, of Canada.

Vice-presidents—For Nova Scotia, Mr. T. F. Conrad, Halifax, New York Life Insurance Company; for Quebec, Mr. G. H. Simpson, Montreal, North American Life Assurance Company; for Ontario, Mr. H. C. Cox, Toronto, Canada Life Assurance Company; for Alberta, Mr. R. J. Stewart, Calgary, Sun Life Assurance Company.

Secretary—Mr. W. S. Milne, Toronto, Money and Risks.

Treasurer—Mr. F. H. Heath, London, Confederation Life Association.

Executive Committee—Messrs. A. Homer Vipon, Montreal (chairman), New York Life Insurance Company; Oscar N. Gagnon, Quebec, Canada Life Assurance Company; A. S. McGregor, London, Sun Life Assurance Company; W. H. Seymour, Hamilton, Imperial Life Assurance Company; C. O. Palmer, Sherbrooke, Manufacturers' Life Insurance Company; J. R. Reid, Ottawa, Sun Life Insurance Company; W. J. Waters, North American Life, Hamilton; T. J. Parkes, Sun Life Assurance Company, Montreal.

The opening general meeting of the convention took place on Monday afternoon in the Convocation Hall of the University of Toronto, where the delegates were given a civic welcome by Alderman Graham, and greeted by Vice-President H. Hamilton of the Toronto Life Underwriters' Association.

#### PRESIDENT ALLEN'S ADDRESS.

President G. H. Allen of the Canadian Association in his opening address emphasized the importance of the convention and stated that but for the association movement the darkness that had prevailed during the past two years must surely have overwhelmed them. The inception of the movement was then traced and the objects of the association declared to be the promotion of good-will, and co-operation among the agents of all life companies, and the devising and giving effect to measures for the protection of their common interests.