MINING.

ASBESTOS MINING IN QUEBEC.

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The asbestos mines of the Province of Quebec are, at the present day, of special interest to the mining and industrial world, from the fact that in so far as now known they practically represent the only deposits where this mineral, of a quality adapted for spinning, and for the finer purposes of manufacture, can be profitably obtained.

The rocks with which the asbestos veins are associated in Quebec constitute a somewhat distinct series, which have, for the last thirty years, been known under the name of the "Quebec" group. They comprise an extensive and important development of both sedimentary and eruptive rocks, which extend throughout the eastern part of the Province, from the Vermont boundary to the extremity of Gaspé peninsula. They are not recognized in their entirety in any other part of Canada, though certain portions of the group are found in their extension southward into the United States. Crossing the Gulf of St. Lawrence they, however, form a very extensive belt in the island of Newfoundland, where, more particularly at certain points on the west coast, the same series of slates, sandstones, diorites and serpentines occur, the whole presenting features both from geological and mineralogical standpoints, very similar to what are seen in this portion of Canada. While these rocks in Newfoundland have, to a certain extent, been traced out, no systematic search for asbestos has as yet been made, though that the mineral occurs there at a number of points, and in a variety of forms, is clearly indicated by the specimens which have from time to time been obtained in the course of the general geological exploration of the Island. Some of these specimens belong to the group of actinolitic minerals like the deposits found in Potton and Bolton, but among others observed from that country were samples of vein asbestos, equalling in quality any obtained at Thetford, and having a fibre from two to three inches in length.

The mineral asbestos proper belongs to the hornblende or pyroxene group of minerals, while that of Quebec, commonly known by this name, is in reality a variety of serpentine, mineralogically known as chrysotile. It is found in the eastern townships of Quebec, in small veins occurring in masses of serpentine which form a series of disconnected masses, generally of small extent, surrounded by igneous rock, principally dioritic, but occasionally rising through great outcrops of slates or schists. Sometimes, however, these masses of serpentine assume such proportions as to rank almost as mountain ridges.

Prior to 1850, the greater part of the fine asbestos fibre adapted for spinning came from the mines of Italy and Corsica, and owing to the difficulty with which it was obtained, and its exceptionally fine quality, commanded a very high price in the market, reaching as much as $250 to $300 per ton; but the discovery of the chrysotile deposits in the Province of Quebec of a quality equally well adapted for spinning as that of Italy, taken in connection with the fact that these were situated directly along a line of railway within short haulage of a shipping port, almost revolutionized the industry, and has lately nearly closed the Italian mines.

Much of the so-called asbestos of these mines, however, is not adapted for spinning, and is used for the manufacture of mill-board, cements, paints, etc., as is also the output from such mines in the United States as have been working more or less constantly for the last twenty years. The output of the Quebec mines has even already had such an effect upon these that their present output is probably scarcely one-tenth of what it reached ten years ago.

In Ontario a large quantity of the mineral actinolite, a member of the hornblende family, is mined and ground at Bridgewater, in Hastings County. This is used for cement roofing, being mixed for that purpose with tar, the fibrous texture of the material being such as to allow of its felting, but not for spinning.

The serpentine of Quebec, which is really asbestos-bearing to an extent which can be profitably worked, is confined to a comparatively limited area, and more particularly to certain portions of the townships of Thetford, Ireland, Coleraine and Wolfestown, in which localities successful mining operations have been carried on for some years. But even in these districts there are large portions of the serpentine belts which, in so far as yet proved, have disclosed no asbestos in quantity to be economically available. The rock carrying the merchantable asbestos is generally a greyish weathering serpentine of some shade of green on fresh fracture, generally a greyish green, in which are contained numerous small particles of iron, both magnetic and chromic, more generally the former. Serpentines that have a black, hard, chippy aspect do not apparently promise well, nor does the rock which weathers a dull reddish brown. In the asbestos bearing rock proper the veins of asbestos are seen, without any special arrangement, intersecting the mass of the rock generally in every direction, but for the most part at a considerable angle both to the perpendicular and horizontal. Certain peculiar arrangements of these veins are, however, noted in certain areas, as at the King Bros.' mine in Ireland, where the serpentine appears to be regularly stratified almost in the manner of sandstone or quartzite in layers dipping to the northwest, and the veins of asbestos apparently follow what, in sedimentary rocks, would be regarded as the bedding planes. In several other places the veins, few in number, cut the rock in an almost horizontal position, and when found in a knoll can be traced across from one side of the hill to the other nearly on the same plane, but as a rule the veins are irregularly placed.

(To be continued.)