

## THE MOTHER LODE OF CALIFORNIA.

The Mother lode might be defined as a mineralized zone of varying width, sometimes reaching over a mile and extending continuously through the counties of Mariposa, Tuolumne, Calaveras, Amador and El Dorado, and possibly further north. Through a portion of this distance it is characterized by the presence of a single remarkable fissure, while in others where the conditions are favorable it consists of a number of parallel fissures occupied by quartz veins. The lode is associated with a narrow and almost continuous belt of black slate called the Mariposa belt, while the veins occur either in the slate or on the contact between it and the diabase dikes, which are called by the miners greenstone.

The remarkable regularity and the continuity of the fissures of the Mother lode are due in great part to the geological structure. This regularity in structure has been caused by the fact that the slates have not been crushed and broken, but uniformly tilted at a steep angle when the mountains were formed. The bedding of the slates as well as the contact between them and the eruptive dikes offer lines of weakness and fracture which allow access of the mineral-bearing solutions.

As far as can be learned the Mother lode was first applied to the veins worked at Nashville, 12 miles south of Placerville, in the latter part of 1850 or earlier part of 1851. In the use of the term Mother lode it is not intended to convey the idea of genetic relation to other lodes or veins, although it is likely that from the size, extent and richness of this series of veins the early miners first used the expression partly with that significance and partly, perhaps, meaning the source from whence came the great wealth of the surface placers.

The magnitude of the operations on the Mother lode gold belt since the earliest days of mining in California, and the importance of a thorough knowledge of the occurrence of its ores, are best illustrated by the fact that over the whole length of the lode, a distance of more than 100 miles, there is an almost continuous series of mineral locations, comprising more than 200 patented claims and almost as many unpatented ones. The lode follows in a general way the northwest and southeast trend of the mountains, the veins conforming as a usual thing to the course of the stratification of the inclosing rocks, with a dip of 40° to 75°. None of the other belts begin to compare in extent or regularity with the Mother lode.

A peculiar feature of many portions of the Mother lode is the presence of a green vein matter called mariposite. This is associated with the carbonates of lime, magnesia and iron. The large amount of iron is the cause of the red croppings, over which one can sometimes walk for many miles.

As an example of the magnitude which the Mother lode sometimes assumes, Quartz Mountain, Calaveras County, affords a good illustration. The mountain is about 600 feet wide, nearly half a mile long and 250 feet high. It is composed wholly of quartz and vein matter, the latter consisting of mariposite and dolomitic material. In the middle and forming a great summit is a great body of massive quartz. On the west side is another vein of quartz nearly as large, and on the east a smaller one. The vein matter between the large quartz veins is filled with a network of small veins.

The greatest exposure of quartz is on the Mariposa Giant in Bear Valley, Mariposa County. It is 20 feet thick at the base, 150 feet long and rises 80 feet, with a dip of 70°.

In Mariposa County the lode is characterized by two main veins; first, the one extending north from Princeton through Bear Valley and along the Merced River, constituting the west vein at Coulterville; the other, beginning north of the Merced River, outcrops almost continuously through Coulterville to Moccasin Creek. The fissure continues into Tuolumne County, though containing but little quartz for a number of miles. It is widest at Quartz Mountain, and here, as well as north and south for several miles, there are two or more veins lying side by side.

In Calaveras County it is most prominent at Carson Hill, Angel's Camp and in the vicinity of the Mokelumne River. Through the centre of the county it is considerably scattered. Through Amador County it is nowhere confined to a single vein, but instead con-

sists of a series of them occupying a width of nearly a mile at times. The same condition of things exists in El Dorado County. The veins are scattered through the slip of black slates, though the main vein is usually found near the eastern edge.

The veins of the lode almost invariably dip a few degrees less than the inclosing rocks, and it is usual to find the foot-wall rocks, especially when they consist of slate, bent away from the normal dip, corresponding with that of the vein; hence it is probable that the hanging wall has been pushed up. If this is the case it would indicate an upward strain along the mountain range which tended to relieve itself in the fissures of the lode.

That the lode is a true fissure is amply proved by the universal presence of gouge seams. The movement of the walls of some of the fissures has been immense. This is made easy because of their length. The great width of the ground-up wall rocks, sometimes over 30 feet, indicates a long continuance of the movement, probably more or less oscillatory, and with a general rise of the hanging wall. The greatest depth to which the lode has been opened, 2,200 feet, shows no weakening of the vein or deterioration of the ore. It is not likely that any high degree of heat will be encountered at any depth that can be reached, for no great increase has yet been noticed.

The depth to which gold-bearing veins extends is an open question. It is probable that they will be found to hold out along the Mother lode to the greatest depth at which the expense of handling the ore will permit them to be worked. They may extend to those depths at which the pressure is so great that the rocks move through elasticity rather than by faulting.

In studying the occurrence of gold and its ores along the mother lode, no relation has yet been found to exist between the character of the walls and the poverty or richness of the quartz. It is recognized that a vein lying at the contact of two different formations is more regular and the mineral contents more evenly distributed than one lying in a formation which does not easily afford a regularly defined fissure. [Engineering and Mining Journal.]

