

for a distance of 750 ft., and also for a distance of 100 ft. on the Point Russell level, all ready for stopping, with 200 ft. of available backs. It will also soon be cut at the main-adit level, which, from its course and underlie, will join with the Reuben Parr reef at this depth. A cross-cut has also been constructed from the Golden Age reef, on the 100 ft. level, for a distance of 600 ft., and the Waiotahi lode cut, but very little driving has yet been done on this lode to ascertain its value. In the western section of the mine, which comprises the seaward side of the Great Moanataiari Fault, a new shaft 12 ft. by 5 ft. 6 in. in the clear has been sunk on the south side of the Moanataiari Creek, and is now down to a depth of 400 ft. Two levels have been opened out from this shaft, one at 150 ft. below the main-adit level and another at about 90 ft. lower depth. These levels correspond with the old levels constructed many years ago from No. 1 shaft sunk on the northern side of the main adit. All the old levels have been cleaned out and repaired, ready to stoep out the different blocks of ore which were left in the early days on the Caledonian reefs, Nos. 1, 2, and 9. A cross-cut has also been constructed from the main adit to the new shaft, where a chamber is constructed, and where all the ore from the deep levels will be landed and conveyed through the main-adit level to the battery. The new shaft will be sunk another 100 ft., and levels opened out on the Caledonian reefs, which will give about 140 ft. of backs on all these reefs, as no work has been done in any of them below the levels at present opened out. Another important work now in course of construction is a cross-cut from the new shaft at a depth of 250 ft. below the main adit to cut the Waiotahi reef, which is now driven on for a distance of about 160 ft., leaving yet 570 ft. to construct before it will intersect the lode underneath the place where the rich bonanza of ore was found in the Cambria Mine. This will give about 125 ft. of backs on this lode before the reef passes into the Cambria ground, the length available of the reef at this place being about 600 ft.

The whole of the work in this mine is entirely confined to prospecting and development. The object of the company is to thoroughly open up every portion of the mine, so that a large and continuous supply may be got to keep the new crushing-mill, when erected, going. In order to carry out the development works expeditiously, a large air-compressing plant has been erected, capable of working four rock-drills at one time. A new double-cylinder steam winding-engine has been erected at the shaft, the cylinders being 12 in. in diameter, fitted up with winding-drums 7 ft. in diameter, with powerful brakes and a winding-indicator, the steam being supplied from a new multitubular boiler; all of which were manufactured by Messrs. Price Brothers, of Thames. The crushing-mill formerly used by the old company, consisting of forty heads of stamps, two pans, and twenty-one berdans, has been dismantled and removed, and in lieu thereof a new plant is in course of construction by Messrs. Price Brothers, of Thames. A large portion of the old battery building had to be taken down, but this is to be re-erected at the rear of the mill building, where a cyanide plant is to be placed. The new battery consists of sixty heads of the heaviest stamps yet used in the colony; each stamp when new weighs 1,050 lb. These are to be driven at a speed of ninety-five blows per minute, and will be capable of crushing about 4 tons each stamp per day. The stems are made of mild steel,  $3\frac{1}{2}$  in. in diameter and 15 ft. in length, and fitted with steel reversible tappets or discs, made on the most modern design, and are held to the stem with three side cotter-keys in each tappet. The mortar-boxes are made on the Homestake pattern, being fitted with copper-plates coated with silver in the feeding-side of each mortar, which has a projecting lip on the inside to prevent any of the ore, as it is fed into the mortars, falling on the plates to damage their surface. The opening in front of the mortars is 4 ft. 8 in. long by 18 in. in height, on the face of which will be placed a wire screen fitted with a wooden frame, and held close to the face of mortar by long taper keys. Each mortar has a base 5 ft. 3 in. in length by 2 ft. in width, the metal in the bottom being 9 in. thick. Inside the bottom of mortar dies of hard steel are placed underneath where every stamp drops, the shoes of the stamps being also made of hard steel. The mortar-blocks are of heart of kauri, each block being 5 ft. 6 in. by 2 ft. 3 in. and 18 ft. long set on end, the bottom of which rests on a ground-sill, bedded in a thick layer of concrete resting on a solid and stable foundation. Considerable difficulty was experienced in obtaining a solid-rock foundation, but wherever this was not reached two rows of heart of kauri piles were closely driven down to a solid foundation, and a thick bed of concrete placed on the top of the piles, on which the mortar-sills rest. The mortar-blocks are all down 9 ft. below the surface of the floor of the building, and filled in with concrete. On each side of the concrete foundation concrete walls are built up to within 10 in. of the level of the top of the mortar-boxes, to support the sills of the trestles connected with the battery framing, and on the top of which the plummer-blocks rest, which carry the cam-shaft. Each battery of five heads is driven separately by a belt, a driving pulley being on one end of the cam-shaft and a corresponding pulley on the counter-shaft, which runs along the whole length of six batteries of five stamps each. The plummer-blocks to carry this shaft rest on the sills of the trestles at the back or feeding side of the battery, a belt-tightener being provided for each belt. Directly over the centre of the battery there is a gauntree fixed about 5 ft. higher than the upper end of the stems of the stamps, on which a traveller runs from one end of each battery of thirty heads, carrying all the appliances for lifting any of the stamps out of or into the mortars when repairs are required, and it is also strong enough to lift the mortar-boxes into or out of the position. The ore-bins are placed at a sufficient height above the mortars to admit of an automatic Challenge ore-feeder being used for each five-stamp battery. The ore-bins, instead of being constructed with the bottom sloping towards the battery, are flat, and run along the whole length of every thirty heads of stamps, and have a holding-capacity of about 400 tons of ore. The object of having the bins constructed in this manner is to admit of them holding a larger supply of ore, to insure the battery being kept continuously running in the event of the supply from the mine being intermittent. The level of the main adit above sea-level would not admit of the mill being constructed entirely on a gravitation system. The ore could not be delivered at a sufficient height to