

PLANS.

I hand you herewith a plan of the workings of Nos. 2 and 3 Mines (scale 100 feet to the inch), taken from the blue print kindly provided for me by the Company for the use of this Department. On this plan I have had the intake air-courses coloured red and the returns coloured yellow, each split forming a separate district. I have also indicated on this plan, by white dots, the position in which each body was found, as closely as possible. These positions have considerable influence in deciding the nature and source of origin of the explosion. I have also added red ink arrows at various points where the direction of force was particularly noticeable or traceable.

FAN AND EXTERNAL EVIDENCE OF EXPLOSION.

The external evidences of explosion were exceedingly small, as compared with the widespread destruction inside of the mine.

Fan.—This is an exhaust fan of special make, very much of the Guibal type, 16 feet diameter and 8 feet blade, divided in the centre by an iron flange and said to have, at a speed of 200 revolutions per minute, a capacity of 200,000 cubic feet per minute, although reported as only being speeded up to 125 revolutions in the normal workings of the mines. This fan is driven by a belt from a horizontal engine of ample power and with suitable governor, and is supplied with steam from the general steam plant in properly protected pipes. The belt is provided with a "tightener" to prevent slip. While I was there the conditions were scarcely "normal," but I found the fan making 105 revolutions with a water gauge of about $\frac{1}{8}$ inch of water. There was trouble from slipping of the belt, and it had to be taken up twice during my stay. The fan is "set off" from the top of the fan shaft, taking the air from this through a tunnel built up with stone walls and timber roof, and so situated that the explosion coming up the fan shaft only blew the roof off the tunnel and did not injure the fan. The damage done here was temporarily repaired in 20 minutes, when the fan was again in operation. The "fan shaft" is 10x10 feet square, is vertical, and is in the neighbourhood of 100 feet deep, connecting at the bottom with the workings at about the level of the main tunnel and coming out on the hillside about 80 feet above the tunnel level. From the evidence of eye-witnesses of the occurrence, it seems that the explosion blew the roof off this fan-shaft, cracking but not destroying the stone walls, and that from the top of the air-shaft there arose clouds of black dust or smoke, but no flame. The shaft was not injured, though I could not examine it, nor are the air-courses leading thereto choked, as is confirmed by the low reading of the water gauge.

No. 3 SLOPE.

The force of the explosions found vent here, blowing out and taking off a section of the roof of the trestle (see plan) and a couple of posts, but not disturbing any of the permanent timbers in the slope. The trestle timbers are coated over with fine coal and mud, but, with the exception noted, no further damage was done to the slope or head works. No fire was shown here, nor did any evidence of fire appear in No. 3 Mine.

A second vent was found through a small drainage tunnel from No. 3 Slope (marked E1. 976 on plan) which had recently been cleared out. Here the blast blew small sticks, stones and mud across the creek, breaking a few windows in the wash-house, but doing no damage to the building otherwise, and here again not having sufficient force to blow out the mine timbers.

From *No. 2 Tunnel* there is said to have been a slight blast, and that it must have been slight only is evidenced by there being absolutely no destructive effects visible therefrom, either in the mouth of tunnel or on the roofed-in trestle which extends to and joins the tunnel. From this it must be evident that the force of the explosion had almost spent itself in the old workings before it reached the surface.

As I am able to hand you herewith detailed plans of these mines, I shall not describe the workings in detail, simply pointing out that in No. 3 Mine the haulage way and entry is a slope dipping to the east at a rather varying angle, somewhere about 8° on an average, and which is just about sufficient to permit the "empties" descending to haul after them the hoisting rope.

The air for the No. 3 Mine enters by the slope, a split being taken off to ventilate the workings to the north of this slope, and again comes back to the latter at the No. 1 level, continuing to the *deep* of this slope and returning by a counter slope to *No. 1 level south*. It circulates around the last-mentioned level and returns through the old workings to the fan, which is the common ventilating power for all the workings on this side of the creek.