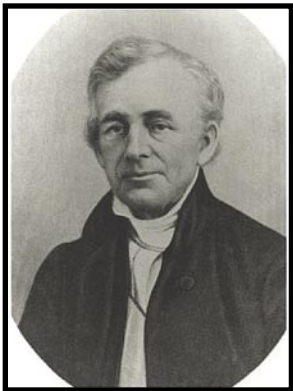


# LINE PIT CECIL COUNTY,

A giant serpentine belt hosting a series of chromite pods snakes through the man-made border between Maryland and Pennsylvania. These deposits became a valued commodity worldwide, producing over 250,000 tons of chromite ore to be used for making pigments and resilient alloys. Minerals from these deposits are some of the finest examples of gem serpentine, crystallized chromium species, and crystallized manganese minerals found to date.

As chromium became more widely used in the production of various metal alloys, the value of chromite ore increased considerably. In the mid-18th century, powdered crocoite (lead chromate) from the Ural Mountains was gaining popularity as a pigment. Louis Nicolas Vauquelin discovered that by treating this powder with hydrochloric acid he could produce chromium oxide. The chromium could be separated by heating, and with this process the exploration of uses for this material could begin.



**Left:**

**Photograph of Isaac Tyson, the chromite baron of the world for over 40 years in the 19th century.**

The son of a flour merchant from Baltimore, Isaac Tyson studied geology, mineralogy, and metallurgy in France. As he was studying, the identification of chromium was beginning. Tyson knew that with suitable applications, demand would increase.

# BY JUSTIN ZZYZX

# MARYLAND

He returned to Baltimore, his studies complete. Upon his return he noticed chunk of rock used to prop up a barrel in a Bel-Air market and identified it as a chunk of chromite ore. Inquiring as to the origin of this rock led Tyson to the serpentine outcropping near Baltimore. He realized that the barrens containing little land suitable for livestock or farming,

were rich in chromite and with this knowledge, started buying as many deposits as possible. By the time the Ural Mountains' deposit of crocoite had run out, Isaac Tyson found himself the owner of the only major chromite district in the world.

Tyson was the world's only supplier of chromite ore for almost 40 years, before the enormous deposits in Asia Minor were found.

## Right:

A polished section of gemmy green williamsite, grading towards purple colored chromian-antigorite; colored brown by pyroaurite, with black specks and microcrystals of chromite.

Photo and collection of Jeff Weissman



Among all of the mines founded by Isaac Tyson, the principal minerals were the same. Chromite was found with and included in veins of antigorite, lizardite, and other serpentine minerals. The various mines around Baltimore, such as the Weir mine and the Choate mine, produced a combined total of a little over 100,000 tons of chromite ore.

One stretch of serpentine in the Cecil and Lancaster counties produced nearly double that volume of chromite ore, even though there was only one mine

extracting from it: the Woods mine. The minerals found here are typically leaps and bounds better-crystallized than the same minerals found in the nearby deposits near Baltimore.

Located immediately on the border of Maryland and Pennsylvania is a deposit called Lowes Mine, or Line Pit. It consists of a discovery shaft a few feet into Pennsylvania and a shaft on the state's line, following the pod of chromite that snaked and twisted to the southeast. The vast majority of the chromite ore is found in Maryland.



**Above:**

**Polished gem serpentine from the Line Pit.**

**Left:**

**Pennine, a rare pseudo-hexagonal variety of clinocllore. Green antigorite along with a matrix of chromite. 5.5 x 4.0 x 2.7 cm. Photograph from The Arknstone**

**Right:**

**Typical platy  
crystal cleavage  
of Brucite,  
repaired.  
8 cm**

**Photo and  
collection  
of Jeffery  
Weissman**



This mine was a very minor producer of chromite ore, yet it produced some of the very finest gem material from any serpentine deposit in the area. This gem, known as williamsite, was a popular item among lapidary artists. Unlike the area's typical serpentine, this serpentine a very bright green color due to the lack of brown undertones. The gem material is never too abundant in large sizes, as the veins of white magnesite criss-cross through the serpentine. Even the typically fibrous picrolite is very bright and translucent from this deposit. The material keeps its fibrous texture when polished, leading to a milky cat's eye effect.

The Line Pit orebody was described in depth by Samuel Gordon in 1922 as an irregular, swelling, pipe-like mass of coarse massive chromite, with small veins of chromite and magnesite extending into the surrounding serpentine body. The grains of chromite could grow up to 1 cm, interlocked in the orebody up to 3 meters across.

Dravite crystals are found growing in the talc found at Line Pit. The crystals are deep green, and no longer than 1 centimeter. Fuchsite mica is found alongside members of the chlorite family such as clinocllore and bright purple kammererite (chromian clinocllore).



One variety of clinochlore, known as pennine, occurs as pseudo-hexagonal crystals formed directly on chromite veins. The pennine crystals at the Line pit grow to nearly half of a centimeter tall and exhibit a deep green translucency. Some specimens showcase deep green crystals of pennine turning slowly into bright purple kammererite crystals, on a matrix of solid chromite.

The Woods Mine is the only nearby locality with world-class brucite specimens. Other localities in the area, such as Line Pit, only have as pearly gray brucite plates.

All of these mines, save for Woods Mine, were relatively small deposits that produced a valuable industrial commodity in Maryland for several decades. By the time the commercial need for chromite was filled by the vast deposits in Asia, the Maryland mines had run their course. This made Maryland a crucial player on the world's mineral supply, even if only for one small moment in time.

**Right:**

**Antigorite var. Picrolite from the Line Pit. 9.6 x 6.6 x 2.6 cm Picrolite is the fibrous variety of antigorite. Typically picrolite specimens do not have the gem quality seen at Line Pit. Photo by Justin Zzyzx**

