

Barberton is not down and out

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discovery of lode gold deposits in quartz vein systems in the Barberton Mountainland.

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discoveries were eclipsed by Edwin Bray's fabulously rich 'Golden Quarry' discovery adjacent to the Sheba Fault, close to present-day Sheba mine". This deposit made Barberton famous worldwide and led to one of South Africa's most colourful gold rushes.

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Anhaeusser writes that the town of Barberton was founded in 1884 following numerous gold discoveries in the mountains northeast of the town, including the currently operating Sheba-Fairview, New Consort and Lily

gold mines. "The first three are related to the Sheba Fault and the last one to the Lily Fault." Other mineral deposits exploited in the Barberton-Swaziland region include magnesite, barite, iron ore, tin and chrysotile asbestos.

According to a number of geologists some of these orebodies still offer a lot of potential. *Mining Mirror* spoke to JP Hunt, a geologist at SRK Consulting recently, and he said that a shift in how one thinks about what constitutes an orebody involving a change in mining method or application of a different lower-cost beneficiation technique could unlock this and hence reduce the cut-off grade. "That's one of the opportunities in Barberton – look for lower grade bulk-mineable resources. Another is looking under the headframes of historic deposits, which were stopped for non-geological reasons," said Hunt.

Hunt adds that existing mines in Barberton are still doing exploration work. "Some of the best results are coming from newly discovered extensions of known deposits. For the size-frequency study that I did, I had access to historic information in which the production of each deposit during the first 100 years was tabulated. I then added the production from 1983 to 2013. Interestingly, the mines continued exploration, not to make a new discovery, but to just to keep their operations going. These companies had actually mined more gold than what was predictable in 1983.

"Furthermore, the expectation for more gold has also increased in real terms, although not in relative terms. This does mean that the region is slowly becoming more mature. Its residual potential has decreased; in 1983 it was 47%, while in 2013 the residual potential was 42%. Therefore, the known gold endowment of absolute metal had nearly trebled from 1983 to 2013 even though the residual potential is decreasing.

"I approached a number of the mines to determine why this is the case; I hoped they had a new geophysical technique or were doing something different to unlock all this metal. The answer was that they are actually drilling ahead of the delineated part of the orebody – and this makes sense. Once a company has delineated a decent ore body that will keep it operating for the next 20 years or so, exploration won't be a priority. The mining companies in Barberton are fortunate in that the mineralised system simply continues, and they are able to sustain their operations incrementally," Hunt said. ■



Other deposits are found between Barberton and Malelane. In picture is Chamotte Holding's Strathmore Magnesite mine between the two historic towns.

The Barberton Mountainland, also known as the Barberton-Makhonjwa Mountains, is formed out of one of the oldest and best-preserved volcanic and sedimentary Archaean greenstone belt sequences in the world.