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Quebec-The damage in the city of Quebec was confined to a narrow belt bordering the Saint Charles river. The structures which were chiefly damaged were the Palais Station of the C.P.R. and the grain elevators and shipping sheds which border the Saint Charles.

Palais Station is well built of steel and brick. The earthquake swayed the steel structure, breaking many panes of glass in the skylights. The swinging steel battered the top rows of bricks out of the wall in the north end of the waiting room. These piled on the floor in front of the train bulletin board, but no one was injured.

The grain elevator and loading sheds are built on made ground on the west bank of the Saint Charles river (see fig. 7). To make the ground area required, piles had been driven to a depth of 42 feet along the edge of the river. These piles extended 24 feet above the bottom of the river, being 66 feet over all. The earth required to fill behind the piles was dredged from the river floor. On the land so made a great shed was built, 1,000 feet in length and parallel to the row of piling, but far enough behind it to permit several lines of railway tracks on the water side of the sheds.

The sheds proper are about 30 feet in height. Between the roof of the sheds and the floor of a row of "grain galleries" above, the steel frame stands open. The galleries are themselves about 30 feet in height, making an overall of about 110 feet. The supporting steel is in the form of I-beam columns which are spaced 20 feet apart each way. The sheds are 100 feet wide. The columns along each side are braced by having a 20-foot L-bar carried over from each to its respectively opposite column in the next inner row. The foot of each column rests on its individual cement pier. The galleries are connected to the grain elevator by an overhead coupling at shed 28.

Obviously the structure is very top heavy. At the time of the earthquake the made ground yielded. The galleries lurched toward the river forcing back the foot of each column by about 3 inches (see fig. 8), thereby bending the L-braces (see fig. 9). Then, the elastic strength of the steel proving sufficient to prevent the structure overturning altogether, the whole swayed back again, this time forcing the foot of each column on the back wall out of its place on its pier. The swaying pulled the overhead coupling several inches away from the warehouse. The sheds are cased with sheet metal but have ceilings of concrete. At the time of the earthquake several sections of this concrete ceiling were thrown down. Fortunately, the sheds were empty at the time of the quake.

The grain elevator is provided with more than a hundred massive, cylindrical, concrete bins about 100 feet high and 16 feet in diameter, with a "workroom" above, which is 200 feet high, 100 feet long and 60 feet wide. The top hundred feet of this section projects beyond the tops of the bins and stands clear, with four stories of floors in it. High in this upper section is a battery of scales for weighing the grain. These are immense affairs, each capable of handling 60 tons of grain. These scales were thrown off their pivots, all falling south. The counterweights, formed of plates of iron about 2 inches thick and 18 inches square, built up into a mass 5 feet high by means of two bolts seven-eighths of an inch in diameter, were swung so violently that the bolts were sheared off and the plates flung to the floor 5 feet below. Four automatic scales, which could not be thrown off pivots, swung to and fro in the steel plate enclosures, banging on the doors until the latter were battered, as if made of lead, by the projecting points of the swaying scales.

The whole upper section of the work room swayed with the heavy machinery so that practically all of the reinforced concrete columns about the outer walls were cracked at the point where the superstructure meets the top of the main building. These were not simple cracks. Some had worked back and forth until great sections of concrete were ground out of the face, several feet long, a foot into the wall, and a foot to eighteen inches wide on the face. The reinforcing irons, rods about half an inch in diameter, were in some cases worked out through these cracks. No one was in the building at the time. The noise and the swaying would surely have been terrifying.

Less than half a mile from the elevator and shed stands the Chateau Frontenac, the great Canadian Pacific Railway hotel. It is on the rocky cliff supporting the central part of Quebec. Some persons in this building did not hear the earthquake at all. No one was greatly alarmed by it. The difference between the effects observed at these two spots so close together is due entirely to terrain. The buildings at the harbour are very well constructed. Had they not been they must have been completely wrecked. They were built where the need demanded, beside the river. The soft ground was the cause of the damage rather than proximity to the epicentre.

At the time of the earthquake great icicles hung on the eaves of many buildings in Quebec (see fig. 10). Some of these, on the rocky foundation of centre town, were quite undisturbed by the quake. A number of ice statues and arches (see fig. 11) are constructed here and there about this city in the winter. None of these was damaged by the shock.

The breaking of chimneys was not at all general, those which yielded being in poor repair, as a rule, and nearly all in the lower sections of the city.

It may be noted in passing that the sheds at the harbour were built in 1917-18. When first built they used to sink about an inch in six months due to the settling of the filled ground, but they had not been sinking appreciably at the time of the earthquake.