

The preceding remarks have had reference exclusively to the veins which, so far as our mining experience has gone, rival in eccentricity of value, locally and generally, the common fissure or segregated deposits, and are in some districts equally disturbed by faults. There is a distinction of importance to be drawn here, i. e. that, while in a true or cross-country vein the length of ground permitting the formation of pay chimneys is very great, in the Nova Scotia veins, the longitudinal space is comparatively limited when considered in reference to a series of rich pay ground zones. The power originally exerted at any point to permit the conditions favoring the formation of a vein, was modified at a short distance to yield similar conditions at a point more or less to one side of the plane of the first considered vein. The result, therefore, is that theoretically veins are represented as thin laminae with ends almost overlapping. Practically, the miner in our gold districts, ignores this consideration, for while he deserts a vein as soon the quartz proves unremunerative, his next attack is directed to the nearest outcrop he finds that presents promise of profit.

Hitherto the mining industry has been almost exclusively occupied with these small veins, and the returns, although satisfactory to the individual miner, are seldom equal to the expectations of extensively capitalised companies. However, as economy in the extraction of rock and in the amalgamator's art is steadily advancing, the question of profitable mining is gradually finding its most satisfactory solution in the low grade ores. In several districts practical tests have shown that over considerable areas the slates hold gold in amounts greater than at other points. This greater richness of the slates is not accompanied by any change in the strata or its veins, beyond, perhaps, an enlargement of the beds of slate. This extra percentage of gold in the slates does not interfere with the values of the veins penetrating them, but it may, I think, be fairly stated that they hold their gold contents more evenly distributed than elsewhere, and are not marked by decidedly rich zones. The beds of quartzite are, as elsewhere, but feebly auriferous. The slates contain numerous veinlets of quartz, frequently auriferous, and the layers of the slate often contain thin laminae of gold. The values of these slate belts vary up to five pennyweights. It may be said that gold is almost invariably present in the slates of the auriferous horizon, as frequent mill tests have shown a return up to half a pennyweight, and assays invariably show traces.

The beds of quartzite are seldom an object of interest to the miner, unless they carry quartz veinlets, which are sometimes auriferous. It has been observed that many beds carry very minute crystals of iron pyrites, forming in some cases perhaps two per cent. of the mass. Under such conditions, small amounts of gold can be detected. Assays made by me of quartzite from mining operations which did not show any metallic admixtures, yielded barely traces of gold.

If it were permitted to consider the auriferous strata lying comparatively undisturbed and traversed by true fissure or cross-country veins, and the quartz filling to have taken place, the conditions presented to the miner would have been of veins more or less enriched when passing across the alternations of quartzite and slate forming the ordinary ground, and having extensive enrichments in the spaces just referred to as forming low grade ground. Such a view of cross-country veins in the Nova Scotia gold fields is fairly in accord with the results met elsewhere, and in fact, veins of this class occasionally