

Chatoyant Quartz

Tiger's eye, Pietersite, Binghamite and silkstone

Since macro-crystalline quartz and its cryptocrystalline cousin chalcedony are the most common minerals on earth, it is not surprising that there are a number of chatoyant varieties. By far the most well-known is the golden colored tiger's eye. This beautiful amber colored chatoyant gem comes mostly from the crocidolite mines of South Africa. The chatoyance in tiger's eye is exhibited when cuts are made parallel with the fibrous structure, allowing light to reflect off the fibers. While it is not clear when the gem was first discovered, it seems likely that it was near the end of the nineteenth century. That was when the Cape Asbestos Company first began mining crocidolite, also known as blue asbestos.

Until recently it was thought that tiger's eye was formed when quartz replaced the asbestos fibers in a process similar to the formation of petrified wood. In 2003, in a new study published by Heaney and Fisher, it is suggested that tiger's eye is actually an intergrowth of quartz and crocidolite fibers. That would mean the quartz is actually macro-crystalline instead of a form of chalcedony as it has long been thought.

In 1962 Sid Pieters was prospecting farm-

land in Namibia when he ran across rocks similar to tiger's eye. Only these were a brecciated version, meaning the patterns were all broken up as though the original rock had cracked into little pieces, then been joined back together. He gave it the name Pietersite,

registered the discovery in Britain, then began importing the rough to Idar Oberstein in the 1970s.

Pietersite occurs in a variety of colors - mainly blue, gold and red. Because of the brecciated nature of pietersite, the colors are often mixed in a chaotic patchwork design, very different from the parallel lines of tiger's eye.

In the 1990s, pietersite from the Henan Province of China made an appearance in the market. The new material is very similar, but without as much blue. According to a GIA study published in 2010, the Chinese material contains chlorite fibers in addition to the crocidolite and is more broken up with less parallel fibers. From a subjective standpoint, the African material generally has more impressive patterns and commands a premium in the marketplace.

In Minnesota, we have our own variety of chatoyant quartz! Found on mine dumps in the Cuyuna range, Binghamite and silkstone are mostly available in old collections now. Local rockhounds all seem to have an opinion about what determines whether a given specimen is silkstone or Binghamite. The best reference I found was a 1974 University of Minnesota pamphlet called *Guide to Mineral Collecting in Minnesota*. There it states that Binghamite is composed of quartz and fibrous silicates with inclusions of goethite or hematite. A similar but more opaque and more coarsely fibrous rock than Binghamite, known as silkstone, is commonly found in the same veins. It sounds like they weren't really sure even then whether they were two different rocks, or just different varieties.

Pietersite and pearls in gold \$1100

Binghamite and Montana sapphire in gold ring \$1400

Pietersite in 18KT gold ring \$850

Silkstone in silver ring \$400

Pietersite in silver bracelet \$2100

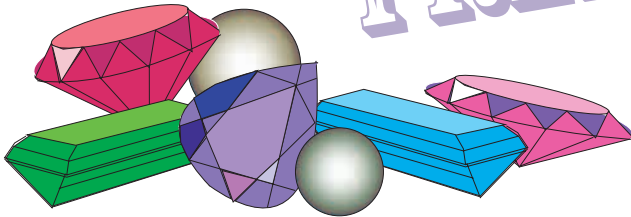


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