

LIFTING A ROOF.

HOW A NEW STOREY WAS ADDED TO A SCHOOL-HOUSE.—RAISING AND MOVING BUILDINGS.

SOME time ago the Board of Public School Trustees in Toronto found it necessary to provide more school accommodation in Parkdale. They had a good school-house, known as the Queen Victoria, which they wished to enlarge, but how best to do it was the question. It was 115ft. x 57ft. in size, two storeys high, with a brick addition 57 x 57 in rear. After consulting an architect it was decided to lift the roof, and build another storey, and the services of I. Wardell & Son, who make a specialty of such work, were called into requisition. They agreed for \$800 to raise the roof, and replace it on the building after the new storey, 14 feet in height, had been added. The accompanying illustration, with a brief description, will show how it was done.

The roof of the addition was sawed off in line with the brick wall of the main building. The floors were shored from the basement up with stout timbers. Timbers were set in and needle beams put under the plates. A strong scaffold was built on the upper floor, on which the jack screws were to be worked. As the stone and brick pediments were to be lifted with the roof, needle beams, 12 x 14, were placed under them. Fifty-five jacks were employed to lift the main roof and 24 the addition. The jacks were the ordinary bottle jack, except those at the four corners, which were of the pattern known as anchor jacks. The roof was raised 6 feet, 13 men being employed to work the jacks. The joists for the new floor were then put in, and the jacks placed on them. The roof was raised 8 feet more and the brick wall for the new storey built up, when the roof was eased down till it rested upon the wall again.

As the roof, when resting on the jacks, would be liable to sag in the centre, provision had to be made for such a contingency. Two principles run from end to end of the building. They are about 115 feet long, and are 12 x 14 in size, built up of 2 x 14 joist. They were fastened together with a tie timber at each end to keep them in place, and 16 jacks, on a scaffold in the hallway in the centre, raised them simultaneously with the jacks around the outside.

The upper part of the tower with its roof was raised at the same time. It was supported on frame work, which rested on timbers suspended by chains from the plate. Two guy ropes served to steady it. To guard against the roof being dislodged by the wind while the work was in progress, purchase screws were attached and made fast to the joists of the first floor. The purchase screws were let out as the roof went up.

So well were operations carried out that the plaster of the ceiling was not cracked. It was considered advisable subsequently to remove it and substitute a metal ceiling.

The whole job was completed within 21 days from the commencement of operations. Not an accident or hitch of any kind occurred.

Wardell & Son, who carried out this job so successfully, make a specialty of raising and moving buildings, and have performed some clever feats in this line. Their most risky undertaking was at Kemp's Stamping Works near the Don. The factory stands on a side hill, and they underpinned it and held it up while the old foundations were removed and two new storeys built under. Work in the factory went on as usual all the time. The building is of brick, about 200 x 40 feet, and contains some very heavy machinery. So hazardous did the undertaking appear that some men declined to work on it, but it was successfully carried out without accident.

Last winter the same firm moved the hotel at Hanlan's Point 400 feet from where it formerly stood, and raised it with 100 jacks, so that a new storey could be built under it.

When the new water-front was made along the Esplanade they moved 13 buildings out to the new line, including the club house of the Argonauts. The latter was lifted on scows and floated to its new position. It was a difficult and risky operation, but was successfully accomplished, during the early morning, when the wash of passing steamers would not interfere with the work.

They frequently remove brick and stone buildings from where they stood and turn them around so as to face in a different direction.

The firm consists of Mr. I. Wardell, an old wrecker, and his son. The senior member has been engaged in

the business for some 40 years, the junior for 14 or 15 years, during the last 7 or 8 years of which he has been a partner.

LIME COMBINE.

THE Manitoba Grey Lime Burners' Association has been organized. The association comprises the lime-burners of Stonewall, Stony Mountain, St. Andrew's Parish, Gonor, East Selkirk and Tyndall. There is a local society at each point. Each member is bound not to sell lime unless he receives an order from the local secretary, who first receives it from the head secretary in Winnipeg, who divides the sales proportionately among the different localities. The price of lime has been raised to 18c. a bushel. All the burners in the Tyndall district, except one, have joined the association, and Mr. James Pruden is now burning a kiln to fill the first order sent him.

AN electric storm and cyclone visited Kingston on the 11th inst., wrecking the cotton mill badly and destroying much of the machinery. The water pipes were twisted and broken and the mill flooded. It will cost about \$80,000, and take a month to repair the damage. The erecting shop of the K. & P. railroad was also wrecked.



PROCESS OF RAISING THE ROOF, QUEEN VICTORIA SCHOOL, PARKDALE.