

THE RECOVERY OF LOST LODES.

One of the greatest difficulties attending vein mining is the sudden cutting off of the lode by "slides," "faults," "cross courses," "heads," or other fractures, and the uncertainty as to the direction in which the lode has been heaved, or as to whether it has been completely cut out.

Mr. S. B. J. Skertchley, late Assistant Government Geologist of Queensland, Australia, in commenting on this difficulty says:

"The question can in most cases be determined by a careful study of the geological features of the mine and its locality. The first points to be ascertained are the characters of the ore body and the nature of the fracture which cuts off the ore. The following remarks apply to true lodes, to impregnations from faults, and indeed to any ore deposit which has shown signs of continuity, either in ore or in lode stuff ("formation"). It does not refer to deposits on true floors, for as these are merely infiltrations along joint planes, or similar lines of weakness, from the lode itself, they die or pinch out, and are not truly cut off, though their termination may be more or less abrupt. Assuming, then, that we have an ore deposit which has great probability of having been continuous, but which seems to have been cut off, the most important fact to determine is whether this cutting off is real or only apparent. Hence the ore must be followed to its end, and not abandoned because it seems to be getting poor.

"Then, if a fracture is found, against which the ore abuts and beyond which it does not continue, we may reasonably assume that it is a true cut off, and that the ore may be found again, especially if the country rock changes in character at the cut off. In other words, the lode has been fractured and shifted. No cut off can possibly destroy a lode; yet mines have been abandoned over and over again from the unfortunate fact that the ore has been cut out. The fracture must be carefully examined, and if evidence of faulting or fissuring is found there is every reason to anticipate the recovery of the lode. The evidences to be sought for are (1), the striations or slickensides; (2), fragments of country rock (breccia) included between more or less defined walls; (3), clayey selvages, and (4), a platy or slate-like structure of the country rock roughly parallel with the fissure. These are evidences of movement under pressure, and have already been described. If one or more of these phenomena be observed, the probability of the lode being shifted and not cut out is enhanced. The direction (course) and the underlie or dip (shade) and angle of the fracture and of the lode itself must be carefully determined. The problem now is to determine in which direction the lode has been shifted. For simplicity we will speak of the ore-bearing fissure as

the lode, and the fissure against which it cuts off as the fault, the angle at the point of intersection is greater on one side than the other. The lode has, then, been shifted either towards the greater or lesser angle.

"A number of empirical rules have been adopted in mining districts to determine this most important point, but they are quite arbitrary, and do not hold good universally. As a fact, the fault may shift a lode either way, or even break it without any shifting."

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