

Southern Inspection District.

Barewood Gold-mining Company (Limited): The results for this well equipped and managed mine during 1910 were not so successful as anticipated by the directors. No. 4 (290 ft.) level stopes which were working during the previous year have yielded good profitable ore, and the prospects in the level itself were good. The shaft has since been deepened to a total depth of 410 ft., and No. 5 level (350 ft.) opened out, but the level itself and the stopes over it have only yielded ore of an average value of 15s. 2d. per ton. The working-costs per ton have been kept down to 17s. 8d. for mining, milling, and general expenses. It was proposed to open up No. 6 level (400 ft.), it being anticipated that ore of better value would be developed. During 1910 the mill ran continuously for ten months, treating 5,428 tons of ore, for a return of £4,118 9s. 5d. The operations of this company have been carried out in a manner extremely creditable to all concerned, and deserved success, and it is to be regretted that early in the present year operations were suspended pending reconstruction.

Ventilation.

Good ventilation is now recognized as a necessity at our metal mines, for, apart from the legislative enforcement of hygienic measures as a matter of public policy, the ventilation of mines has an important economic aspect, since it affects to a large extent the industrial efficiency of the workmen, and, consequently, the cost of mineral-production. Until recent years the ventilation of metal mines has not generally received much consideration, and the importance of pure air has been sometimes overlooked in metal-mining countries, but with the attainment of considerable depth and the extension of underground workings, the necessity for adequate ventilation is now universally acknowledged. It is satisfactory to report that in respect to the ventilation of metal mines New Zealand has not been neglectful, for by the installation at the principal mines of mechanical ventilators, in the form of centrifugal fans and blowers, underground temperatures have been reduced, and pure air is now the general rule. On occasions, however, such as in uprisings and near the ends of long levels or crosscuts approaching other workings, the air may at times be heated and somewhat vitiated; but in such special cases which would hardly warrant the installation of a separate fan or blower to meet the requirements of perhaps only a few days' work, the Inspector of Mines may constitute the place in question a "six-hours place"—i.e., a place where six hours' work entitles the miner to a full day's pay.

As in the case of collieries, the Inspectors of Mines, when not satisfied that the statutory quantity standard—viz., 100 cubic feet of air per minute for metal mines, and 150 cubic feet for coal-mines*—is adequate to secure good ventilation, are guided by the analysis of mine-air and by the wet-bulb temperature, the standard generally observed being that a minimum of 19 per cent. by volume of oxygen shall be present in every working-place, and that $1\frac{1}{2}$ per cent. of carbon-dioxide shall not be exceeded; also, that if saturated the temperature of the mine-air shall not exceed 80° Fahr., or 85° Fahr. under other conditions. These tests are not statutory, but they have been recommended as reasonable for mining conditions by the highest authority—viz., the British Royal Commission on Mines, 1909. The Inspectors of Mines in New Zealand have that necessary latitude which permits them to secure healthful conditions underground without harassing legitimate mining enterprise.

During 1910 the Waihi Grand Junction Company installed at No. 2 shaft a Sirocco fan of 40,000 cubic feet per minute capacity, also several electrically driven Sturtevant fans to ventilate dead ends. At the Progress Mine at Reefton there was also installed a 25 in. Sirocco fan.

In connection with the deep-levels scheme at the Queen of Beauty shaft, Thames, a powerful Roots blower has been installed, and produces adequate ventilation. The New Big River Company have also introduced a mechanical ventilator.

The use of sprays in connection with rock-drills is becoming universal; but there is found in New Zealand, as elsewhere, a considerable prejudice among some of the miners against their use.

(2.) DREDGE MINING.

From the following table, showing the result of gold-dredging during the past five years, it will be noted that although there is a decline in the total gold-production, and in the number of dredges in commission, the value of the production per dredge, also the average profits per dredge, remains stationary:—

Year.	Total Number of Dredges working.	Value of Production.	Average Production per Dredge.	Dividend-paying Dredges owned by Registered Companies.		Number of Persons employed.
				Number.	Dividends.	
		£	£		£	
1906 ..	167	505,199	3,025	66	103,722	..
1907 ..	128	419,634	3,278	65	89,707	1,150
1908 ..	123	373,818	3,039	47	75,800	1,013
1909 ..	111	327,676	2,952	37	56,788	893
1910 ..	104	315,237	3,031	35	51,918	838

* I.e., 100 or 150 cubic feet of air per person per minute respectively.