

all right, as there would be no ice, driftwood, or such like to contend with. In Fig. No. 2 will be seen a general elevation of the two bridges, with roadway connecting same. It will be noticed that there is a difference between the elevations of the roadways of the bridges. The reason for this is, that it was thought best not to set the roadway elevation of the longer bridge to suit the requirements of the bridge over the penstocks, as this would necessitate a long embankment of considerable height to approach the bridge from the southerly end, and, as stated before, objections were raised to having this roadway divide the park into two portions. Also, if the bridges were kept at the same level it would make the slopes of the earth embankment extend too far into the swimming pool, shown in Figure 1, on the left-hand

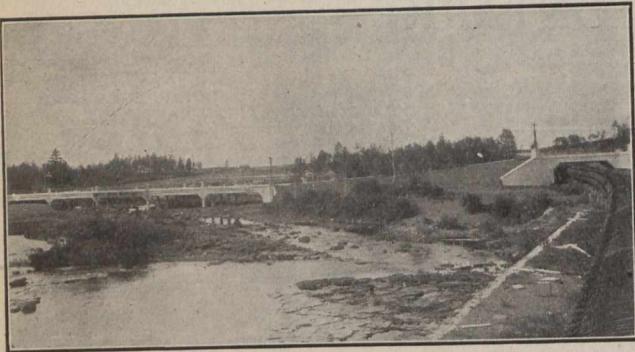


Fig. 2.—View Showing General Elevation of Bridges.

side. It is the intention to make the slope as built, rather flat, and sod it, so that children using the swimming pool can also use the slope to play on.

The difference in elevation of the bridges is 6.5 feet, and the grade of the roadway connecting them is six per cent., but as the distance is short there is no apparent difficulty in operating street cars over the grade.

The bridge over the river is made up of five spans, forty feet in the clear, there being five concrete posts in each bent, ten feet on centres, these posts being twenty inches square with chamfered corners and reinforced with four one-inch cup bars, held together with $\frac{3}{16}$ in. hooping at intervals of one foot. The two outside beams were 16 in. by

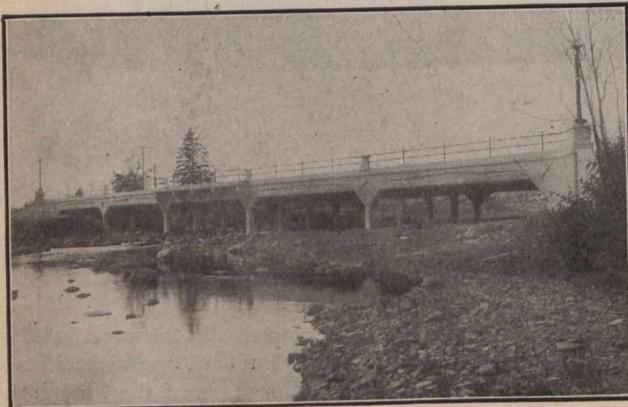


Fig. 3.—Showing Exterior Features of Design.

36 in., and the three inside longitudinal beams being each 24 in. by 36 in., while the transverse beams over each bent were made 20 in. by 36 in. The minimum depth of the slab is nine inches, the roadway portion being sufficiently deep at the centre to form a suitable crown for the proper drainage of water, while the street railway portion was crowned to suit the depth of rail. The deck of the bridge is provided with two sidewalks, one being five feet wide, and the other

six feet wide, a driveway 18 ft. 8 in. between the curbs, and a street railway reserve suitable for single track.

It might be well to explain here that owing to lack of funds, and the small amount of traffic in sight at the present time, we were unable to construct double tracks, unless the roadway width was sacrificed, which was not thought advisable. The vehicle roadway is paved with three-inch creosoted wood blocks laid in the usual manner, with expansion joints at each curb, and at every twenty feet at right angles to the line of the roadway. The portion in the track allowance was finished with 2 to 1 cement mortar troweled to a smooth finish with proper slopes to the rain water outlets.

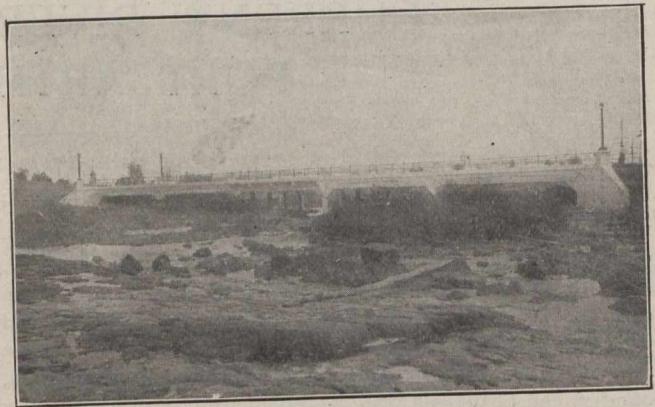


Fig. 4.—View Looking Downstream.

Overhanging the centre span on each side of the bridge was constructed a balcony 3 ft. 3 in. wide by the length of the span. These were built so that people could stand on them and view the falls above the bridge, and the scenery on the down-stream side, without interrupting the traffic on the sidewalks. The supports for these balconies were cantilevered from the main beam and covered with a slab four inches in depth. Besides providing space for sight-seers the balconies helped out in the aesthetic features of the design. The railing on the bridge is $2\frac{1}{2}$ -in. pipe with plain fittings, and a ball ornament on each post. Over each bent is constructed a concrete post, as part of the railing, while pedestals of larger proportions are placed at the ends of the railing to support the lamp standards. Where the pipe rails enter the concrete posts and pedestals they enter a

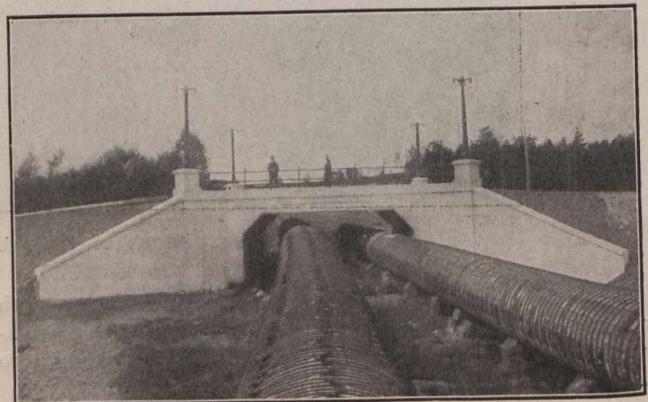


Fig. 5.—Bridge Over Penstocks.

pipe of large diameter set in the concrete, and in this way free ends are provided for expansion. The lamp standards are the "Luxolabra" type with five lamps on each, all lamps being 40 watt tungstens. The railing and lamp standards were all painted a deep green, and the effect is very good.

In designing the architectural features of the bridge the aim was to make all lines straight in preference to any