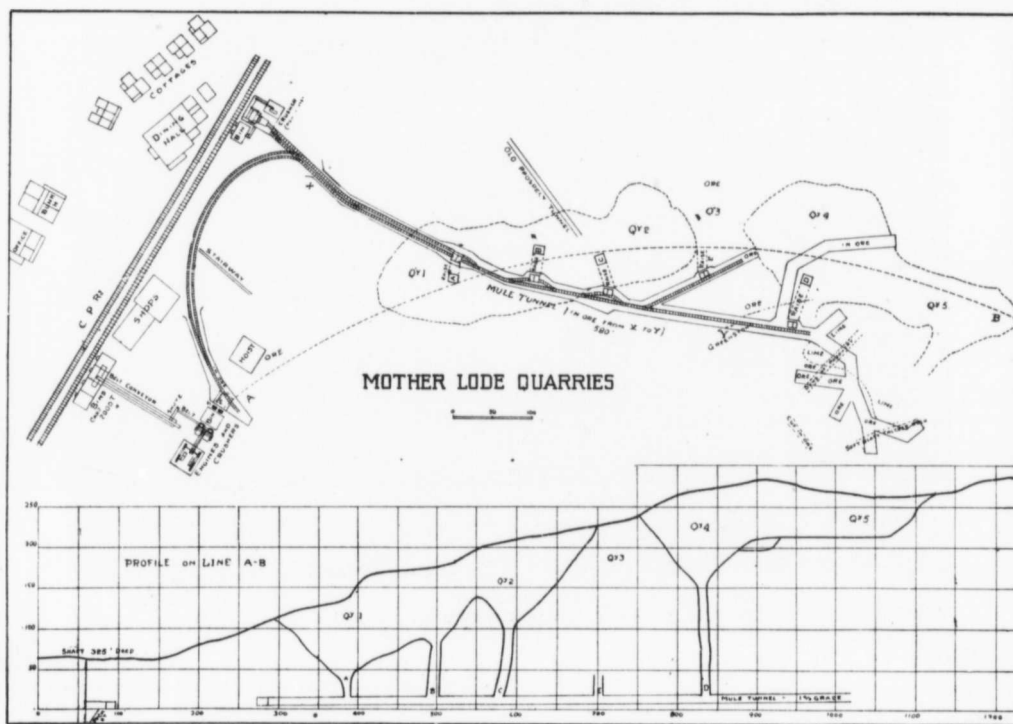


ers, each crusher having a jaw opening 2 ft. x 3 ft. These crushers will be driven by a pair of 100-h.p. engines so arranged that either engine can drive either crusher, this arrangement to eliminate all chance of stoppages through breakdowns in either engines or crushers—stoppages which past experience has shown to be inevitable as well as costly. The crushed ore will be conveyed by a Robins belt to the main ore bins. All car dumping and opening of bin and pocket gates will be done by means of compressed air. The same skips and crushers will, of course, serve all levels in the mine.

Although the ore will have to be hauled further under the new arrangement, crushing costs will be lowered, for the reason that, aside from stoppages for

In the matter of power, the cost of this item at the mine has been greatly reduced through the consolidation of power plant, and the driving of all machinery by compressed air. The 100-h.p. crusher engine, formerly steam driven from boilers located near by, now uses compressed air, which is heated to a considerable degree just before entering engine. This expedient has effected a direct saving in labour and fuel to the amount of from 5 to 7 cents per ton of ore crushed. Air is furnished by a cross compound condensing Corliss compressor, capacity 3,200 ft. free air per minute. Two boilers situate near the crushers and hoist will be available to furnish steam on short notice should the compressor machinery break down, thus guarding against stoppages from this cause.



Plan and Section of Mother Lode Mine Ore Quarries.

repairs to machinery, the provision of capacious pockets and shaft bins insures steady operation of crusher, which machine, if constantly supplied with ore, can crush a furnace day's run in a single shift, instead of this work taking a shift and a half as at present. Jamming of elevator buckets, constant repairs to them, and their clogging with frozen fine ore in winter, all serious drawbacks to rapid work, will be avoided. The short tunnel to shaft will become the general entrance to mine, both for men (whose houses are all on this level) and for materials from shops and store houses. The main features of this work are shown in the reproduced photograph of map of the mine.

From a smelting standpoint, the ores of the larger Boundary properties have, as a rule, grown less basic as the workings have been extended and deepened. That is to say, the proportion of iron oxide ores to the whole ore body has sensibly diminished, there being no great change in the amount of other base. Whether or not this reduced proportion of base to acid ore is to be permanent, it is (at any rate in the case of the Mother Lode mine) impossible to predict. Long experience in mining these deposits has shown that it is not possible to make safe predictions as to occurrence of zones of mineralization, new ore bodies frequently having been found in unexpected places. On the 200-