ered by trees and brush. Considerable siliceous material is present. The Hardyston is represented by both the arkosic and sandstone varieties. Some of the ore is intermingled with the siliceous material.

179. Emaus Iron Co.'s mine.

"The mine is 10 feet deep and not worked. The ore, of which there is very little in sight, occurs in drift deposits of Potsdam sandstone. The mine did not look promising."

This is a large pit completely filled with water. Exposed banks show yellow clay, a little ore and considerable siliceous material. Hardyston of the sandstone variety and some quartz are also found.

180. Nathan Whitley's mine.

"At this mine, about 15 feet deep, the ore occurs in clay containing a great deal of flint. A good deal of the ore is pot or bomb-shell. Limestone crops up in the bottom at very varying depths owing to its having been so much water-worn. From one of the limestone caverns, water bubbles up very rapidly. The ore dips 15° 8.60°E. The mud from the mud-dam, which is ochre-yellow, is carefully dried and then sent as ochre to the Blue Mountain Paint Company at Bethlehem."

"Limonite, hard and arenaceous; structure flaggy and some of the pieces decidedly fibrous."

This pit is almost filled with water. Yellow clay occurs on the banks and on a small island. Quartz, limestone, and fragmental and lump ore are fairly abundant.

181. This is a small shallow pit completely covered by trees and brush. Little is to be seen except a few fragments of limestone and quartz.

182. Thomas Breinig's mine.

"Leased by the Northampton Iron Co. This is one of the oldest mines in the county, having been worked more than sixty years. The old portion of the mine is full of water and said to be 60 feet deep. The ore occurs above damourite slate, and associated with iron pyrites. It is improbable that the sulphuret of iron owes its origin to a small shallow bed of Utica shale which has undergone disintegration. It was impossible to ascertain whether the blue ochre occurred here or not. The most probable explanation of the formation of iron pyrites, which occurs as a pipe-shaped stalactite, is that sulphate of iron in solution, coming in contact with organic matter, or possibly the graphite of the blue ochre, was reduced to sulphide of iron. That the sulphide of iron is not a deposit contemporaneous with the rock, is evident from its stalactitic character. Black oxide of manganese occurs here, but it was impossible to see any of it owing to the conditions of the mine."

"A thin bed of white saccharoidal sandstones occurs in this mine; pieces of it were observed thrown up on the bank. Mr. Breinig states that the brown hematite occurs above and below this, but not in it. Pieces of sandstone colored red by iron were observed on the dump. To the west of the old mine a new excavation has been recently commenced."

"Limonite, very compact, somewhat cellular and stalactitic; botryoidal; the color is various shades of brown."

Two pits filled with water and two large dumps of yellow clay and a black clayey pyritic material mark the spot. Limonite lump ore and turgite are abundant; also slaty material, limestone fragments, and quartz containing limonite.