FIRE-FIGHTING FACILITIES. (WATER SUPPLY.)

Condition and Cover.—From examination of old pipes removed, there appears to be considerable tuberculation. Mains are flushed frequently through hydrants and scouring valves; the difference in the levels of the city enables this to be carried out with ease, the gates being located mainly at the foot of hills and close to the river side. The discharge from hydrants during fire flow tests was exceptionally clear. Mains are laid in trenches about 7 feet deep and hydrants have 8 ft. 9 in. barrels; very little trouble has been experienced from frozen mains, a few short lengths only of 4-inch pipe having been so affected during the winter of 1919-20. The 18, 30 and 40-inch supply mains have a minimum covering of about 21 feet.

Specifications.—Pipe is purchased from Canadian foundries under the specifications of the American Waterworks Association and are Class C weight. An ample stock of pipe and fittings is on hand. Hydrostatic tests are not made before backfilling.

Electrolysis.—No electrolytic surveys have been made, and it is said that no apparent damage has manifested itself.

GATE VALVES.—General.—Records of the exact number and sizes of valves in the distribution system are lacking; the water department estimate the total number at 1,000. All are of the solid wedge type; the smaller gates are accessible through the customary extension valve box and the larger sizes are set in brick vaults with iron tops. All in the distribution system and supply lines are direct acting and open by turning to the right. All of the valves are provided with bronze spindles and there is a supply on hand to replace others when they fail.

Location and Spacing.—Gate valves are generally set at street intersections. In the principal mercantile districts the average length of main that would be cut out in case of a break is 600 feet with a maximum of 1,000 feet. In a representative residential district the average is 800 feet, with 10 sections out of 45 in excess of 1,000 feet and a maximum of 3,000 feet.

Inspection and Condition.—No complete inspection of valves has been made by the water department. It is stated, however, that no difficulty has been experienced in getting valves tight when it is necessary to close them. At time of inspection a number of valves were manipulated; all were easily located and in operative condition.

Closing of Valves.—The fire department is notified by telephone, followed by confirming notice in writing, when valves are operated affecting hydrant supply. The concentration of supplies for the purpose of providing increased pressure, and which is resorted to in case of a serious fire, is under the direction of a waterworks guardian

stationed at De Salaberry Street. Specially appointed firemen in certain stations are also authorized to operate valves in case of fire, and when this practice is resorted to it is their duty to advise the guardian by telephone as to the exact action taken.

In the event of a fire in "Lower Town" pressure is increased by opening a 14-inch valve, in connection with the 40-inch supply main, at the intersection of St. Valier and Marie de l'Incarnation Streets. In "Upper Town" pressure is increased in the mercantile district by closing an 8-inch valve at the top of Mountain Hill, and in the more important residential section by closing an 8-inch valve at the intersection of St. Louis Street and Citadel Hill. With exception of the 8-inch valve above referred to, at the top of Mountain Hill all valves between the "Upper Town" and "Lower Town" distributing mains are normally kept closed, also, in "Upper Town" all valves in cross streets immediately South of St. John Street are kept closed.

All service connections are equipped with gates or shut-offs in close proximity to the street main.

HYDRANTS.—Number and Type.—There were 957 public and 6 private hydrants in service, September 1st, 1920. All are of post type; the majority were made locally by F. X. Drolet, while a few only are of Ludlow make; 927 have 4[‡]-inch foot valve, 4[‡]-inch barrel, and two 2[‡]-inch outlets, and are set with 4-inch connection; 20 with 6[‡]-inch foot valve, 6-inch barrel, and three 2[‡]-inch outlets are set with 6-inch connections; the remaining 10 have 9[‡]-inch foot valve, 8-inch barrel, four 2[‡]inch, also 4[‡]-inch steamer outlet, and are set with 8-inch connection. Hydrants are provided with a frost jacket, open in a uniform direction by turning to the right and a gate is set in connection to the main.

How Located.—Hydrants are generally located at street intersections and frequently in the middle of long blocks; their location is determined by the Manager of the waterworks department and Chief of the fire department.

Drainage.—Hydrants have automatic drip valves, with drainage pipe from each connected to sewers; drainage is generally good.

Inspection.—Members of the fire department are required to make a weekly inspection of all hydrants, their written and signed reports being sent to the Manager of the waterworks department; these reports specifically state that hydrants are in good order, or, if otherwise, describe in detail the defects observed. Hydrants appear to be in good operative condition; of 140 opened at time of inspection, none were found defective. A portable steam boiler is provided for thawing any hydrants found frozen.