There seems to be some relation between the structural features of the rocks and the location of the ore deposits, for as a rule the largest deposits of ore are found in places where the limestones have been closely folded or faulted. As the rocks are likely to be much more shattered at the crests of closely folded and eroded anticlines, such places should be more favorable for ore deposition, and the investigations in this region indicate a relationship of that kind. In general, those places in the limestones where the underground waters have collected and flowed with greater freedom are the places where the ore was deposited in largest amount. Miners frequently remark upon the observed connection of underground watercourses and the limonite deposits. As a rule, throughout the limestone regions good wells can be procured in few places at depths less than 200 feet, and yet few good iron mines have been opened where the volume of water encountered at depths of 100 feet or even less was not an obstacle to the development.

Limonite deposits are not found in the valleys of the main streams but are common in local depressions in the general upland surface where sink-hole topography is noticeable. As the glacial deposits are usually thicker over the ore deposits than in the surrounding region it is probable that depressions existed there before the glacial epoch.

OCCURRENCE

All the known limonite ore deposits of Lehigh County are surficial or shallow. They are irregular in extent and either occupy pockets in the underlying rocks as much as 100 feet or more in depth, or follow certain strata that more readily yielded to solution or replacement. In the belt of “mountain” iron mines along the north slope of South Mountain certain strata were converted into iron ore more or less completely for about three miles, and the ore bodies consequently are parallel to the adjoining strata both in dip and strike. In other places, however, the ore formed irregular masses which bear little relation to the structure of the surrounding rocks, so far as can be determined. Usually, however, the greatest diameter of the ore body is parallel to the strike of the enclosing strata.

The position of the mountain ores near the base of the mountains formed of gneiss causes them in most places to have a surface cover of float rock from the higher ground, and consequently the ore appears at the surface in but few places. This talus cover may be so deep that the ore can be worked only through shafts.

In some places the valley ores are concealed by deep deposits of glacial material that render their discovery difficult, but most of the bodies of ore thus far worked were located by the float ore in the soil. Good ore in many mines was reached within a few feet below the surface. In some freshly plowed fields the soil in the vicinity of a body of limonite ore is a rich brown that can be easily distinguished at a distance. Most of the ore bodies in the limestone valleys have been discovered by sinking test pits in places where the soil was deeply colored and pieces of float ore were abundant. Bodies of workable ore have also been discovered by sinking test pits along the line of known deposits or in the vicinity of sink holes.