

## Some Effects of Lead and Zinc Mining on the Environment

One traveler wrote about his trip to Mineral Point in 1835.

*It was a beautiful September day. We followed the ridge road through the timber. The trees had already assumed the variegated hues, which a few light frosts impart to them; the wild plum trees and wild grapes line our path on both sides as if they were set out in a regular park. I never enjoyed a more agreeable ride until we came within a few miles of Mineral Point. Here the hills were stripped of their trees, and windlasses, mineral holes, piles of dirt, rock, and mineral greeted our view on all sides.*

Galena, a mixture of lead and sulfur, needs to be smelted or melted so the pure lead separates from the sulfur. The smelters or furnaces burned great amounts of timber. Other timber was used underground in the mines to shore up weak spots. When galena is smelted, the sulfur escapes into the air. People noticed the sulfur smell and compared it to rotten eggs.

Thousands of holes were dug and then abandoned in lead mining. In 1844 one early settler had two fine horses, the best in the county, that he valued at \$1000. The family had just built a new house and they learned that

*... about twenty couples had concluded to give us a surprise party and have a dance in our new house. I told Octavius (his son) that we could not risk our young horses with the horses that would be there, but to turn our stock into the field before the guests arrived. The guests came and danced until nearly day light. After breakfast I told the boys to bring the horses back from the field. They went and found them all dead. They had tumbled into three shallow mineral holes and broken their necks. Here were five dead horses and one so crippled that he died the next day.*

The loss of the horses meant the settler couldn't pay his mortgage, and the family lost the farm and house they had worked so hard to build.

Some shafts left from lead and zinc mining were covered, but over time, the wooden planks rotted away. Families used some open shafts as garbage dumps. Accidents, while rare, did happen. During the second half of the 20<sup>th</sup> century open or badly covered shafts were searched out and professionally covered.

Mining meant large amounts of rock were removed from underground, leaving caves. Sometimes this led to sinkholes. Imagine driving a tractor in a field and then having the tractor fall into a 6-foot hole that wasn't there yesterday.

The zinc mines pumped millions of gallons of water out of the ground. This lowered the area's water table and some local wells went dry. The mine water runoff could erode the landscape. Or, the water, with its impurities, would flood areas laying down sediment that poisoned the land. Even decades later, plants won't grow on that land. Without plant's roots holding the soil, the land erodes easily. At some mills, the silt left after processing was carried by water and deposited in the nearest valley sometimes building up two to three feet of mine dirt and changing the stream's course.

At the mill, ores were crushed and washed. Tiny particles blew into the air. Zinc ore contains zinc and sulfur and is often mixed with pyrite, which is a combination of iron and sulfur. These ores went to roaster plants where the ores were heated, and the sulfur escaped up the chimneys. In the air it caused problems. For example, in 1916 it was reported that the sulfur fumes from a roaster in New Diggings

. . . poisoned the cattle, killed vegetation, rotted wire fences and screen doors, and poisoned water in the creek.

So the roasting companies started to capture most of the sulfur in bags before it left the chimneys. That was better for the environment and better for the companies because they could sell the sulfur to other businesses that used sulfur in manufacturing.

Many mine sites left piles of waste rock and tailings. The tailings are the crushed rock left after milling and washing. The piles contain sulfur, and over the years, the sulfur mixes with rain and water. Some of this acidic water enters streams. The acidic water can kill certain fish and plants. In the last decade many of these piles have been buried to reduce the pollution problem.

More information on land reclamation can be found online. The University of Wisconsin – Platteville offers a degree in Reclamation, Environment and Conservation. In Ladysmith, Wisconsin the Flambeau Mine was worked from 1993-1997. Its website at [www.flambeaumine.com](http://www.flambeaumine.com) gives information on its reclamation.

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