

men. The general arrangement is illustrated in the accompanying drawing.

**River Works.**—The river had a total width of about 1,000 ft. along the crest of the fall, intercepted, however, by three islands, as shown. The cofferdam work was started from the west bank to cut off the west channel of the river, upon which the proposed site of the power house was situated. Initial operations were delayed owing to an unprecedented rise of the river, which carried away the first cofferdam while under construction. When the abnormal flow had subsided, another cofferdam was built immediately above the site of the old, in water that had a maximum depth of 26 ft., and on a gravelly clay bottom. These cofferdams were of ordinary timber-crib construction aggregating 180 ft. in length. They were rock-filled and sheeted on the face with two thicknesses

maximum depth of 20 ft., sheeted and banked with clay.

All the leakage from the lower cofferdam was conducted to a sump near the centre and removed by two 12-inch centrifugal pumps. The leakage from the upper one was conveyed to a sump below the original fall and pumped by a 6-inch centrifugal pump to the sump for the 15-inch pumps. After dewatering, a single 12-inch pump, working about one-third the time, handled the leakage.

These cofferdams for the power house were completed in 1913. Immediately after high water in the spring of 1914, the construction commenced of the cofferdam for the dam. It extended from the main island to the west shore above the falls. It was also built in two sections, the first 200 ft. in length and extending from the island to a point beyond the east pier of the Stoney sluice. The section of dam across the island and the Stoney sluice itself were

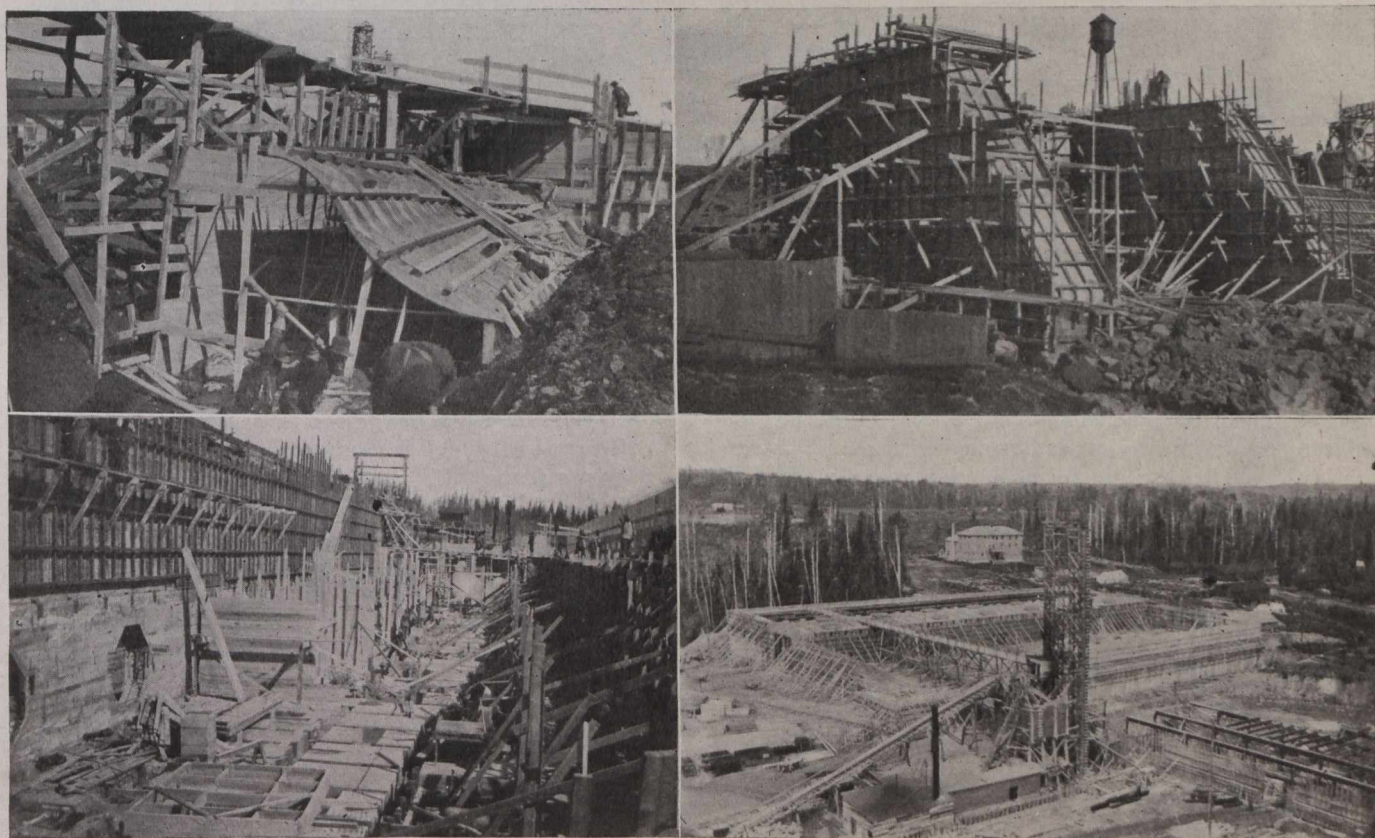


Fig. 5.—Formwork Typical of Dam, Power House and Mill Construction.  
Power House End of Dam. Stoney Sluice.  
Breast Wall and Floor of Power House. Storage and Finishing Rooms.

of 2-inch plank, driven by light, hand-operated pile hammers to an average depth of 3 ft. into the river bottom. The sheeting was placed and nailed under water by a diver. The cofferdam was filled along its face with clay excavation from the site of the wood-preparing room. On the west shore of the river and for a length of about 100 ft. a heavy deposit of silt gave some difficulty and necessitated the use of a different method. Wakefield piles were driven by steam hammer to a maximum depth of 25 ft. in this portion.

Before the upper cofferdam on the west side was completed the lower one was started, consisting of two sections; the first, 430 ft. long, to a small island below the falls, and the second, 200 ft. long, from this to the main island east of the west channel. Their locations are shown in Fig. 3. They were also built of timber cribs with a

then installed and by the time the latter was in operation the cofferdam from it to the east bank of the river had been completed. This one was built sufficiently high to permit of the operation of the plant.

It is interesting to note that during 1914 little difficulty was experienced in the way of high-water troubles in cofferdamming operations in the east or main channel of the river. This was owing to the completion at Couchiching Falls of a timber crib storage dam constructed by the company as a part of the Abitibi development to regulate the flow at Iroquois Falls. This dam was in operation during the summer and shut off the discharge from Lake Abitibi.

**Rock Excavation and Concreting Plant.**—The power house flumes are built entirely on rock and required the removal of 16,600 cu. yds. of rock excavation for the draft