

*THE GOLD-BEARING MISPICKEL VEINS OF MARMORA,
ONTARIO, CANADA.*

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ABOUT thirty miles north of the city of Belleville (which is situated on a branch of Lake Ontario), and in the township of Marmora, Ontario, there is found a belt of gold-bearing quartz veins which present geological, mineralogical, and economic features of great interest to the profession. The district in which these veins are found is characterized as a rolling country, with low rounded hills of syenitic granite, overlain on the flanks of the hills by Silurian limestones, which lie in nearly horizontal beds, and in some places are so fine in texture as to afford lithographic stone of a fair quality.

The gold-bearing veins run north and south through this belt of syenitic granite, and are quartz-filled true fissures, with micaceous or talcoid slates forming the walls of and horses in the veins. This talcose, slaty rock is evidently the product of the chemical decomposition of the syenite along the fissures, the quartz being segregated from the country rock into the veins, and the hornblende of the syenite furnishing the magnesia of the talcoid slates. The veins, besides quartz, contain also, as gangue, crystallized calc-spar, and occasionally crystallized black mica. The ore scattered through this gangue, in heavy bands in some places and in detached, well-formed crystals at others points, is an arsenical sulphuret of iron (mispickel), having a composition of about 55 per cent. of iron and 20 per cent. of arsenic, and perhaps 20 per cent. of sulphur. This mispickel contains the greater part of the gold for which the mines are worked, but free gold is also found scattered through the quartz in small leaves and grains, and it is also found, showing freely at times, in the mispickel itself.

The tests which have been made of these veins and their ores have so thoroughly established the facts of the continuity of the veins, both in length and depth and the economic value of the ores, that