

and a quarter of railway to join with the Government line, the erection of coal-bins of about 5,000 tons capacity, also 50 chains of incline on a rising gradient of 1 in 3, and a high-level rock-tunnel, the whole system to be constructed and equipped for endless-rope haulage.

A new lease of 1,785 acres has recently been taken up by Mr. Jonathan Dixon, M.E., on the coastal plain near Sergeant's Hill Railway-station, three miles from the Harbour of Westport. This plain lies at the base of the hills upon which the Coalbrookdale Collieries are situated, and is bounded on the west by the ocean, to the north by the Waimangaroa River, and to the south by Cape Foulwind, and may cover an area of, approximately, twenty-five square miles. The probable existence of coal-measures under this plain has been reported upon by Sir James Hector, F.R.S., before the Royal Coal Commission, 1900, and by Mr. Alexander McKay, F.G.S., Government Geologist, in the "Geological Survey of New Zealand, 1901," and from these reports it would appear to be quite reasonable to expect a recurrence of the Coalbrookdale coal, with a westerly dip under the plain, at a certain distance from the base of the hills upon which the mines are now working. It is a question whether it is a downthrow fault or if denudation has taken place. There is no data available to go upon, but the lessee proposes to settle the point by means of the diamond drill without delay. If he is successful, an asset of great importance will be added to the mineral wealth of New Zealand.

On the Grey Coalfield, between the upper branches of Coal Creek and the Ten-mile Creek, a large and valuable extension of the Grey Coalfield has been proved by Mr. James Bishop, M.Inst.M.E. This field contains workable seams of excellent bituminous coal, the exact area of which is as yet undetermined, but is included in the State Coal-mine Reserve situated between the Paparoa Range and the ocean. This coal and that which occurs in the Paparoa Company's lease adjoining have been erroneously classed as anthracitic. An analysis of fourteen samples of this coal supplied by Mr. Bishop was made at the Colonial Laboratory, Wellington, in April, 1907, the following being an average of the results obtained: Fixed carbon, 58.15 per cent.; hydrocarbons, volatile, 36.85 per cent.; water, 2.40 per cent.; ash, 3.56 per cent.; sulphur, 0.27 per cent. The evaporative power per pound of coal was 14.70.

#### THE BRUNNER MINE.

The Brunner Colliery, near Greymouth, after thirty-six years' work, has ceased operations, being exhausted, having produced during this period 2,167,231 tons from 450 acres worked out. The thickness of the seam varied between 7 ft. and 11 ft., inclining at an angle of 14°, the coal (bituminous) having a specific gravity of 1.311; hence the total weight of coal in the area was about 6,641,725 tons, and the proportion extracted amounted to 32.6 per cent., which, considering the number of faults met with on the New Zealand coalfields, may be regarded as a high rate of extraction, that of the Buller Coalfield not being nearly so high, owing to faults, denudation, and to soft-coal areas. These figures may serve to form estimates for future guidance, as the Brunner Mine is the first large bituminous colliery to become exhausted, and upon which to base calculations. The percentage of extraction on the British coalfields was estimated by the Royal Coal Commission (England), 1899, to represent from 53 to 75 per cent.

#### THE WESTPORT HARBOUR.

This important harbour, designed by the late Sir John Coode, M.I.C.E., and constructed in its earlier stages under the engineering supervision of the late Mr. C. Napier Bell, M.I.C.E., has been workable at almost all states of the tide, the depths of water registered upon the bar ranging between 17 ft. and 26 ft. On only eight days during the year was the port unworkable.

The output of coal shipped during 1906 amounted to 607,608 tons.

The port is equipped to ship 20,000 tons per week when required. With the new collieries at present being opened up, and the increasing productiveness of those at work, annually increasing shipments from Westport are assured.

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FRANK REED,

Inspecting Engineer of Mines.