

Westport District.

Mokihinui Mine.—The workings were carried on in the area opened by the new incline. The seam is, however, much disturbed in this section, and operations have been stopped. The Hut seam has latterly been worked. The coal in this is better, as it is not intersected with stone veins to such an extent as in the old workings on the big seam. Forty-four men were employed.

Cardiff Mine.—This colliery has been conducted with profitable results; the coal is of a superior quality, and commands a ready market. The output for the year was 40,431 tons, and seventy-eight men were employed.

Granity Creek Colliery.—Since the preliminary work and erection of tramway was completed in the early part of the year a steady output has been maintained. Ninety-two men were employed. The mine is well equipped. All shots are fired by men specially appointed for the purpose. Two coal-cutting machines, driven by compressed air, are now at work; one is a Stanley heading-machine, which cuts two annular grooves in the coal each 5 ft. 6 in. in diameter; the other cutter is of the percussion type, and is used for holing. It appears to work satisfactorily, and relieves the miner of the most dangerous part of his work. The manager, Mr. Brown, states that these machines will not displace any labour, but that a somewhat greater output may be expected from the same number of men, with less liability to accidents from falls of coal when holing. The output since work on the coal commenced was 20,543 tons.

Coalbrookdale Colliery.—This mine, as well as the Granity Creek, is owned by the Westport Coal Company. The Iron Bridge Mine is also worked and owned by this company. The tramways and methods of conveying the coal to the railway are the most extensive in New Zealand, and the company are now in a position to supply all demands for their coal. The output for last year was 190,975 tons of coal from Coalbrookdale, and from Granity Creek 20,453, making a total output of 211,328 tons. Of this, 10,000 tons of Coalbrookdale coal was exported to San Francisco, Valparaiso, and other ports, chiefly by sailing-vessels. Coal-cutting machines are also to be adopted in this mine. A very extensive output can be maintained. During the year 315 men were employed at this mine, and now that direct foreign export is established there is evidence that the trade will largely be increased.

The other mines, in Longford, Boatman's, and Reefton districts, maintain a sufficient production to meet local demands.

Grey River and Grey Valley District.

Blackball Colliery.—The coal from this mine still meets with a fair demand, the output for the year being 45,722 tons, an increase of 2,667 tons compared with that of last year. Ninety men were employed in connection with this mine.

Brunner Mine.—The mine has produced a return which is only 7,491 tons less than the output of last year. The coal was chiefly derived from pillar workings. The disastrous accident which occurred in March, 1896, whereby sixty-five men lost their lives by an explosion in the mine, naturally led to time being taken up in the recovery of the bodies and the necessary repairs to the workings. The decrease may be thus accounted for. In the Brunner Rise Mine, which is owned by the same company, the workings were more in the solid, but latterly, as the coal was thinning out, pillar-work was also resorted to. The company have also been constructing a railway to the coal lease owned by them in the direction of the Seven-mile Creek. This line cannot be completed until the erection of the bridge over the Grey River is finished. The output for the year for the Greymouth-Point Elizabeth Company was 92,118 tons, and the number of men employed 213. The facts connected with the explosion that had such serious and disastrous effects have already been so fully elucidated at the inquiry held by the Commission that it is not my intention to further report on the matter. Efficient precautions are now taken at the mine. The blasting is done by roburite fired by electricity, the persons appointed as shot-firers always examining the places before any charges are exploded. The use of safety-lamps is also enforced on all those working underground.

CANTERBURY AND OTAGO DISTRICTS.

In consequence of my recent appointment, and pressure of other official duties, it has been impossible for me to visit either the Canterbury or Otago coal-mines, but from the returns furnished by the mine-owners it will be seen that the output continues to improve in many of the mines, more particularly in Otago, where the local demands for use in the boilers of the dredges and other mining machinery are increasing rapidly.

In the Malvern district the Home Bush, 3,164 tons, Springfield, 2,680 tons, Mount Somers, 2,018 tons, and Whitecliffs, 1,701 tons, were the chief producers. In North Otago the Shag Point, 21,097 tons, and Allandale Mines, 11,455 tons, stood highest on the list. In South Otago the Kaitangata Mine had an output of 72,536 tons, being an increase of 8,679 tons on the return of the previous year. The Castle Hill Mine's output was 12,825 tons; the Walton Park showed a slight increase, the return being 16,612 tons.

In Southland the Nightcaps Mine yielded 16,905 tons.

In the above districts a large number of small mines and pits yield an ample supply to meet local requirements.

THE PHENOMENA OF COLLIERY EXPLOSIONS, BY DONALD M. D. STUART.*

The subject of colliery explosions has engaged the attention of mining engineers for nearly a century, and experience and science have devised many precautions, with the result that the

* Paper read at the seventh annual general meeting of the Federated Institution of Mining Engineers at Cardiff, 15th to 17th September, 1896.—"Industries and Iron," September 18th and 25th, 1897.