## MISSED OPPORTUNITIES.

On the first day of April, 1895, what is known as the south belt, extending from the Celtic Queen to the St. Marys, was unheard of. Hardly a claim was located in that section of the camp. Nor did it merely require the discovery of mineral there to attract attention. Why, when John M. Burke bonded the R. E. Lee and Maid of Erin it was openly said around Rossland that he was taking hold of an outside property and wandering a long way from the center of things. Three quarters interest in the Crown Point was sold to Volney Williamson and his partners for \$50 and \$300 worth of work and the remaining quarter was purchased by him some time later for \$500.

It is a far cry from \$50 to \$500,000, but that is the valuation of the Crown Point today, according to the market value of its stock. Newcomers in the camp now are apt to think that the days of such opportunities are over, yet prospects have been bought and sold during the last two months which will afford just as striking contrasts before the year is out. Look at the entire neglect in which, up till very lately, Lookout mountain has been held. It has been neglected in spite of the fact that its iron stained appearance has attracted the attention of every mining man who has passed between Rossland and Trail. It was too far out of the way. It was not popular. So was Trail Cecek when the Le Roi was bought by its present owners. So was the south belt when Burke bonded the R. E. Lee. Mining investors are like a flock of sheep; they follow the bell wether. The bell is tinkling pretty loudly round Lookout Mountain now and prospectors who were hunting buyers a few weeks ago are now dodging purchasers. So it has been and so it will be. The resources of the country did not begin with Red Mountain, nor do they end with Lookout Mountain. There are always chances for profitable investment, not only through the opening up of mines in old sections of the district which costs money, but through the development of new sections, which costs commodities more valuable than money—brains, energy and enterprise.

## FOOLISH COMMENT.

The Victoria Province has the following about Rossland :-

"Rossland is as bustling a place as ever. Improvements are going on rapidly and buildings are going up in every direction like magic. All, however, are built of wood and the proprietor of the brick-yard in the vicinity told me he had to close down as there was no demand. Here is where the Rosslanders are making a great mistake. Everybody dreads the danger of a conflagration; yet no one appears to have sufficient enterprise to commence the erection of brick buildings.

"There is a great deal of indignation felt by respectable men in Rossland at the doings of mining company promoters in the east. Claims with hardly any development done upon them are being incorporated into companies with millions of capital. The worst feature, however, is that in a number of cases the men who are organizing these companies have not even a complete title to the properties they profess to own. The result will be that numerous small investors will lose their money. The law is too lax altogether in respect to incorporated companies. No company should be allowed to incorporate until they can show a clear title to the property they represent. Another and very important matter for the consideration of the authorities is that all foreign companies, especially those incorporated in the State of Washington and doing business in British Columbia, should be obliged to conform in every respect to the laws of Canada. At the same time the latter, so far as incorporation is concerned, require re-modelling at once."

It is just about time this sort of indiscriminate comment ceased in the columns of respectable newspapers. It is on a moral par with the anonymous letter of the blackmailer. If the Province or any other newspaper knows of any such companies or promoters let it expose them by name. It appears to be the fashion with some journalists to protect themselves against a libel action brought by people who can defend themselves by preferring libels against a whole community which cannot.

## A WONDERFUL CLAIM.

A gentleman is quoted as follows in the Winnipeg Free Press. "I have a property in the Trail Creek, Kootenay, and I tell you candidly I would not think of working it after seeing the wonderful free milling ore of the Lake of the Woods. I have secured a claim there and honestly I would not exchange it for the whole of Rossland and Trail Creek." If this gentleman can effect an exchange for his claim of the Le Roi, War Eagle, Iron Mask, Kootenay and Crown Point alone, the editor of the MINING REVIEW will pay him \$5,000,000, in cold hard cash for these five properties. He must value his claim highly to put it against the whole district.

The Lake of the Woods is a good mining district no doubt, one mine in particular, the Sultana, being apparently a wonder and it is to be hoped that the merit of the district will soon attract sufficient capital to fully exploit it. But certain methods of advertising are worse than useless. A mining man was crossing the continent this spring, who had control of a fair amount of English capital, and was tempted to look over that section of the country. He met two claim owners on the train who had some very pretty free milling gold quartz in their pockets. Questioned as to the grade of ore and amount in sight and so forth they gave the figures with alacrity and definiteness. The mining man took out a paper and pencil and made some calculations. He found out that they had \$26,750,000 in sight. He came on west—such a country was too rich for him.

## A BIG DEAL, IF TRUE.

A Puget Sound paper is responsible for the statement that Col. Chas. F. Fishback (are there no civilians in Seattle?), of Seattle, has sold to the British Northwest Gold Mining Company the property of the Maud Hydraulic Mining Company, the Fishback Hydraulic Mining Company and the Quesnelle River Gold Mining Syndicate for a consideration of \$5,000,000. The president of the purchasing company is J. Edward Addicks, the gas magnate, and the secretary and treasurer G. A. Kelly and E. F. J. Gaynor, of New York, are stated to represent George Gould.