

91. Mr. Girling-Butcher, Inspector of Fire Brigades, elaborated his idea of the way in which the smoke must have travelled. He said that the break-through from Congreves occurred at approximately 3.58 p.m. and was not a small fire. He then put the questions :—

Where did it build up to these proportions, and why was the build-up not seen by the brigade and those persons in the building up to the time of the break-through ?

In his opinion both questions are answered by the theory that, up to this time, the major part of the smoke and heat from the fire in the basement was finding a vent in the concealed light-well behind Congreve's building. He thinks that, when the fire brigade arrived, smoke was coming from the first-floor window in addition to the right-of-way, and that the line of travel of the smoke must have been—firstly, from the basement by the basement stairs to the ground floor ; then by the stairway opening to the first floor. As the first floor was completely enclosed, the smoke would flow out of the front window. Secondly, the smoke would travel through the lantern windows in the roof of the appro room, and at a later stage through the back windows in the first floor above the stairway. When the break-through occurred, the soft fibre board covering of the large opening on the first floor would collapse.

92. He supported this theory by reference to the evidence of the rest-room attendant, who was working in the ladies' rest-room at the rear of Congreve's first floor on the day of the fire.

She said that, while sitting in her corner at about 3.40 p.m., she noticed volumes of smoke coming through the floor of her department. She said that, when she got out of the corner she was sitting in she went to the window, and, looking out, could see nothing but volumes of black smoke, and the evidence of Miss E. N. Smith, who was at the cash-desk at the top of the stairs near the lounge, bears this out. Her room was closed with only one door, and she saw the attendant (Mrs. Johnston) come into her room, and told her she could not stand the smoke in the rest-room.

Mrs. Johnston left her purse in the rest-room, and when Miss Smith went back to get it she found the rest-room was very thick with smoke. She also found the window at the back of the rest-room was open, and looking through it saw thick smoke passing out of the skylight—that is, on the roof of the appro room. She said smoke was pouring out of all the ventilators and skylights.

Later, she said, a Mr. McKay, assistant electrician for Ballantynes, came to her asking where the smoke was coming from, and she took him through to the rest-room and showed him the window where it was pouring out of the skylight.

93. Mr. V. J. Hean, a registered architect employed by the Public Works Department at Christchurch, furnished us with plans he had prepared showing the assumed spread of smoke and fire in three stages. These plans are attached hereto as Appendix E.

94. Other theories were advanced, and a Mr. P. J. Alley, a Lecturer in Civil Engineering at Canterbury College and a Member of the New Zealand Institution of Engineers, came before us with a scale model of the Ballantyne buildings, and by the introduction of smoke from a blower demonstrated his conception of the way the smoke would travel through the building. We found this exhibition of not much value, in so far as the course of the smoke was to a great extent directed by the pressure applied to the blower and the point to which it was directed.

95. We think our task, however, is not to be too particular about the detailed course of the smoke since the construction of the buildings and the numerous vents and flues provided by the lateral and vertical openings amply show that the smoke could readily and quickly make its appearance in ever-increasing volume throughout practically the whole of Congreve's, Goodman's, and ultimately Pratt's buildings.