(3.) We are of opinion that the Board of Examiners for mine-managers and other officials should be reconstituted, and consist as follows :—

One representative of owners of mines, being a mining engineer.
One representative of the workmen employed in mines,
The Inspecting Engineer of Mines,
The Director of Geological Surveys of New Zealand, and
The Surveyor-General of New Zealand

both under the Mining and Coal-mines Acts.

II. THE VENTILATION OF MINES.

We have given much consideration to the important subject of ventilation, for, apart from the legislative enforcement of hygienic measures in the interest of miners and 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. With the attainment of considerable depth in metal-mining operations and consequent increasing underground temperatures, together with the more extensive use of rock-drills and explosives in mines, the necessity for a stricter standard of ventilation than that at present established by statute has been represented to us. To enable us, therefore, to obtain a thorough knowledge of the existing conditions we have inspected the underground operations at the majority of the large coal and gold mines in the Dominion, and have made numerous measurements of the quantity and temperature of the mine-air, also taking samples of air for analysis (see Appendix, Nos. 2 and 4), in addition to which the Inspectors of Mines throughout the Dominion have furnished to us copious tabulated information giving the air measurements and analyses over an extended period. As the conditions and systems of ventilation at metal-mines and collieries are often dissimilar we have in this report dealt with each separately.

METAL-MINES.

The recent introduction of centrifugal fans and blowers in some of the most important metal-mines, to replace ventilation by natural means formerly adopted, has proved extremely beneficial, for, in addition to the greater volume of air circulated, the supply is constant and therefore reliable, which natural and consequently intermittent ventilation was not. We are therefore of opinion that to secure satisfactory conditions it is absolutely necessary that the deep metal-mines of this Dominion should be ventilated by mechanical ventilators.

Quantity Standard.

The following is the statutory general rule for the ventilation of metal-mines in New Zealand, as prescribed by section 254 of the Mining Act, 1908, and the additional general rule No. 94 (1) thereunder :—

> Ventilation to such extent as is prescribed shall be constantly produced in every mine, to the intent that the shafts, winzes, sumps, levels, and working-places of such mine, and the travelling-roads to and from such working-places, may at all times be in a fit state for working and passing therein.
>
> Ventilation shall be at the rate of not less than 100 cubic feet of air per minute for every person, and 600 cubic feet of air per minute for every horse or other animal whilst employed below ground: Provided that in any case where the Inspector is satisfied that the aforesaid rate is insufficient for the purpose of providing adequate ventilation, either throughout the underground workings generally or in any specified portions thereof, he may from time to time require such rate to be increased to such extent as in the circumstances he thinks reasonable.

In the above general rule provision is made for a quantity standard only; the quality and temperature of the air is not defined, but is left to the discretion of the Inspector of Mines, and the place of measurement of the specified quantity is not stated. We found that a considerable diversity of opinion existed as to whether the quantity of air per person was to be measured at the intakes, re-