"The widest part of the band of norite and gossan is 900 feet across, a little to the South of the Frood Mine; and the whole gossan-covered area far surpasses any other in the nickel region, being probably four times as large as the gossan surface at Creighton or Whistle mines, which come next to it. It was an axiom of the early prospectors that a large area of gossan meant an important ore body, and in this case at least their belief was justified. . . Though No. 3 mine was found early in the history of the region, it was not worked, beyond some stripping and the sinking of pits, until 1899. In the following year a railway switch from the Stobie mine gave an outlet for ore from the mine, but four years later, in 1903, the mine was closed down after 107,942 tons of ore had been sent to the Copper Cliff smelter. The ore ran 2.66 per cent. of nickel and 1.39 per cent. copper, the two metals making up 4.05 per cent., so that it was considerably richer than its neighbour the Stobie mine.

"The results of systematic diamond drilling across the ore deposit by the Canadian Copper Company (the operating end of the International Nickel Company) have since proved the amount of ore of a similar grade to be enormous, certainly 35,000,000. . . . . The Canadian Copper Company also is sinking three compartment shaft to a depth of 500 feet and building a direct railway to Copper Cliff, giving a much shorter connection than the former roundabout route past Stobie and Sudbury. It may be expected that this greatest of known nickel deposits will soon be sending ore to the smelters of the two producing companies, and adding greatly to the available supply of the region."

(To be continued.)

GRANBY CONSOLIDATED COMPANY'S MINE AT PHOENIX, BRITISH COLUMBIA

By O. E. Leroy.

The production of the Boundary district (including the Osoyoos Mining Division) from 1896 to the end of 1912 amounts to 13,744,338 tons of ore, containing 938,125 ounces of gold, 5,035,953 ounces of silver, and 334,874,378 pounds of copper, having a gross value of $73,312,913. Approximately 60 per cent. of the tonnage was furnished by the mines at Phoenix.

The copper-bearing portion of the Boundary district occupies an area of about 25 square miles, and includes the important centres of Phoenix, Greenwood (Deadwood) and Summit. It was in 1891, following the discoveries at Rossland, that prospecting was actively carried on in the three above named camps. In that year most of the ground subsequently proved to be productive was staked. The low grade character of the ore proved a great disappointment which was partially offset by the discovery that the ore was almost self-fluxing. The field, however, was open only to large companies with financial resources beyond those of the average individual. The two companies at present operating were early in the field; the Granby Consolidated Mining, Smelting and Power Company confining its attention to Phoenix, and the British Columbia Copper Company operating at Deadwood and Summit. The smelter of the former was built at Grand Forks and the first furnace blown in in 1900. Its capacity has been increased from 1,200 tons to between 4,000 and 4,500 tons per day. The latter company commenced smelting at Greenwood in 1901. The present capacity of its furnaces is about 2,600 tons per day.

Ore Deposits.—The copper deposits occur at intervals along the edges of zones of contact metamorphism and also at the base of the zones or in some non-outcropping intermediate position.

The zone in which the principal deposits occur is horseshoe-shaped. The west limb is 3,200 feet long and 1,000 feet wide, while the east limb is 2,250 feet long and from 350 to 1,000 feet wide. The thickness varies from one foot or so to 350. The floor is jasperoid or in places the siliceous rocks of the Knob Hill group.

Knob Hill Ironsides Mine.—The ore body of this mine owned by the Granby Consolidated, is the largest and most typical of the camp. The ore body is composite in character and consists of two lenses which coalesce about their central portions. Along the outcrop these appear as distinct ore bodies separated by a varying thickness of the lime-silicate gangue rock. The western lens is at least 2,500 feet long, from 370 to over 900 feet wide, and from 40 to 125 feet thick. The eastern lens is apparently shorter, but approaches the magnitude of the other in width and thickness. The general strike along the outcrop is about N. 10° E. with dips to the east ranging from 45 to 60 degrees. The dip flattens with depth and on the lower levels averages from 15 to 30 degrees. The general pitch of the ore bodies is about 18 degrees to the northeast. The vertical range from the south end of the main "glory hole" to the lowest working levels is 675 feet. The structural footwall is the jasperoid zone of the Brooklyn formation, and in places, the siliceous rocks of the Knob Hill group. The hanging wall is a purely commercial one and the ore either grades insensibly into barren gangue or terminates sharply against a gouge-filled fissure. The ore bodies and adjacent rocks are traversed by an intricate system of fissures which run in all directions and dip at all angles. They have had a most important influence on ore deposition as they formed channels for the ore-bearing solutions which permitted a uniform distribution of their metallic contents. In many cases the ore adjacent to these fissures is of noticeably higher grade. Some of the fissures have been subsequently filled with banded quartz, calcite and chalcopyrite.

The only displacement noted is along one of the major fissures which faulted the ore body with a throw varying from zero to 120 feet along a dip of 55 degrees to the west.

The ore is mainly massive with local banded areas. It consists of chalcopyrite, which with pyrite and hematite is finely and uniformly distributed through a gangue composed almost exclusively of garnet, epidote, quartz, calcite and chlorite. The pyrite occurs

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