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NEW ZEALAND.

REPORTS ON MINING, MACHINERY, ETC., IN VICTORIA AND NEW SOUTH WALES.

(BY MR. H. A. GORDON, INSPECTING ENGINEER.)

Presented to both Houses of the General Assembly by Command of His Excellency.

REPORT ON MINING, CRUSHING, AMALGAMATING, CONCENTRATING MACHINERY AND
REDUCTION PLANTS FOR TREATING METALLIFEROUS ORES, &c., IN VICTORIA AND NEW
SOUTH WALES.

PART I.

Mr. H. A. GORDON, Inspecting Engineer, to the UNDER-SECRETARY, Mines Department, Wellington.
SIR,—

Mines Department, Wellington, 18th May, 1885.

In compliance with the instructions of the Government that I should visit the Colonies of New South Wales and Victoria for the purpose of inspecting and reporting on the various systems of mining, underground haulage, ventilation, crushing machinery, and various plants for the reduction of ores, the use and cost of diamond-drills, &c., and collecting all information that was likely to be beneficial to the mining community in this colony, I have the honour to report that I have visited all the principal mining centres in the Colonies of Victoria and New South Wales; but the time allowed me would not admit of my visiting every field, nor was the same necessary, as there is a similarity existing in each class of mining, and in machinery for crushing, concentrating, and reducing each description of minerals. Quartz lodes are differently formed, yet all are stoped out on pretty well the same system, and machinery for extracting the gold has this peculiarity: that everywhere stampers are used for crushing the quartz, but almost each company has some slight difference in either the riffle and blanket-tables, or in the concentrating or amalgamating machinery. In visiting the various fields throughout these colonies I was in a great measure guided by information received from Mr. C. W. Langtree, Acting Secretary for Mines and Water Supply, Victoria; Mr. Harrie Wood, Under-Secretary for Mines, New South Wales; and Mr. C. S. Wilkinson, F.L.S., F.G.S., in charge of geological surveys, New South Wales, as to the fields that would be likely to afford me the most information, both with regard to the different classes of mining for gold, silver, copper, tin, diamonds, and coal; likewise where the principal machinery and plants for smelting, reducing, concentrating, and extracting the various minerals were employed. In reporting on the various systems of mining, and of extracting the different minerals, it may be as well to give a synopsis of the principal mines and plants that I visited in each colony.

VICTORIA.

GOLD MINING.

The fields that I visited in this colony were Sandhurst, Castlemaine, Maldon, Clunes, Creswick Creek, Ballarat, Stawell, Malmsbury, Beechworth, and Chiltern.

Sandhurst is the greatest field in the Australian Colonies for quartz-mining, and where improved winding, crushing, concentrating, and amalgamating machinery is employed. Mr. Grainger, the Government Inspector of Mines, accompanied me round this district, which is a complete network of quartz mines, and mining plants of almost every description for extracting the gold from the quartz. He informed me that there were 150 large mines in the vicinity of Sandhurst, besides a large number of smaller ones.

WINDING MACHINERY.

The winding machinery in the Sandhurst district is superior to that employed in any other I have visited. The largest winding plant is that belonging to the New-chum Company, which consists of a pair of steam-engines, having cylinders 22in. in diameter, with winding-drums about 12ft. in diameter, for working winding ropes made of steel wire, which is employed for haulage. The winding-drums are so fixed that they can work in conjunction with each other. One can be taken out of gear while the other is winding, or the winding-shaft can be disconnected entirely from the engine-shaft by sliding plummer-blocks. Each of the winding-drums, as well as the fly-wheel of