conveyance of quartz from the mines to the battery shall not exceed 2s. 6d. per truck, which is estimated to hold one ton and a third.

It may be said that the whole of the mines on the Te Aroha field are held by two companies, viz., the Battery Company and the New Era Company. The former company holds several mines, in addition to a special claim of 110 acres which was granted in March last year, on the understanding that a large company would be floated on the London market to work it. I learned when in Auckland that the terms on which a London syndicate offered to float the company could not be entertained by the Battery Company, as the large number of paid-up shares to be manipulated and the small amount of cash proposed to be given to Battery proprietors left them no option but to refuse the syndicate's offer.

There is no doubt encouragement should be given for the introduction of foreign capital to develop the mines, but if the introduction of capital is hampered with conditions—that is, if a half or a third of the capital is to be absorbed by giving it away to what is termed the promoters, in paid-up shares, for merely taking up ground and floating a company—the introduction of foreign capital under such auspices will be of very little advantage to the colony, as it will take a very rich mine to pay fair interest on the nominal capital of such a company.

Mining, like any other industry, requires to be carried on on strictly commercial principles, and not merely held as stock waiting until, what is termed by sharebrokers, a "boom" comes to dispose of the shares. This is one of the great evils in giving away a large number of paid-up shares in a company. Every effort is used by those holding them to raise the price of shares by merely making representations as to the ultimate value of the mine, and by this means dispose of their interest above its real value. In many of the mining companies formed in the colony the promoters have no intention of working the mine, their purpose being merely to make money by the sale of shares.

The proprietors of the Battery Company, now that they have mines of their own, which are capable of supplying the battery with quartz, do not intend to crush for the public. They have, since my former visit, made several alterations in the battery-house—namely, the berdans are now all shifted to the adjoining buildings, where there are now altogether fifty-two berdans erected, and the tailings from the stamping-battery are run into a shoot and carried away to be treated by the berdan-plant. In the same building where the berdans are placed there is also a revolving-furnace, erected on the White-Howell principle, which is capable of roasting about 8 tons of ore per day. The furnace is a cast-iron cylinder 4ft. in diameter inside and 24ft. long. This is set at an inclination of 8in. to 24ft., or 1 in 36, and revolves at the rate of four revolutions per minute. The inside of the cylinder is lined with fire-bricks, and it takes the ore twenty-one minutes from the time that it enters the upper end of the cylinder until it is discharged at the lower end. The furnace is fed by an elevator, which lifts the tailings from the level of the floor into a shoot leading into the furnace. The fire enters the discharge end of the cylinder, and the fumes from the roasted ore are passed through a series of condensing-chambers before reaching the chimney. When the ore is put into the cylinder in a very dry state a jet of steam is used in the condensing-chambers to assist in the condensation of the fumes, but if the ore or tailings be damp when fed into the cylinder, the moisture in them has the same effect on the condensation as a jet of steam.

From what I could learn from the manager, they have not yet got into the proper system of roasting, but more in the way of making experiments to get the best effects produced. As far as the experiments had been conducted, it was found that about ½ per cent. of salt and 5lb. of lime to the ton of roasted ore was the best mixture. They found a large percentage of salt carried away the gold. The manager showed me several tests he had made with the tailings since the revolving-furnace has been erected. It must be remembered that in using the word "ore" in this instance it means the tailings from the stamping-battery.

Experiments were made with these tailings, with the following results: 10 tons were treated raw in the berdans, and yielded 30 per cent. of their assay value; 10 tons were roasted in the revolving-cylinder without lime or salt, and yielded 46 per cent.; and 10 tons were roasted with lime and salt, and yielded 62 per cent of the assay value. This shows the difference between raw ore and ore roasted with lime and salt to be 32 per cent.; the roasted ore giving more than double the yield obtained from the treatment of the raw ore in berdans. In some of the returns got from roasted ore the manager informed me he got as much as 95 per cent. of its assay value.

The furnace requires about 2½ horse-power to work it, and it takes one-third of a ton of fire-wood to roast a ton of ore. The erection of this furnace is a step in the right direction for the proper treatment of the ores met with in this district, and it has been proved by actual demonstration that it is the means of a much larger percentage of the bullion in the ore being obtained. Still, it must be borne in mind that it has only yet been tried on the tailings coming from the stamping-battery, or after the ore has been partially treated. To get the full effect of roasting the ore, it will have to be crushed in a dry state before roasting, or in other words, so long as ores containing a large percentage of sulphur and arsenic are crushed in a wet state, these mineral products will carry away a large proportion of the bullion along with them. Hence, in order to get the full benefit of the roasting-furnace, the ore should be crushed dry and afterwards roasted before final treatment. It then becomes a question whether leaching or amalgamation is the most economical method of extracting the precious metals. One thing is certain, that the character of the gold in this district, being in so finely a divided state, is specially adapted for the lixiviation process.

Recently Messrs. Firth and Clark disposed of the greater part of their interest in the mines and battery to a gentleman who has been associated with the silver mines in New South Wales since they were first discovered, and who intends floating a large company to carry on operations on a more extensive scale.

New Era Company.—This company stands in the same position as it did at the end of the previous year. Mr. Ferguson, who went to England to float a company to work the mine on a large scale, is still at Home, and there is no word yet whether he is successful in his mission or not.