

77. *Bruce Coal-mine, Milton*.—On the 19th April, 1887, I visited this mine, and found that a weekly but no daily report was kept, and that the mine was not examined with a safety-lamp. On the 10th May notice was sent to Mr. Hardwick to comply with these portions of the Act.

78. *Real Mackay Coal-mine, Milton*, was, on the 19th April, 1887, in much better order than usual; the pillars larger, and the bords and headings less wide. Also a very good daily report was kept, but no safety-lamp at the mine. Air good, and the mine generally in good order. On the 27th August Mr. Young called at my office about the abstract of the Act.

79. *Fortification Coal-mine, Milton*.—The bad system of working described in my last report on this mine has materially damaged the property, but on the 19th April it was in somewhat better order. Still, in several details the law was not kept, and I therefore, on the 10th May, wrote to Mr. Reid.

83. *Benhar Colliery, Stirling*.—In August, 1887, Mr. Nelson wrote, stating that he had never received a copy of the Act relating to coal-mines. Having written to Wellington for a copy of the "new Mining Act," he had received one, in which nothing about coal could be found. I may call the attention of colliery managers and others to the fact that it is necessary when sending for an Act of Parliament to quote the exact title, otherwise the wrong one may not improbably be sent. On the 21st September I called, and found the owner and manager away, so went round the workings without him. As the office was closed I saw no report or plan.

84. *Penman's Coal-mine, Benhar, Stirling*.—On the 21st September, 1887, I visited a small coal-mine at Benhar, then recently commenced by Mr. J. Penman, with whom I went over the provisions of the Act, and to whom I sent a copy on the 28th September. He, however, very shortly afterwards sold the mine to Messrs. J. and A. Morison.

85. *Rigfoot Coal-mine, Benhar*.—In September last this was an open-work coal-mine near Benhar, owned and managed by Mr. James Aitken.

86. *Kaitangata Railway and Coal Company's Mine No. 1, Kaitangata*.—This is the old shaft, and has not been in operation during the year.

87. *Kaitangata Railway and Coal Company's Mine No. 2, Kaitangata*.—Under this are comprised the engine-plane workings, which have been vigorously, successfully, and, with one exception, safely worked. On the 4th October, 1887, eighty-five men were employed below ground. An examination of the workings failed to discover any gas. In the top bord, No. 1, South Incline, head coal was being worked. The place was an enormous height—28ft. or 29ft. at least; and, as I have never considered it safe to work under these high places, I informed Mr. Shore of my opinion. He quite agreed with me, and explained a new system, which was then in fact being tentatively employed. This consists in working first about 10ft. vertically of sufficient proportion laterally to bring on a weight which crushes the pillars into the floor; the whole area is then allowed to settle, which it does in a very interesting and satisfactory manner. The upper portion of the already-worked bords is then taken out, and by this process the men are not subjected to the danger of filling below a roof which they cannot possibly examine. The ventilation generally was good. The water-pipe which descends the upcast shaft, and which was referred to last April, has been continued into the workings. As this introduces a system hitherto somewhat rare, a few words descriptive of the arrangement may not be out of place. The pipe, which is 2in. in diameter, commences at a dam near the furnace-shaft, is then continued down that shaft 3 chains, to the incline $2\frac{1}{2}$ chains, 12 chains along the south level and 3 chains on the north, then 8 chains down the main incline, where it joins the pump air-pipes, which continue 17 chains up the main engine-plane to the surface, and 4 chains on the surface to the compressor. At all the openings are T joints, where the water can be tapped for laying dust; and the whole length of pipes can be used either for compressed air or water. It is evident that in many colliery explosions—notably the one which occurred here in 1879—the power of turning fresh air into the mine would have been the means of saving many lives; and although these pipes were not put down for that purpose, and will, I trust, never be required for it, it is gratifying to know that they are there, and would probably be uninjured by any accident which could occur. As present, as stated, the upper portion is used for water, with which the furnace-ashes are cooled and the roads moistened; and the lower portion is used for air, which drives the pump and a coal-cutter. This also merits description. It is known as Harrison's coal-cutter, and is a remarkable machine, entirely unlike most of the class with which one has been acquainted in past years. Instead of working on fixed rails, with a sawing or scraping motion for the cutter, it is quite free on a pair of wheels, on a wooden platform with a ratchet-motion, which keeps it up to the face, and has a direct-acting cutter working like a slotting-machine. The direction is given by a man, who holds two handles at the back; and the whole machine is about the size and shape of an ordinary basket perambulator without the front wheel. I am sorry to have no drawings, which might have explained it better. The only machine of at all similar design with which I am acquainted is one patented by Routledge and Ommaney in 1866, which struck a succession of rapid blows, and was held to its work by a man. In spite of the small size, it undercuts to about 4ft., and, when fitted with larger wheels, vertically equally well, making coal superior to that produced by hand-cutting. It is premature, perhaps, to express any opinion at present, but my impression is that the problem of a thoroughly efficient coal-cutter has not yet been solved. On the 8th October, 1887, I wrote to Mr. Shaw, suggesting that where it is necessary to work the very high places a light temporary scaffold might be erected for the men to examine the roof. The reply was that such an appliance should be used if required. At the time of writing, however, no head-coal was being worked. During the year one man was injured for 52,889 tons raised and this notwithstanding the fact that for a considerable period the mine was worked almost entirely by unskilled labour.

88. *Castle Hill Coal-mine, Kaitangata*, commenced near the end of 1887, and not visited during that year.

89. *Whangaloa Coal-mine, Whangaloa*.—Visited on the 5th October, 1887, when there was nobody about, so I did not go through the mine. Very little has been done.