

## Minerals of the Lynne Deposit, Oneida County, Wisconsin

Much has been written recently about mining near Ladysmith, Wisconsin. This, however, is only one of many deposits discovered over the last few decades in northern Wisconsin. Deposits with names such as the Lynne, Bend, Reef and Thornapple have all been explored and have quite interesting mineralogies. This article describes the geology of one of those bodies.

The Lynne deposit is located in southwest Oneida County west of Rhinelander. It is completely covered by glacial drift, and has only been studied from cores recovered by diamond drilling by Noranda Exploration. Noranda proposed mining the deposit by open pit, producing 6.1 million tons of ore rich in zinc, copper, lead, antimony, gold and silver.

As is the case with the other deposits of the region, the Lynne Deposit is in metamorphosed volcanic rocks formed between 1.6 and 1.8 billion years ago. At that time, the area's geologic setting was similar to that of the today's Mediterranean region. There one has mountain building and volcanic activity associated with colliding continents with an ocean basin caught in between. The ore at Lynne is interpreted as forming around an ancient submarine hot springs in such an ocean.

The ore is found in rocks now made mostly of talc, calcite and fine-grained quartz. In this rock are stringers of sulfide minerals, mainly sphalerite, pyrrhotite, galena, pyrite and chalcopyrite. These minerals are massive, with good crystals likely rare. They may produce attractive masses, especially as some of the sphalerite is amber in color. A number of rarer minerals have been found at Lynne. Tetrahedrite, a metallic flint-grey to black mineral containing copper, iron, silver, arsenic and sulfur is relatively widespread. Several more silver minerals are found there including native silver, acanthite, a gray sulfide, dyscrasite, a soft silvery-white silver - antimony mineral, and pyrargyrite, a silver antimony sulfide. Pyrargyrite is a deep red lustrous mineral nicknamed "ruby silver" and is highly prized by collectors, especially when in good crystals. Native gold is also found, as is electrum, a natural alloy of gold and silver. The rock surrounding the ore body also contains interesting minerals although they are not economically important. These include calcium and magnesium silicates such as cummingtonite, epidote, garnet, diopside and tremolite. These minerals are often shades of brown and green which could make attractive specimens when set off by brassy pyrite and white calcite which are the two most common minerals in the rock. Also most of this material will likely be discarded as tailings hence will be more accessible to collectors.

It will be years before the Lynne deposit will be open for mining. When – and if – it ever is - more minerals will be discovered as the body is explored. Most of the ore minerals will wind up in the smelter. I hope, however, that Noranda, in conjunction with the scientific and collector communities, will see to it that specimens of the unique and beautiful minerals from Lynne will be preserved to record this part of Wisconsin's mineral heritage.

-Dr. Bill Cordua, University of Wisconsin-River Falls