

Point Elizabeth State Colliery.—This profitable old colliery is in the last stages of pillar-extraction, and but little coal remains to be won; within a year in all probability the mine will be exhausted of coal.

It is gratifying to report that there has not been a fatal accident at any State colliery since 1912, notwithstanding that an average of about 450 persons have been ordinarily employed. I have always found the ventilation, both as regards quantity and distribution, excellent.

Blackball Colliery.—A small decline in annual output has been experienced. Development has been extended both to the rise and dip of the mine. Water in considerable quantity has hindered mining in No. 2 section. There has been trouble from spontaneous heating, but by the panel system here adopted affected areas have been stopped off and thus isolated. A commodious bathhouse was erected at this colliery during the year.

No other coal-mining of much importance was carried on during 1916 at West Coast collieries.

Broken River Coalfield, Canterbury.

At Broken River, near Avoca Railway-station, on the East and West Coast Railway, sixty miles north-west from Christchurch, the Mount Torlesse Collieries (Limited), an English company, is laying down a colliery to work the brown-coal seam of from 5 ft. to 13 ft. in thickness, for many years known to exist on Cloudesley's freehold which, with other land, has been acquired by the company. A surface haulage trainway three miles and a quarter in length from the mine at Broken River to Avoca Station has been partly constructed. This will consist of four sections, as follows: From the mine for half a mile down the river-bank, locomotive traction, gradient about 1 in 80; thence up an incline 30 chains in length to Avoca Flat, having a gradient of about 1 in 2½, rope-haulage by steam power; thence across Avoca Flat by locomotive traction for about two miles, gradient about 1 in 71; and from thence for 30 chains by endless-rope, self-acting, to the railway-sidings at Avoca Station. The railway-sidings, screening, and power plant have not yet been commenced. The plant is being laid down to handle an output of about 400 tons per day. The above operations are being carried out for the owners by Mr. J. A. C. Bayne, mining engineer, of Roa, Westland.

Otago Coalfields.

Kaitangata No. 1 Colliery.—The principal colliery of the group of three collieries, the property of the New Zealand Coal and Oil Company, is Kaitangata No. 1, where the mine is worked in three sections on the panel system, owing to the great liability to spontaneous heating. The claystone floor of the coal-seam, owing to creep, is a great and constant hindrance to profitable mining. This being the most gaseous colliery in the Dominion, British-permitted explosives and safety-lamps only are used. The coal is of superior quality, and the demand for it greatly exceeds the output. Shortage of miners is a serious problem here. The ventilation at this colliery has greatly improved of late, especially as regards distribution. In the past there seems to have existed a vague opinion that by increasing the air-current fires would be created, whereas the reverse is the case, for the greater the volume of air passing over the exposed coal-surfaces the lower will be the temperature of such surfaces.

Kaitangata No. 2 and Castle Hill Collieries are smaller mines worked in a similar manner to No. 1, but less gaseous. At the former colliery heating of coal frequently occurs with consequent reduction of oxygen in the mine-air, in addition to a very bad creep, these being the chief obstacles here contended with. At the Kaitangata collieries the main haulage-roads are lined when passing through heated coal or fire-zones with steel plates lagged with timber slabs supported on frames of heavy steel rails. This steel lining of haulage-roads has proved effective in cases where many thicknesses of brick arching had previously failed; the construction of the latter is therefore now discontinued.

Electricity at Collieries.

During 1916 there has been practically no increase in the number or capacity of electrical installations.

The following is a summary of the annual returns in accordance with Regulation 160 (c), regarding electrical apparatus at collieries:—

Number of collieries at which electrical apparatus is installed	...	13
„ continuous-current installations	...	10
„ alternating-current installations	...	2
„ collieries electrically lighted	...	12
„ collieries using electrical ventilating-machines	...	7
„ „ pumping plants	...	5
„ „ haulage plants	...	7
„ „ screening plants	...	2
„ „ miscellaneous plants	...	3
„ „ locomotives	...	1
Total horse-power employed from motors on surface	...	1,740
„ „ underground	...	671

(b.) VENTILATION.

The ventilation of New Zealand collieries has attained a high standard. The results shown by the accompanying tabulated analyses of the state of ventilation and contents of the mine-air at the two most gaseous mines in the Dominion is of considerable interest which all concerned may justly take credit for.

At Taupiri Extended Colliery, Huntly, in the Auckland Provincial District, fire-damp was detected by safety-lamp and reported by examining officials on thirty-three days during 1916, the largest quantity found at one place being 200 cubic feet of gaseous mixture. The method of mining is bord and pillar; there is no goaf.