

The approximate total quantity of coal, &c., raised from the several mines throughout the colony up to the 31st December, 1903, is 18,577,825 tons.

The total number of mines at work is returned at 178, of which number 23 employ upwards of twenty persons, and require to be under the charge of a manager holding a first-class certificate. The mines which employ more than six, but not more than twenty persons, number 38, and a person holding a mine-manager's certificate of the second class is eligible to take charge. Where not more than six persons are employed the person in charge is required to hold a permit from the Inspector of Mines for the district. It is to be noted that several very small mines included in the total number are merely small lignite pits or quarries supplying fuel for the requirements of the owners only, or the demands of an extremely limited population.

The number of persons ordinarily employed is returned at 717 above ground, including those engaged at opencast lignite-pits, and 2,135 below ground, making a total of 2,852, or a decrease of 33 as compared with the returns for the previous year; and the output shows an average of 497.9 tons per person employed as compared with 473.15 tons for the previous year. Thick seams, machine coal-cutting, and a considerable amount of open quarrying account for the high average attained in this colony.

#### ACCIDENTS.

In connection with the actual working of collieries four persons lost their lives during the year. In each case careful investigation was made, and the Inspectors of Mines do not consider any blame attributable to officers in charge of work. Two other persons employed in construction-work at the surface at different collieries were accidentally killed during the year under conditions incidental to building and quarrying work. I do not therefore include these as coming under the head of mining fatalities for the purpose of striking an average. With this consideration, the number of fatal mining accidents is in the proportion of 1 to every 713 persons employed and 355,057.25 tons of coal produced.

It gives me pleasure to state that I find managers and officials generally solicitous for the safety of the men under their charge. If all workmen would give the same consideration towards their own safety as officials do on their behalf accidents would diminish in number.

Underground mining is necessarily a more or less risky undertaking, and the greatest possible care and precaution will not result in total immunity from accidents. It may, however, be stated that coal-mining work, notwithstanding the drawbacks of the comparatively feeble light under which it is carried on, and the powerful forces of nature which have to be grappled with, compares more than favourably with a very large number of surface occupations in relation to the occurrence of accidents; and, thanks to the provisions for first-class ventilation which are being generally adopted at all the principal collieries, the healthy nature of the coal-miners' work, as compared with that of many other industries, admits of no question whatever.

#### PROSECUTIONS.

No prosecutions were instituted by the Department during the year.

It is satisfactory to note that some colliery-managers recognise their responsibility in the matter of taking proceedings against employees for breaches of the general and special rules which are framed in the interests of general safety, and that action has actually been taken and convictions obtained against workmen for violation of regulations which might easily enough have led to serious consequences not only to the offenders themselves, but to other persons employed in the mines.

I cannot too strongly impress upon managers the fact that where employees wilfully violate the general or special rules their duty is to take legal action in the matter.

#### MECHANICAL VENTILATION.

The adoption of fans in place of furnaces for the ventilation of mines is now becoming much more general. In the case of a large colliery, fan-installation is often less costly than that of a furnace, whilst it is much less expensive to maintain, is infinitely safer, and the air is under better control. During the year a "Hayes" fan has been put to work at Allandale Colliery, Otago, and two others of the same type are being adopted at Point Elizabeth Colliery, Greymouth, whilst a small fan which formerly ventilated a section of the Westport Cardiff Mine will be used, temporarily at least, at Seddonville Colliery, near Westport.

#### EXHAUST STEAM IN MINE-WORKINGS.

In many of the small collieries in the colony steam-pumps—generally of the direct-acting "Duplex" type—are used, and are not, as a rule, of very great capacity. Steam is conveyed to the pump underground from a boiler at the surface, but the exhaust steam often presents a difficulty. If allowed to escape freely into the workings it is very liable to set up conditions inimical to the stability of the roof, besides making everything hot and wet for a considerable area, and therefore the rough-and-ready expedient of allowing the exhaust steam to discharge into the sump-water is frequently adopted. This certainly reduces the nuisance, but at the expense of efficiency, owing to the extra back pressure on the pistons caused by the head of water over the discharge end of the exhaust-pipe.

A very simple method of meeting the difficulty (which not only gets rid of the undesirable conditions entirely, but actually assists the pump owing to the condensation of exhaust steam and the vacuum obtained) has, on my recommendation, been recently carried out at two small mines with satisfaction to the management. The arrangement is as follows: The suction-pipes are laid as usual from the pump into the water-lodge or sump, *but the lowest length of pipe is somewhat larger*