

feet they would be more subject to force than if they had been prone on the floor. McIntosh was found farther out of the mine than any of the others, and that is accounted for by the fact that he was farther out in the west level when the first ignition occurred and was in advance of the others when he attempted to reach safety. The escape of the other two men, Boote and Burnett, was due to the fact that they were working in the east level, a considerable distance from the place where the ignition occurred, and the force of the explosion was therefore largely spent before it reached them. By crawling along the floor—as described by both men in their evidence—they were partly immune from the poisonous effects of carbon monoxide, which is a gas lighter than air and therefore does not lie close to the floor of the workings.

We now proceed to deal seriatim with the specific questions arising under our order of reference :—

(1) To inquire in what part of the mine the fire or explosion first started, the nature of the same, and how much of the mine was affected by it.

The explosion first started in the rise heading off the west level, which is the lowest level on that side of the mine. It was a gas explosion, and there was no evidence that it was accentuated appreciably by coal-dust as usually occurs. The whole of the mine workings were affected by the explosion to the extent that they became filled with poisonous and unbreathable gases in which life could not be sustained. The actual physical damage inside the mine was very slight. The greatest force took effect at the mine mouth where Kaye (jun.) was killed and where machinery and sheds were destroyed.

(2) To inquire how the fire or explosion began and spread.

It is our opinion that the explosion was originated by some one—most probably Williams—bringing a naked light into contact with an inflammable gas-mixture, and that it spread as previously described.

(3) To inquire to what extent the provisions of the Coal-mines Act, 1925, and the regulations made thereunder were complied with in the mine, and more especially as regards—

- (a) The examination of the mine :
- (b) Ventilation :
- (c) Lighting :
- (d) The preparation of shots and the method of firing shots :
- (e) The prevention and treatment of inflammable dust.

We are of the opinion that the provisions of the Coal-mines Act, 1925, and the regulations thereunder were generally disregarded in the mine, and in regard to the specific questions above enumerated, we are of the opinion that—

- (a) The examination of the mine was perfunctory and inadequate :
- (b) The total volume of air produced by the fan was sufficient, but it was not properly distributed to the working-faces, and the stoppings between the intake and return airways were not properly constructed. Moreover, it appears very doubtful whether the fan was run during the whole of the time required by Regulation 179 :
- (c) The use of electric safety-lamps was in accordance with the Coal-mines Act and regulations :
- (d) Shots were not properly prepared in accordance with the requirements of the Act and regulations. This was clearly shown by the two shots previously referred to as being found in the face of the bottom west level. These had been bored straight into the solid coal without any preparatory cutting or holing, and, further, they were both fully charged and tamped together in contravention of Regulation 231 (d) (i). The method of firing shots appears to have been by electric detonators and batteries. The finding of two batteries and two coils of shot-firing cable, both of which were obviously being used, raised doubt as to whether all shots were fired by the one qualified person in the mine. The fact that loose explosives and detonators were found at certain points on the floor of the mine-workings indicates that the regulations requiring the proper storage of explosive materials underground were not complied with :
- (e) Stone-dust had been used in the mine. The Coal-mines Inspectors' reports regularly recorded that stone-dust regulations were complied with, and the fact that there was no evidence of a dust-explosion confirmed these reports.

Other matters to which we think attention should be called under this heading are—

- (a) The timbering of the roadways and working-places was not carried out in accordance with the provisions of section 117 of the Coal-mines Act, 1925 :
- (b) The access to the mouth of the mine from the lower tram-line was in our opinion dangerous, and unfit for use as a regular travelling way by the mine-workers :
- (c) The requirements of Regulation 180 that an automatic pressure-recorder should be attached to the fan had not been complied with during recent months. An indicator had at one time been procured and attached but had fallen into disuse.