

met in the upper or slate division of the gold strata, which is feebly auriferous, do carry small amounts of gold over considerable distances.

From these considerations it would appear most probable that the source of the gold in the Nova Scotia gold veins should be sought in the immediate encasing strata. From the fact that the majority of worked veins present slate on one side, and quartz, etc., on the other, it would appear that the division line between strata of such differing flexibility offered the readiest plane of opening. If the questions, then, be raised which material furnishes the gold, an answer may be sought in the consideration of which would be most likely to receive and retain it.

So far as the subject has received attention, the slates appear to be the source of the gold. The metal, in common with various metallic compounds, may have been carried and deposited in the various layers as they were forming. That which fell in the sand would, presumably, for the greater part, accumulate in the underlying bed of denser material, forming the first stage in the concentration now presented. In this connection, the fact that arsenical compounds of iron are present in large amounts in the veins in several districts may be referred to as an interesting example of the local segregation of an element which is, perhaps, most abundant in rocks approximating in age those now under consideration. It is also frequently observed, that while the vein is attached to, and passes into the slate, the junction with quartzite is well defined.

Prof. Hynd, in reporting to the provincial government on the Waverley gold district, and assuming the veins to be contemporaneous quartz beds, considers the gold of the pay zones to have been contemporaneously deposited in them as beds from some controlling cause, such as the presence of vegetable matter. It may, perhaps, be more readily understood that the gradual deposition of gold from currents in the beds of clay or mud and sand might, through special currents, be accelerated or specially increased at certain points, and that from this enriched material the veins derived their "pay streaks." The discovery of rich zones in any fissure vein is, I believe, seldom a matter of calculation beyond, laterally, the nature of the encasing strata, and vertically the shape of the fissure permitting of circulations favoring the deposition of metallic accumulations.

The points referred to in these notes have a bearing on a question of the greatest importance to the Nova Scotian gold miners, whether a pay streak in a vein is likely, after failing in depth, to be succeeded by another. Hitherto, no attempts have been made to solve the problem here, and the Government has been frequently urged to test the question by deepening some shaft worked in one of these pay streaks to a depth of, say, one thousand feet. It is assumed that by taking the line of the greater axis of the pay streak, rich ground may be found again after a barren interval, or that by a vertical sinking another underlying and distinct zone may be reached.

The plausibility of the argument may be conceded in speaking of fissure veins, but in these veins, which have, so far as mining experience has gone, very definite limits, and a limited chance of lateral enrichment, owing to their great number and proximity, its application should be cautiously received. If some of the veins have rich zones, due to lateral enrichment, the persistence of the line, however interrupted, of the underlie of the zones, would depend on the original conditions of deposition of the gold as a sediment. If it were possible to reconstruct a chart of the ocean of those days, or to assign any direction to its currents, then some foundation might be secured for applying a rule to the courses