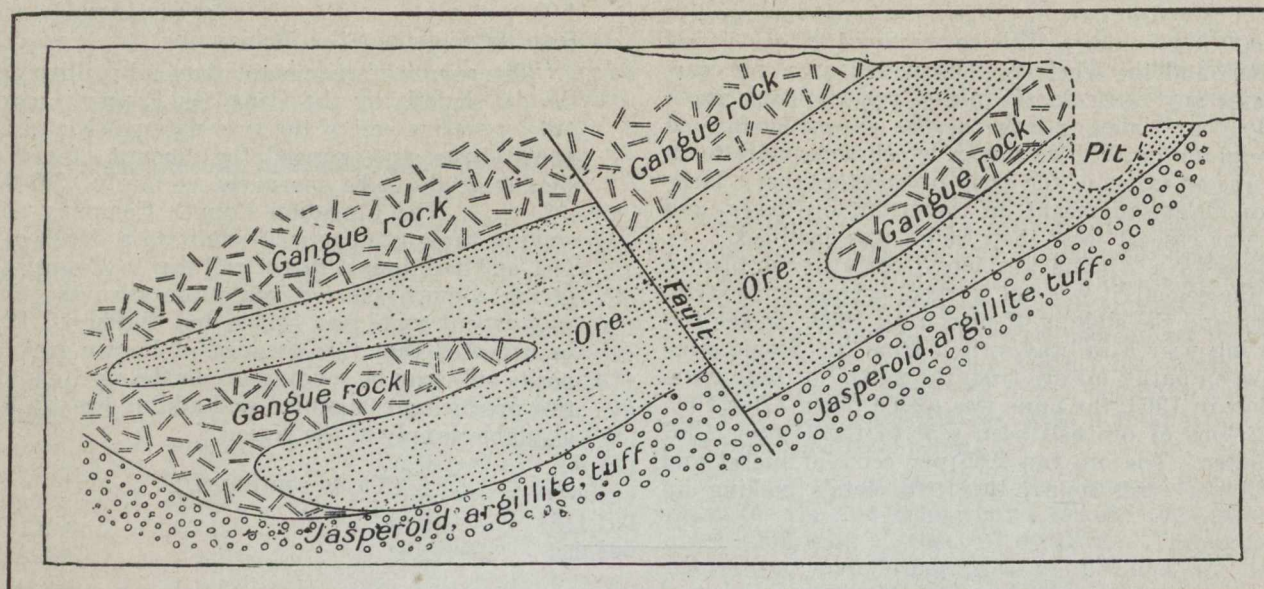
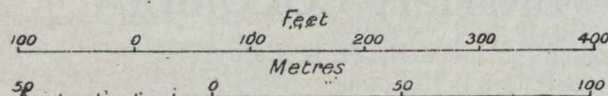




Geological Survey, Canada

Section across ore-body, Knob Hill-Ironside Mine



in grains, crystals and streaks, while the hematite (specularite) occurs in platy aggregates. Magnetite occurs in masses and irregular lenses at intervals through the ore bodies, but it is relatively unimportant. The average content of the ore is: copper 1.25 per cent.; gold 0.04 ounces, and silver 0.3 ounce per ton. Along the outcrop the ore has been leached out in part but has produced no noticeable secondary enrichment at lower levels.

The zone of contact metamorphism and the development of lime-silicates is believed to have been the result of metasomatic replacement of limestone by solutions above the critical temperature carrying ferric iron, alumina and silica and consisting mainly of water gas strongly ionized. Epidote and garnet, etc., were formed, and the magnetite was probably formed contemporaneously with them. When the formation of the above was well advanced the character of the solution changed somewhat and chalcopryrite, pyrite and hematite were deposited in and along the numerous minute fissures and cavities in the lime-silicates. Calcite and quartz were the last to deposit and completely filled the remaining minute spaces. In the absence of any direct evidence, as there are no large bodies of igneous plutonic rock in contact with or adjacent to the zone of contact metamorphism at present, it is suggested that these zones were overlain by more or less irregular and thick sheets of granitic rock, and that these were the cause of the metamorphism of the limestone and the source of the mineral bearing solutions. The circulation would thus be descending and lateral and would account for the ore bodies terminating abruptly at comparatively shallow depths either against jasperoid or crystalline limestone. The age of the deposit is referred to as post-Jurassic or the period immediately following the intrusions of the granodiorite batholith of the Boundary district. The ore bodies suffered from erosion in the early Tertiary and are overlain unconformably by Oligocene sediments.

Method of Mining.—The ore bodies are mined along their outcrops by large open quarries or “glory holes” and underground by a system of tunnels and shafts. Stopping by the pillar and room method is used entirely below the level of the “glory holes.” The development work is based on the information gained by extensive prospecting with diamond drills.

MICHIGAN MINE MANAGERS REFUSE TO RECOGNIZE WESTERN FEDERATION.

Following a meeting of the mine managers, Saturday, Sept. 20, a reply was delivered to John H. Moffit, federal emissary at Houghton, to offer the good offices of the United States Government in effecting a settlement of the Michigan copper miners' strike. Mr. Moffit made a proposal to the mine managers last Wednesday. The text of his proposal was not made known, but the reply yesterday was to the effect that the mine managers and companies are inflexible in their purposes not to treat in any way with the Western Federation of Miners, not to consider that organization as a party to any proposed arbitration of the present labour trouble.

The text of the reply, signed by every mine manager in the district says:

“Honourable John A. Moffit, special representative U. S. Department of Labour. Dear Sir: The undersigned, being managers of the copper mines of the counties of Houghton and Keweenaw, in the State of Michigan, desire to express to you their most sincere appreciation of your offer of the good offices of the department in bringing about an adjustment of the existing strike, involving part of the mine workers of our companies, submitted to us in yours of Sept. 16.

“The first offer submitted by you begins with the proposition, ‘That all of the issues involved in the strike shall be settled by arbitration.’

“The real issue involved in the strike is recognition of the Western Federation of Miners as an organiza-