

The following will illustrate one theory how gold may have been deposited in "Chutes" or "Streaks":

All will admit that originally the formation of Slate and Quartzite was in a horizontal position as it was deposited under water probably containing mineral matter in solution, now it follows that this mineral matter would be precipitated provided certain foreign elements were introduced, say for instance, some vegetable matter.

No doubt, everyone has seen the peculiar streaks or lines of seaweed on the ocean carried in comparatively parallel lines by currents, the water between these lines of seaweed being entirely clear of foreign substance. Precipitation of mineral matter will be far greater on the line of seaweed or foreign substance than in the clear water. This illustration merely shows the possible theory of Gold Deposits in streaks by vegetable or other matter carried in parallel lines by currents over the newly deposited muds since converted into slates and quartzites.

Interesting as the theory of formation may be, I propose confining myself to the practical and profitable side of gold mining, that is following and extracting to the greatest advantage this valuable metal.

In commencing mining operations the Engineer's first work is to very thoroughly inspect his ground, locating as much as possible his different leads and learning where gold has been found by former owners, making careful notes of past results (though in all probability no two accounts will entirely agree) but, from his notes he will be able to make a rough plan and form some fair idea where gold may be expected below. With this knowledge he locates the position of his first attack, by Adit it possible, if not by Main Shaft, selecting a position as convenient as possible to the Mill Site, which should be chosen well above the flat ground, so that no trouble will occur in the future from Tailings. As the main workings and mill site form the centre of all future operations, too much care cannot be given to the selection of a place which offers the greatest facilities for permanent works, as the past proves. Managers often forget to look ahead to the future, when the mine requirements may assume very great proportions and instead of adding to the original works, a *fresh start* has to be made on a more suitable site.

The works should be laid out *originally* with a view to future contingencies and the plan of operations carried out by degrees systematically as funds will permit. Above all things the reckless cutting up of the surface by what are termed trial shafts should be avoided, as these become reservoirs to catch water and flood the future workings necessitating costly pumping machinery, and once the mischievous work is done, it can never be repaired.

Having located the Main Shaft, the manager should decide to sink a certain depth say 120 feet to a first level and steadily continue to this depth, no matter what rich rock is met, the gold will not run away, and can be far more cheaply raised by overhand stoping from below, than from the system of burrowing or underhand stoping so common in the Province.

I very strongly advise following the value of the rock passed through by saying "the drillings," the miners being supplied with marked tins for this purpose and it should be the Foreman's business to see these are delivered regularly to the Manager who should pan them off and enter result in a book kept for that purpose. Many rich deposits have been found by this method when the gold occurred too finely distributed to be visible and would possibly otherwise have been overlooked.