

costs £3 10s. for non-compliance with special rule No. 17 under the Coal-mines Act of 1908, in that he did not see that the underviewer or his deputy remained underground while two men were on shift during the evening of 20th July, being the occasion when James R. Walker was killed by a fall of roof.

17th August, 1911.—Kaitangata Colliery: Joseph Carson, twenty-five, roadsman.—Fatally injured by a fall of stone from roof while timbering roadway.

7th September, 1911.—Homebush Colliery: Thomas Patterson, forty-eight, miner.—Fatally injured by a fall of stone from low roof on roadway while setting timber thereto.

*Non-fatal.*

Kaitangata Colliery (7/7/11): John Hale, roadsman, sustained a fractured leg by being caught between a box and prop owing to the sprag coming out on the heading.

Kaitangata Colliery (21/7/11): William Christian, roadsman, sustained a fractured rib and contusion of back owing to being struck by a piece of stone from roof while repairing timber.

COAL-MINERS' RELIEF FUND.

Contributions by coal-owners to the Coal-miners' Relief Fund amounted to £889 11s. 1d., while payments from the fund aggregating £604 1s. 3d. have been recommended on account of accidents which occurred during the year in and about coal-mines in the district.

I have, &c.,

E. R. GREEN,

Inspector of Mines.

ANNEXURE B.

QUESTIONS ASKED AT THE 1912 MINE-MANAGERS' EXAMINATION FOR FIRST-CLASS CERTIFICATES OF COMPETENCY.

SUBJECT 1.—*Prospecting, Boring, Shaft-sinking, and Opening out a Colliery.*

1. Describe how you would proceed to examine and test a coalfield prior to spending capital on development; also describe appliances for boring with which you may have had experience, and the conditions under which you would use same.
2. How would you secure a main trucking-road with heavy side pressure and soft roof, the road to be 8 ft. wide by 6 ft. high in the clear? Give sketch of sets and sizes of material you would use.
3. What are the chief points to be considered before deciding a system of working (bord-and-pillar, longwall, or any modifications of these) a seam of coal?
4. Describe fully the plant necessary for the sinking of shafts to considerable depths, and the special appliances and means usually adopted to ensure the safety of men employed at such work.

SUBJECT 2.—*Working Coal and Timbering underground.*

1. Give sketches of (a) bord-and-pillar on the panel system, (b) general arrangement of long-wall workings, with figured dimensions of size of pillars, width of bords and trucking-roads, also the distance between the gates in longwall (assume normal conditions).
2. Enumerate the conditions which govern the size of pillars.
3. Show by sketches how you would proceed in extracting pillars in a steeply inclined seam, and describe special means (if any) which you would adopt to avoid accidents.
4. What rules would you lay down with the object of preventing accidents from falls of roof and sides, also from shot-firing?

SUBJECT 3.—*Mine-gases, Spontaneous Combustion, and Ventilation.*

1. Prepare a chart for fire-damp, white-damp, and black-damp under the following headings: Proper name; Chemical formula; Specific gravity; Character; Effect upon man; Explosive proportions; Caused by; Test for; Where found.
2. In the general body of the air in a working-place what percentage of  $\text{CH}_4$  would you consider sufficiently dangerous to warrant the withdrawal of the men (a) where safety-lamps are used? (b) where naked lights are used? Also state the minimum percentage of oxygen and the maximum percentage of  $\text{CO}_2$  in which miners should be permitted to work.
3. How and where would you measure the quantity and take samples of the quality of air in mine-workings which were reported to be inadequately ventilated? What is the minimum velocity which an anemometer will correctly register?
4. A current of 25,000 cubic feet of air is split into three airways, A, B, and C, having the following dimensions: A—Area 6 ft. by 9 ft., length 700 yards; B—Area 6 ft. by 10 ft., length 800 yards; C—Area 4 ft. by 10 ft., length 300 yards. How will the quantity divide itself amongst these splits if no regulators are used and all splits are subject to a common pressure?
5. If 2 horse-power produces 10,000 cubic feet of air per minute in an airway 10 ft. by 10 ft., what horse-power will be required to produce the same volume of air in an airway 10 ft. by 7·5 ft.? (Assume both airways to have the same length.)