

THE OCCURRENCE OF PYRITES IN CANADA

Notes from the Report* of Dr. Alfred W. G. Wilson.

(Continued from last issue.)

Hastings District.

Bannockburn Pyrite Mine.—Lot 25, Concession VI., Madoc Township, Hastings County, about a mile south-east of the Village of Bannockburn. 1898, openings were made for iron ore, and Stephen Wellington, of Madoc, shipped eleven carloads of bog iron ore or limonite to the Hamilton Iron and Steel Company. This ore, which ran upwards of 38 per cent. metallic iron and low in sulphur, was merely the gossan capping of iron pyrites deposits. These were further prospected by Thomas Burnside and William Coe of Cleveland. In the summer of 1900, they transferred their lease to the American Madoc Mining Company, who abandoned operations at the Mellwraith in favour of the more accessible deposit. The gossan capping at the Bannockburn mine varied in depth from 8 to 15 feet. A pit about 80 feet in diameter and 90 feet deep was sunk, but at this stage had to be abandoned. Through the oxidation of low grade ore, large masses began to scale off the sides of the pit, necessitating either an expensive system of square set timbering or cessation of the work. In the meantime a new lens had been opened up about 500 feet south of the open pit. A shaft was sunk here, levels run every 60 feet, overhaul stoping adopted, and a skipway with guard rail provided. A battery of boilers and a five-drill, straight-line air compressor were installed, which supplied the drills, steam being used for the pumps. In later years this method of working was abandoned for the following practice. A pit or trench 8 or 10 feet in depth was sunk and this

drew it half a mile to the siding of the Central Ontario Railway.

Some shipments from the open pit graded from 46 to 48 per cent. of sulphur, and some from the south lens did not run higher than 37 per cent. A fair average of the property would be 40 per cent. of sulphur. The ore is hard and makes very little fines.

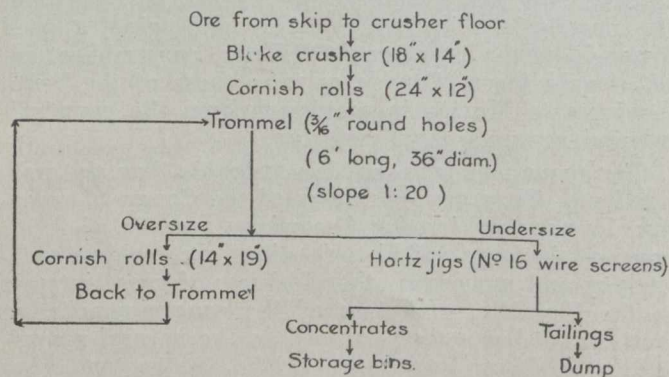
The country rock is a chlorite schist, showing talcose or micaceous alteration in the vicinity of the ore bodies. The south lens and enclosing schist strike slightly west of north until west of the open pit, when a fold of 90 degrees angle turns the strike to a little north of east. The south lens dips with the country rock to the east, and the open pit in a similar manner dips to the south. Unfortunately the surface of the schist at the apex of the fold was covered by a deposit of limestone, which was subsequently metamorphosed to a calc schist, but there is no evidence whatsoever of faulting. Folding, whether of a simple nature or a pitched anticlinal subsequently eroded, produced the lines of weakness through which the pyrite-bearing solutions seeped, the deposits being formed by replacement. The ore separates readily from the fairly good foot wall, but towards the hanging, the grade lowers, and it shades gradually into the schist. It is impossible to obtain fresh specimens of the schist. Originally it was probably horn-blendic; at present it is chloritic, due probably to surface weathering and the influence of the mineral bearing solutions from the adjacent vein. The south lens is 160 feet in length, and varies from 8 feet to 15 feet in width. The mine employed from 35 to 40 men and shipped during its six years of operation about 580 tons per month. All the ore went to the works of the General Chemical Company at Buffalo.

Although the ore fell off neither in grade nor quantity with depth, yet on account of the open pit method of mining (the south lens being stoped out to a depth of 275 feet), and the tendency of the walls to scale, mining became so hazardous that the operations were abandoned in August, 1906.

The Hungerford Fahlbund.—The Hungerford fahlband lies about 5 miles east of the Village of Tweed north of the Canadian Pacific Railway. It strikes north 65 degrees east, and is easily traceable for two miles. Level farm land to the south is underlain by garnetiferous crystalline schist cut by massive diorite. About 500 yards north of the deposits, the schists have been invaded by a pink hornblende granite that now rises above the surrounding country, forming a series of rugged hills (locally called the Bald Mountains); this granite has protected the ore bodies from erosion. The deposits are strung along the contact of the diorite and the schist, the strike of the lenses, the contact, the fahlband, and the schists being identical.

Hungerford Mine.—Lot 23, Concession XII., Hungerford Township, Hastings County. This mine was opened 30 years ago, by the American Madoc Mining Company, as a gold property, and a smelter was erected to extract gold from the barren pyrite. The present operators, the Nichols Chemical Company, re-opened the mine in June, 1903. Owing to some difficulty about the title, the mine was closed down in August, 1904, but operations were resumed in August, 1905, and have since been continuous.

FLOW SHEET, MILL OF COLE MINE, ST. LAWRENCE CO., N.Y.



was followed by underhand stoping back the full length of the lens. For convenience in mucking, the skip was replaced by a bucket; the lens pitched to the north and was penetrated by the shaft so that the operation of the skip had become impossible. The skids at the top of the rock house were inclined to the horizontal. As the loaded bucket was hoisted into this position, a chain was hooked into a ring in its bottom, the skids were pulled apart, and the bucket was dumped by lowering it slightly. The bucket was then hoisted, the chain unhooked, and it was then thrown back on the skids and lowered. The bucket loads were dumped on steel bars, placed 6 inches apart above a series of grizzlies spaced to one-half inch. The fines from the grizzlies discharged through the rock house floor and the culled lump ore was wheeled out to a loading dock, whence wagons

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