

mining is confined to pillar-extraction, and in the Wareatea section, where solid work—i.e., the driving of bords—is in progress. In the last-named section the coal is considerably fractured, and “sooty backs” occur frequently; for this reason it is advisable that props and bars shall be more extensively used in preference to props and cap-pieces.

Iron Bridge Colliery (Denniston).—Development has proved a considerable area of workable coal on the northern side of the Waimangaroa River towards the old Koranui Mine, also in the direction of Mount William. Pillars are being extracted in the older sections of this mine. There still remains a large quantity of high-quality bituminous coal at the Denniston collieries.

Millerton Colliery.—Operations at this, the most productive colliery in the Dominion, have been chiefly carried on at the Old Dip, No. 4 west and No. 6 pillars, and Mangatini sections. The coal reserves on this property are extensive.

Westport-Stockton Colliery.—There has been a large increase in the coal-output, due to a better market for the soft pillar coal contained in the first-worked area adjoining the tunnels in the electric haulage-road. Development in the new eastern area has been fairly satisfactory.

Seddonville State Colliery Reserve.—For the purpose of testing the quality of the coal proved by boring near Charming Creek during 1911 and 1912 (a plan of which accompanies my annual report for 1911), two shafts have recently been sunk to the floor of the coal-seam at sites immediately adjoining boreholes No. 5 and No. 10, 40 chains apart, between Muir Brook and Frank Brook, tributaries of Charming Creek. The first of these shafts entered the coal-seam at a depth of 76 ft., and the thickness of the seam (including an irregular stone band of about 5 in. at 11 ft. from the roof) is 20 ft. 6 in. The coal was hard throughout. About 1,300 gallons of water per hour was encountered in the No. 5 shaft (of 6 ft. by 3 ft. dimensions). In the second shaft, near No. 10 bore (which is 7 ft. by 3 ft.), at a depth of 115 ft., the coal-seam was found to be 20 ft. in thickness, a clay band $\frac{1}{2}$ in. in thickness occurring 11 ft. from the roof. The coal was hard and clean throughout. About 800 gallons of water per hour percolated into the shaft from the sandstone penetrated.

The Dominion Analyst has made the following analyses of coal from the shaft near No. 5 bore:—

—	Top Coal.	Bottom Coal.	General Sample.
Fixed carbon	56.32	54.44	54.65
Volatile hydrocarbons	40.34	43.10	42.23
Water	2.04	1.43	1.37
Ash	1.30	1.03	1.75
	100.00	100.00	100.00
Sulphur, per cent.	4.720	5.350	5.070
Specific gravity	1.280	1.285	1.275
Calories, per gramme	..	..	7,858
B.T.U., per pound	..	..	14,144
Calculated evaporative power per pound ..	..	..	14.66
Practical evaporative power, assuming 60 per cent. efficiency	..	..	8.80

About 200 acres of workable coal has been proved by systematic boring in the Charming Creek basin, and between one and a half to two million tons are obtainable therefrom. It remains to be proved whether the exploitation of this area for a State colliery is warranted.

Grey Coalfield.

Liverpool State Colliery.—Three separate sections are being worked in proximity to the main endless-rope haulage incline. At No. 1 mine, situated at the top of the incline, two coal-seams are being worked, both friable and in places soft. The upper seam probably does not exceed 70 acres in extent, most of which is now standing on pillars, a few having been extracted. The lower, or “Morgan” seam, entered by a cross-measure drift from the upper seam, is of greater extent, about 100 acres having been proved by boreholes and outcrops. This seam averages about 17 ft. in thickness and contains a thick band of stone; mining operations on it have but recently commenced.

No. 3A section is but a small development, about one mile and a quarter south of No. 1 section, on a thin seam of limited extent.

No. 3 section, near the coal-storage and screening plant at the bottom of the incline near Rewanui, has produced coal of greater hardness than that of the other sections of the Liverpool Mine. It showed prospects of developing into a good mine when, during 1916, operations to the north-westward encountered a formidable downthrow fault which reduces the area over which profitable coal was expected.

In equipment and mining methods this is the most up-to-date colliery in the Dominion if not in Australasia. Electrical power drives all machinery. Imperial-permitted explosives and electric miners' lamps only are used. Modern bathhouses with warm-water showers to the British standard are installed at both Nos. 1 and 3 sections. Ventilation is adduced by fans of Sirocco type, with self-recording water-gauges, at every section.