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May 10, 1864,
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prised, embarrassed or discouraged a skilful and competent mining captain. There are still other causes to which the abandonment of workings, almost at their outset, is to be referred. These have often been opened on rich outcrops, rather with a view to speculation than to regular working; so that we see in many cases, mills built immediately after the discovery of the gold-bearing lodes, and before their value had been tested, with the object of attracting attention to the property, and to favor its immediate sale. Thus it happens that not unfrequently we find in this region abandoned workings, and mills neglected or in ruin."

"The mining in this region is, in some cases, by open workings, but more generally by means of shafts, and of drift or galleries communicating with them. These shafts serve at the same time for the miners, for the raising of the mineral, and for the drainage and ventilation of the mine, except in those cases where a separate ventilating shaft becomes absolutely necessary. The shafts, rectangular in form, are vertical or inclined according to the dip of the lode, of which they include the whole thickness; and their timbering, which varies according to the greater or less solidity of the walls, is done as the sinking advances. When a certain depth has been attained, galleries or drifts for the extraction of the mineral, are opened to the east and west, along the direction of the lode. The working is thus carried on by successive stages, the sinking of the shaft being continued, so that its base is always lower than the lowest drift. In the removal of the contents of the lode, which is done by successive steps, or what is called *stoping*, two methods are adopted. In the one, called overhand stoping, the vein is taken down by working from below upwards; while the other, called underhand stoping, the mineral is extracted by excavations from above downwards. In the latter method, the whole of the material removed is taken up to the surface, while in the former, the waste and refuse, maintained in place by scaffolding, serves to fill up the space, sustain the walls, and facilitate the continuation of the work. This method of overhand stoping, however, has the disadvantage that the sorting of the mineral has to be made in the drifts, with the risk of losing more or less of the small fragments, often very rich, which become lost in the piles of rubbish. To avoid the loss in overhand stoping, it is in some places customary to spread cloths or leather over the debris. When, however, the vein is removed by underhand stoping, the whole material is raised to the surface, and it is easy to collect the smallest particles of mineral. Hence this latter method is almost universally followed in the Nova Scotia gold mines, and has replaced the method of overhand stoping, which had been in some cases resorted to for a time."

"The machinery for raising the mineral from the shafts is very simple: a windlass over the mouth of the shaft, worked by one or two men, suffices for works of little depth, while for greater ones, a whim with one or more horses is employed. These arrangements suffice not only for bringing up the mineral, but for raising and lowering the miners when there are no ladders in the shaft, and also for the removal of water in buckets, in the case where this is not allowed to accumulate in a well, to be removed by a pump worked by steam or horse power."

"In the gold-bearing quartz mines of Spanish America, it is customary, before stamping the mineral, to calcine it in heaps, where it is arranged in alternate layers with wood, which being kindled, burns for from twelve to twenty-four hours. The object of this calcination is to get rid of the sulphurets often present, which interfere with the amalgamation, and to render the quartz more friable and easily pulverized. This process, however, is said to have been abandoned in California, and is not used in Nova Scotia, although in several places furnaces constructed for calcination are seen. The reasons assigned for this are, by some, that the quartz is partly vitrified, which might happen with impure vein-stone; while according to others, the gain in product did not suffice to pay the cost of the process, which is but partially effectual in decomposing the sulphurets present in the ore. Prof. Sullivan, in his report on the Tangier district, estimates the cost of calcining the quartz, with wood at \$4 the cord, to be not less than \$1 the ton."

"The mineral in Nova Scotia is thus taken from the mine directly to the mill, where it is sorted, the barren portions rejected, and the material reduced to fragments of a proper size. Two plans have there been employed for pulverizing the quartz; the Chilian mill and the stamp mill. The former consists of edgo wheels or cylinders of granite or cast iron, running in iron pans, but its use in Nova Scotia has been very limited,