

# Pathfinder Investment Outlook

For the week ending October 30, 2020

## Gold Deposits and Characteristics


As a follow-up to our Outlook on how ore deposits are formed, we thought it practical to dive a bit deeper and discuss how specific deposits are formed, beginning with gold. While our investment criteria are multi-faceted, we will focus this discussion on the geological characteristics we use to assess investment opportunities in the mining sector. The gold sector has attracted a great deal of investment over the last year as gold prices climbed to all-time highs back in early August peaking at US\$2,063/oz. This caused a frenzy in the mining sector with exploration companies vying for capital for various different types gold deposits. The more common types of deposits that we typically assess are classified as epithermal, carlin-type, and orogenic gold.

Epithermal gold deposits are typically what you may picture of when thinking of gold deposits. Gold occurs in quartz veins and is typically quite shallow with bonanza grades. Japan's Hishikari is one of the world's highest-grade gold mines with an average of 30-40 gpt Au. A key exploration criterion for these types of deposits is knowing where you are vertically in these systems. As a Geologist, we would look for certain textures, such as bladed calcite in the veins which is a key indication for boiling fluids and gold deposition. That being said, many other factors come in to play and from discovery to production can take decades. Pretium's Brucejack mine here in BC, was first identified in the 1960's and it wasn't until 2009 when Silver Standard drilled 16,948 gpt Au (545 oz), that the true potential was unlocked.



*Figure 1: Drill core from Pretium's Valley of the Kings grading 42,100 gpt Au (1,353 oz).*

Carlin-type deposits are generally only found in Nevada and known to be some of the most prolific gold deposits. Gold production from Nevada accounts for 78% of US gold and 5% of the world's production. Total gold production since 1835 from Nevada tops



206M ounces and worth an estimated US\$320B dollars at today's gold prices. These deposits are very complex and a strong understanding of stratigraphy (sequence of sedimentary rocks) can lead explorers to the right host rocks. Gold is typically very fine grained, disseminated and oxidized. Oxidization is very important because it allows for these low-grade deposits to be mined inexpensively through leaching techniques without the need for more expensive production methods such as autoclaves.

Orogenic gold (or Greenstone hosted) is the favourable deposit model type we see in Eastern Canada (Ontario and Quebec) accounting for ~75% of the gold mined in Canada. These deposits are hosted in some of the oldest rocks (2.7B years old) in the world and related to deep seated faults that rapidly bring fluids towards the surface. Unlike epithermal deposits, the fluids are under higher confining pressures and don't boil, thus we see gold deposition over a greater vertical depth. Structure is critical in the formation and exploration of these deposits and a strong understanding of these pathways can lead to major discoveries.

**"This means that"** good geology, patience and a little bit of luck are key to success in gold mining and through a deeper understanding of different ore deposits we can make informed investment decisions on the merit of these assets.

Gary Sidhu, MBA | Analyst



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Sources: Bloomberg, Pathfinder Asset Management Limited

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