

The names of the mines treated, and location, are as follows:—

Le Roi Mine.....	Rossland, B.C.
Old Ironsides.....	Phoenix, B.C.
Baltic Mine.....	Baltic, Mich.
Atlantic Mine.....	Atlantic, Mich.
Barnum Mine.....	Ishpeming, Mich.
Section 16.....	Ishpeming, Mich.
Soft Ore Hematite.....	Ishpeming, Mich.
Queen Mine.....	Negaunee, Mich.

In nearly all these mines the methods used apply principally to mass mining in large bodies of ore. The one exception is the Atlantic Mine, which has a narrow deposit, and is mined entirely by the old fashioned stull method.

#### LE ROI MINE, ROSSLAND, B.C.

In this mine there are one or more veins or ore chutes of varying width and carrying the minerals pyrrhotite, chalcopyrite, and iron pyrites, and mixed with these more or less disseminated gold. It is the gold, however, that affords the principal value of the ore, and without it there would be no Rossland. The vein is of a pockety nature and some of the pockets are of very large size. The dip is about 70°, and an incline shaft was sunk at about this slope. As depth was attained it was found that the vein pitched a little steeper, and the shaft was given a steeper pitch also, thus forming what is called a "knuckle" in the shaft. This knuckle afterwards became a source of considerable trouble, because, at high speeds, the skip was liable to leave the track.

At intervals of 100' drifts were run on the lead, and the deposits thus opened up. The first shaft had three compartments timbered with the ordinary square shaft sets. Sinking was carried on with three shifts of miners working eight hours each, and the rock broken was hoisted to the level above with a bucket and air hoist. As the shaft became deeper the ore and rock were hoisted by skips, run on the balanced principle. A pentice of about 15' of rock was always left in the shaft at each level, and served as a protection to the shaft men working below. It was located under the two hoisting compartments, and connection was made below by a passage at the side. Each lift was usually excavated before being timbered.

At each level, drifts were run on the vein in the ordinary manner, dimensions being 6' x 9'. In the earlier workings the tracks were laid very poorly, and were often the cause of a great deal of trouble and delay, when a large output was desired. But as time passed