

"Krupp" system, and this name is taken from a man who needs no introduction to you.

I show also the principal machines in a little larger scale here so that they might be better understood by those who should not be familiar with them. But before I commence their description I would like to say a few words in defence of my assertion as to the inefficiency of our present milling machines, in regard to the saving of minerals and metals, and the separation of the gangue from the former as adapted to the ores of this country.

We all know that most of the gold veins occur here principally in the metamorphic rocks, that is, in the upper series of the Huronian, the so called Keewatin. Most of these rocks are chloritic, talcous, sericitic and hornblendic in character; and even in the veins are found often stringers and bands of rock, of the same composition as the former, which after mining are hardly possible, even by hand-picking, to separate sufficiently from the ore. The minerals associated with the vein stone, which is usually quartz, are zinc blende, copper and iron pyrites and galena, seldom sylvanite or arseno-pyrite. The gold in these ores is mostly fine, sometimes microscopically fine, then again coarse, mechanically or chemically combined or free in the quartz, or in juxtaposition with the former minerals, but principally associated with the copper and iron pyrites.

The percentage of minerals to the gangue varies greatly, amounting often to over 50 per cent.; in most cases, however, much less.

Now, in buying machines for the dressing of such complex ores, we have to consider well what kind we should preferably select for the most complete, the easiest and the cheapest saving of the gold and economic minerals. But we should also consider at the same time the later metallurgical treatment of the ores, or concentrates, which is also an important factor, if we wish to have them reduced by smelting, chlorination, cyanidation, or if not by an electrolytic process would be more advantageous, more economic to the owner.

We should further keep in view our commercial and industrial conditions, and not less so the transportation facilities. This long list of considerations could be multiplied if we would add the many perplexing occurrences on the amalgamating tables and vanners. But the usual practice is to order a mill before the mine is made, before the people