

there can be no doubt about the large quantity of good coal available in that side of the company's property. The office books show that a little gas is frequently found in the south workings, but in small quantities.

74. *Castle Hill No. 1, Kaitangata*.—(6/10/93): There were two men employed splitting some of the pillars where it is said the coal roof is from 4ft. to 5ft. thick. The roof and sides of the old workings are in splendid order, and do not appear to have altered since the coal was taken out—from three to four years ago. Although the coal is similar to the Kaitangata, no gas is found in this mine. The old workings are very dry and comfortable to work in.

74. *Castle Hill No. 2*.—The company, after spending much money and time in sinking a large shaft to a depth of 430ft., chiefly through hard-packed sand carrying a large body of water in places, eventually abandoned it, as it appeared hopeless to make satisfactory progress when the water gained on the tanks and pumps throwing 30,000 gallons per hour. I think the pumps worked continuously for weeks after an inburst of sand and water, when the latter gained on the pumps to a height of probably 200ft. in the shaft, and maintained that level against pump and tanks together, till the work was abandoned in favour of constructing a dip-drive, which, after a little delay, was started a short distance from, and on the east side of, the shaft. The dip is 1 in 4 to the eastward, where the hard conglomerate formation is supposed to exist from the surface to the coal. This tunnel is 11ft. wide by 6½ft. high, with a brick centre-wall 9in. thick, built up to the roof-laths and caps. The latter are chiefly ironbark timber, 10in. by 6in., placed 2½ft. from centre to centre in soft places, and as much as 6ft. from centre to centre in hard conglomerate formation. Sills are placed under each set of timber in soft places, and the brick centre-wall is generally into the floor 9in., but more in soft places. There are openings 3ft. wide to the roof at short distances along the centre-wall to allow men to pass from side to side when employed doing repairs, &c. These openings are temporarily closed with scrim so as not to interfere with the air-current. The pump side is made to answer the purpose of an upcast, in which the steam from the Tangye pump assists to create a good current of air past the working-face. A large three-plunger pump, capable of throwing 30,000 gallons per hour, is to be placed at the coal seam when it is reached, and is to be driven by an endless wire rope on a surging-drum 7ft. 6in. in diameter. The pump is now being constructed at Sparrow's Foundry, at a cost of £500. The wall and timbering in the tunnel is kept as close up to the face as is necessary for safety to the workmen, who number about ten each shift, but not so close as to crowd the men. Some necessary alterations of the surface-plant, to drive the new pump, and wind the coal by the endless-haulage system, are being proceeded with simultaneously with the other preparations, so as to be ready to do a large output of coal as soon as the seam is sufficiently opened out to make room for men. The old pit, No. 1, supplies this No. 2 with fuel. (3/2/94): The tunnel is now driven 1,900ft., and is supposed to be within 200ft. of the coal, and equivalent to a vertical depth of 570ft. from the surface, or 420ft. vertical depth below the tunnel mouth. A considerable body of water was tapped at 700ft. down the tunnel, equal to 8,000 gallons per hour for a time, but now drained off to half that quantity. Again, at 1,400ft. down, in September last, another fissure was cut into, which gave 10,000 gallons per hour, making in all 14,000 gallons to be lifted from this depth. Since then the drainage has been getting less, and the conglomerate cutting comparatively dry. Much more water is not anticipated till the coal is reached. At a distance of 1,300ft. from the tunnel mouth, a downthrow fault was cut through, and to ascertain its depth a bore was put down 170ft., which passed through the coal. From this it is calculated that the seam will be found at a total length, 2,100ft. of tunnel.

The small 500ft. shaft on the property, sunk to the coal over three years ago, is now being enlarged to a 9ft. circular air-shaft. The first work necessary, from the bottom of the tunnel or engine-plane when the coal is reached, will be a tunnel of probably 18 or 20 chains to the proposed air-shaft. A similar tunnel should be started from the bottom of the shaft when it is finished to meet the one coming from the engine-plane.

The three-plunger pump now fixed in the engine-plane is driven by a wire rope on a surging-drum, and does the work very well.

75. *Wangaloa (Smith's) Mine*.—(6/10/93): The output of coal from this mine is now very small indeed. I examined several of the old working-places, and found them in good order.

76. *Lesmahagow, Wangaloa*.—(6/10/93): Examined all the working-places, which are not far in from the face of the terrace. The sales are now very small—too small to enable the poor old man, now seventy-four years of age, to make a living. The mine is in good order, and is carefully worked.

77. *Crofthead Mine, Kaitangata*.—(6/10/93): Examined the present, and some of the old, working-places, and found them in good order. No gas is reported to have been found in this mine. The most southern portion of this pit is nearly worked out, but there is a large body of coal on the north side of the main travelling road—three years' work—but that is in the dip of the mine, and the old workings in that quarter are at present full of water. Some attempt was made some time ago to take out the water by a horse and a tank fixed on a trolley, but this plan only equalled 250 gallons per hour, which was too slow and too costly to be continued. There is some other plan in view for getting rid of the water, but no definite plan has yet been decided upon. The dray-road from the mine to Kaitangata (two miles) is in a very bad state indeed, and requires four horses to take one ton on a dray, notwithstanding most of the distance being downhill. The body of the dray at places drags along on top of the mud, and in this way levels it down, leaving a smooth surface behind it. The road is a disgrace to the county.

78. *Mainholm (Lischmer's) Mine*.—(10/10/93): This mine is, if anything, in better order than at my previous visit. The stripping continues much the same in depth and character, and is now more in advance of the face of coal, which continues as nearly level as possible. Since my former visit a new industry has been started at the pit, by which at least a portion of the clay stripping is to be utilised in making bricks. The good clay will no longer be wasted by dumping it into the worked-out ground, as of old.