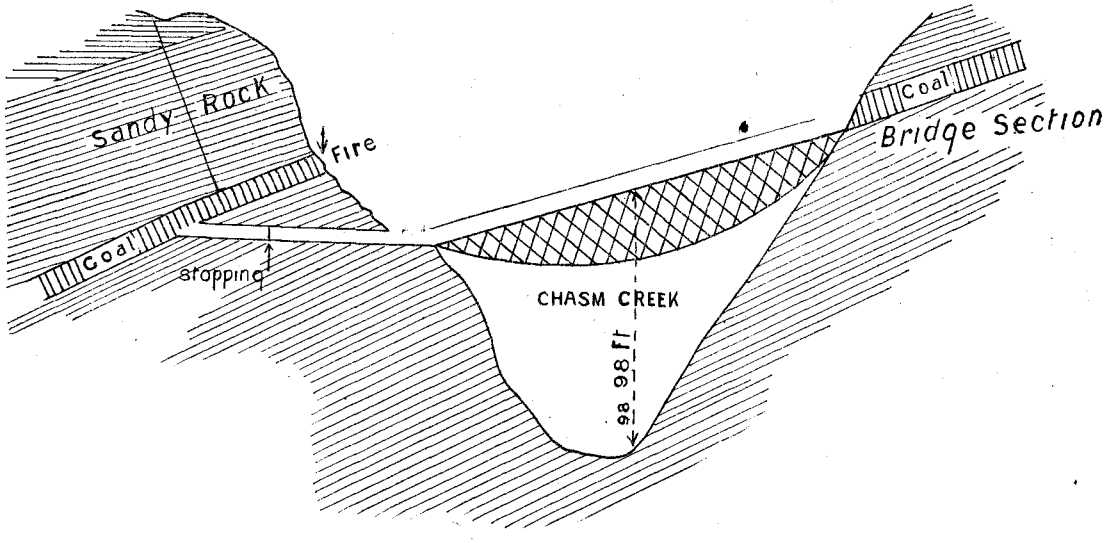
to the surface-level of this subsidence, 45 ft. (aneroid reading) above the log-dam stopping. Some little time afterwards Mitchell found the water ceased to overflow at the subsidence, and also that it was disappearing. In the meantime the company do not appear to have been doing anything, and a partial collapse of the timbers at the mine-entrance took place. Being anxious to find whether the stopping was keeping tight, Mitchell went in to examine, and informs me that he found water escaping from below the sole-piece of the dam very rapidly, and he considers there is every reason to suspect that the sole-piece had been deliberately undermined for a length of about 3 ft., evidently for the purpose of allowing the water to escape and the fire to gain ground. From some remarks I heard casually from another source, my own suspicions have been aroused, and I am inclined to think there is something in Mitchell's view.

At the time the accumulated water was overflowing at the subsidence referred to, I estimate that all the underground area, tinged blue on tracing, would be under water. (The average of three readings of aneroid gives 58 ft. of rise between stoppings at 1 and 2.) The accumulation of water over this area must have forced the black-damp on to the fire, and I am strongly of opinion that active fire only exists at the present time adjacent to the outcrop, where it can get the necessary fresh air for its support. I am led to this opinion by the fact that some distance back from the cliffs black-damp can be found in cracks to the surface, also that although there is fairly active fire above the tunnel at 2 the stopping there was quite cool when I examined it. (See sketch.)



Near 3 on tracing, the fire at outcrop is very fierce; it is at an elevation beyond the effective power of available water.

So far as operations at the mine are concerned, the present position is as follows: The question of putting in a dam at or near 4 on tracing, and another at top stopping (2 on tracing), which would enable the mine to be flooded practically to the outcrop, appears to have been considered by Messrs. Dixon, Tennent, and Mitchell practically from the first; the difficulty was, how to get to the site for dam at 4, seeing that so large a body of black-damp has accumulated. Owing to its specific gravity (one and a half times heavier than air) it stands to reason that when it can be got at surface cracks back from the burning outcrop, every bit of open ground in the mine must be full of it, and no better fire-extinguisher can be obtained.

However, as Messrs. Shore, Alison, and Foster have recommended something on the same lines, Messrs. Dixon and Tennent determined to try to give effect to the gist of their recommendation. As it was considered there would be a considerable element of risk to life in attempting to open out the air-shaft, they decided to erect the fan near the mine entrance, and attempt to force back the black-damp over the fire. If this scheme succeeds, the dams will be erected, and this will enable the mine to be flooded to out-crop level, but it is no use erecting the dam at 2 unless the place at 4 can be reached, and a dam built there. In the meantime, the site at 2 is being conserved by keeping the fire at the outcrop above the tunnel in check. For this, water has been conveyed in 2 in. pipes from a small creek across the bridge for a distance of 15 chains; but when I visited the source of the supply all the water in the creek could be carried by a $\frac{3}{4}$ in. pipe, and as this appears to be the only water available at the elevation required Mr. Tennent was naturally very anxious about being able to keep the fire above the tunnel in check, having the possibilities of the erection of a dam in view. Heavy rains have since fallen, and at subsequent visits to this point, I find the increased water-supply has enabled the fire to be kept as well in hand as can be expected, short of complete flooding, which cannot be effected at such a height unless the dams referred to can be put in.

Mr. Tennent has been criticized for using 2 in. pipes instead of 4 in. I find he used what was already on the ground, and the water-supply has not been enough to fill them for some time. Delay and expense would have been incurred (and probably more damage) if he had waited till larger pipes could have been got and fixed.

As preparations for carrying Messrs. Dixon and Tennent's plan into effect were fairly well advanced when I arrived, I thought (after discussing the matter fully with them) that it might be as well to give it a fair trial. The bad weather of the last two or three days has rendered pro-