

INVESTIGATION OF EFFECT OF FIRE IN A LARGE REINFORCED CONCRETE PAPER MILL.

At 11 p.m., May 25th, 1912, fire broke out at the pulp-board mill of the Androscoggin Pulp Company, South Windham, Maine. The Aberthaw Construction Co. built this structure in 1906, L. W. Jones, of Milton, New Hampshire, being the engineer. The building is of reinforced concrete

The fire was extremely hot, there being a large quantity of dry pulp-board piled inside the building and which burned at the same time. The intenseness of heat was so great that it bent and partly melted cast iron. Streams of water were thrown at the hot surfaces with considerable force and altogether the fire offered a particularly interesting test of the effect of fire on reinforced concrete work.

On May 28th, Morton C. Tuttle, secretary of the Aber-

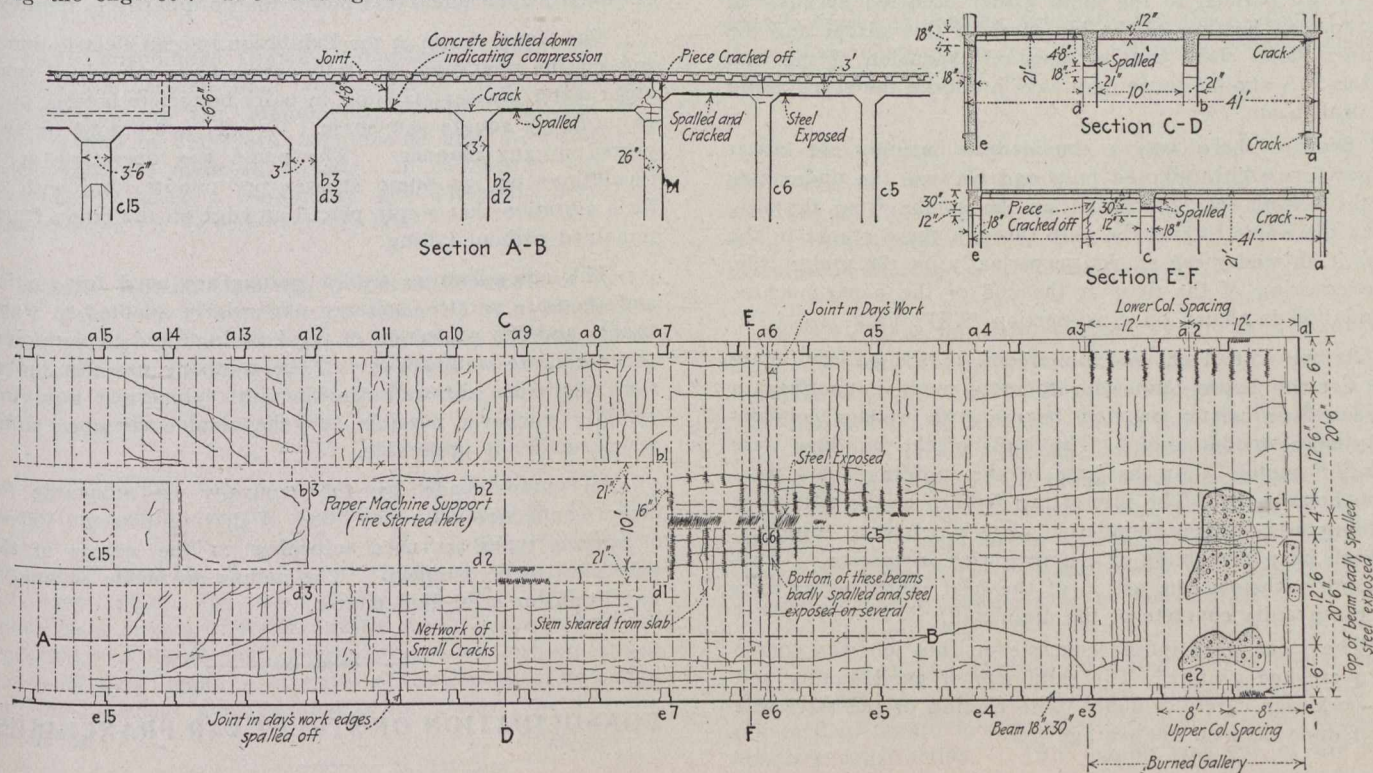


Fig. 1.—Androscoggin Pulp Co. Fire.

excepting for a wooden roof carried on trusses of the same material. The window frames and sashes are also of wood.

The blaze started below the machine room floor in the main building and set fire to the wooden panelling between the piers forming the outside wall of the lower story of the

thaw Construction Co., examined the building with Seth A. Moulton, of Portland, Maine, the engineer in charge of the rebuilding, and the latter made many shrewd suggestions as to the cause of some of the results observed. A few days later the engineer and superintendent of the Aberthaw Construction Company made a careful investigation and report, which is embodied herewith.

The fire started under the first floor in the middle of the building (Fig. 1). As far as could be observed, the principal effect of the heat was to expand the floor, causing a movement of the column. It was reported that on the morning of the 26th the end wall of the mill was observably out of plumb. At that time the concrete was generally so hot that one could not stand putting his hand on it outside of the building. Later on, this particular wall drew back again to the perpendicular. The crack at the pier, crack "A-7" (Fig. 2) shows the effect of this movement on the outside wall, where the size of the wall beam changes due to different spacing of the columns. The cracks above and below the bracket of the column also seemed to indicate the longitudinal movement of the floor.

The cracking of the columns at the side of the building seemed to indicate the same sort of expansion. These cracks occurred at

both top and bottom of some of the columns. The top cracks are shown in Fig. 2.

It will be noticed (Fig. 1) that in the section of the floor at the wall end of the building (right end) the main

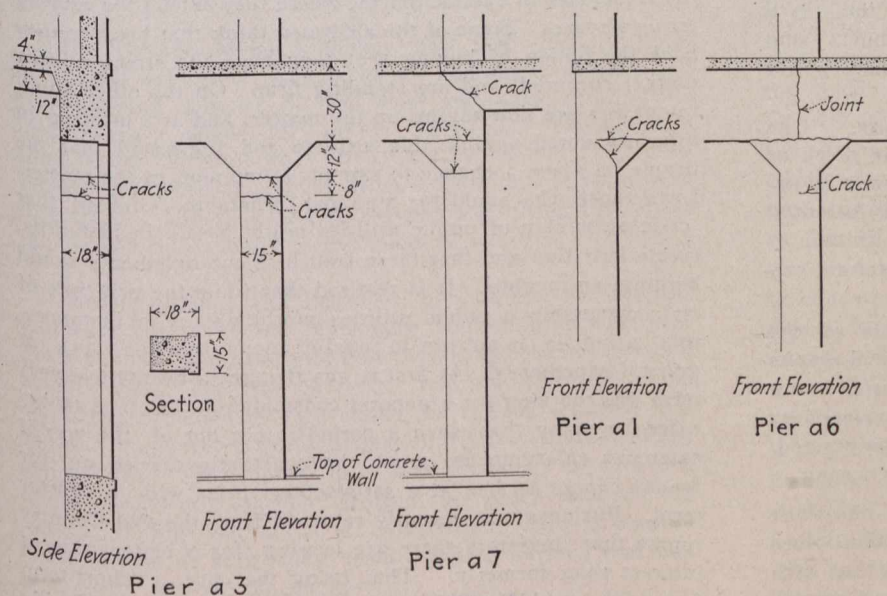


Fig. 2.

building. The burning panels set fire to the wooden sash of the window of the second story and from there set fire to the roof and to a wood and plaster gallery which was located along the side of the mill.