engine, which is a single cylinder, double-acting, condensing, walking-beam engine, with a pair of fly wheels, has a 110-inch cylinder and a 10-foot stroke, and is calculated to work four 30-inch plunger pumps and four 30-inch lift pumps, with 10-foot stroke, and to take water from a depth of 300 feet. At the time it was stopped, it was running from six to seven strokes a minute, and was working three pairs of 30-inch pumps and one pair of 22-inch pumps, and was easily handling all the water that came to them. The pump-shaft and foundation for the engine were no less remarkable in their way. The latter was built up from the solid rock, 60 feet below the surface of the ground, of hewn blocks of Potsdam sandstone; the former, which measured 30 feet by 20 feet in the clear, was started on a small crevice, and timbered with 12-inch square yellow pine sticks, and divided into three compartments, and further strengthened by two open brattices of the same heavy timber. When the pitch of the vein carried it out of the shaft, the rest of the depth was sunk through solid rock.

The Hartman mine distant about half a mile, was worked at first exclusively for calamine. Its exploitation gradually exposed a central horse of blende, which the method of mining adopted made it necessary to leave for the support of the timbers which carried the roof. The increasing importance of this blende at the lowest level worked, 150 feet, caused a change to be made in the method of mining. The mine was operated for a year after the large engine was stopped, and the last work that was done was the putting in of a slope to develop this deposit of blende. The water in the Hartman was always less strong, the pitch of the crevices less steep, and the surrounding rock less disturbed than in the Ueberroth mine; the strike of the crevices was more to the west, and the blende came nearer to the surface. (Plate 28, 9.1

The Saucon (Correll) mine, however, affords the simplest and best illustration of this form of deposit. It is distant about a quarter of a mile, and was originally leased by the Passaic Zinc Company, by whom it was sub-let to the Lehigh Zinc Company on high royalties. When the rich deposit of calamine first discovered was apparently exhausted, this sublease was surrendered by the latter company, and in 1875 the original lease passed to the Bergen Point Zinc Company, by whom the mine has been worked ever since. A face of blende was uncovered at the western extremity of the open pit, and the ore followed under a heavy cap of limestone for a distance of 250 feet up to the property of the Lehigh Zinc Company on the west. On this property, it was reached at a depth of 110 feet, under 100 feet of solid limestone, and was followed 150 feet farther on the course of its strike. On both properties, it was followed to a depth of nearly 200 feet. In the fall of 1879, all the property of the Lehigh Zinc Company passed into the hands of its bond-holders under foreclosure of its mortgages, and in the spring of 1880 all the mining property was sold to the proprietors of the Bergen Point Zinc Works.

The workings of these two mines, taken together, show a remarkable regularity of width, pitch and course, and the deposit is clearly shown to be a large chimney or chute of ore of irregular cross-section, which, however, preserves a lenticular shape, the longer axis of which is about 60 feet, and pitches to the south at an angle of about 30 degrees; the transverse axis measures about 30 feet. The axis of the orebody dips to the west-southwest with a slope of about one foot in four. The weathered outcrop has evidently given rise to the pit of oxidized ores and to certain irregular detached deposits which lie in the same course, several hundred yards beyond it.

Here, then, are three similar deposits of zinc ore, with their nearly parallel chimneys of blende and their corresponding beds of calamine, which have evidently been brought up from below, by solution in thermal springs, through crevices formed in the Limestone by the gradual upheaval of the neighboring South Mountain, and have undergone subsequent alteration from the action of meteoric waters. Nearer the mountain, where the strata are most tilted and the ground most disturbed, the water is strongest and the largest deposit of calamine is found. In the Hartman mine, the strata are more nearly flat, the blende is sooner met with, and the water is much