

THE EXOTICS: PARAIBA TOURMALINE



IMAGE COURTESY OF GREG GRACE

As prices of ruby, sapphire and emerald continue to climb, coloured gemstone consumers are turning to some extraordinary alternatives known as “the exotics”. This month, Megan Austin looks at Paraiba tourmaline.

In 1981, while some played Pac-man or wrestled with Rubik’s cube, Brazilian artisanal miner Heitor Dimas Barbosa started a seven-year Indiana-Jones-like quest for a special gemstone that was different to anything that had been discovered.

Armed only with hand picks, shovels and ropes, Barbosa dug and tunnelled behind the village of Sao Jose de Batalha in the Federal Brazilian State of Paraiba until he was finally rewarded with his precious prize: rare copper-bearing tourmalines in colours so electric – neon blues, electric greens and vivid violets – that they seemed to glow from within.

Celebrated for its stunningly rich colour, fine quality Paraiba tourmaline is 10,000 times more rare than diamond. The secret ingredient to these uniquely-coloured tourmalines is the trace element copper – hence the name “cuprian tourmaline” or “cuprian elbaite” – although colour causing manganese may also be present. A high copper content can produce blue and turquoise colours while a high manganese content may produce violet and red colours. These red tones can often be eliminated through heat treatment, leaving a pure blue.

The majority of gemstones from Barbosa’s Mina De Batalha deposit are typically small – less than one carat – but what they lack in size, they make up in visual impact. These mini-explosions of colour debuted at the 1990 Tucson Arizona Trade show, and over the next decade, two additional sources of similar copper-bearing tourmalines were discovered in the adjacent state of Rio

Grande Do Norte. This budding industry bloomed and the name “Paraiba” became synonymous with exquisite colour and rarity.

The Paraiba fairy-tale continued with the discovery of two new “stepsisters” in Africa: a Nigerian relative in 2001; and another in Mozambique in 2004. These tourmalines – also copper-bearing and of similar appearance to Brazilian material – occurred in much larger sizes than those found in Brazil, often exceeding 5 to 10 carats. Increased supply meant greater affordability for consumers; however, fine Brazilian material still commanded a premium.

The origin of copper-bearing tourmalines suddenly became an important issue as suppliers of Brazilian material fought to preserve its premium in the marketplace. Laboratory scientists discovered that an advanced spectral analysis technique (LA-ICP-MS) – could be used to separate copper-bearing tourmalines from the three different locations, based on their subtle chemical differences and comparable to a genetic fingerprint. This breakthrough was a game changer. Dealers could finally offer customers proof of origin to substantiate their claims and prices.

In response, the Laboratory Manual Harmonisation Committee (LMHC) created standardised nomenclature for copper-bearing tourmaline that served as clarification for gemmological laboratories, dealers and consumers alike.

Scientifically speaking, tourmaline is a complex borosilicate rating 7 to 7.5 on Mohs scale of hardness. It prefers the safety afforded by necklaces or earrings, rather than the exposure to potential knocks and ring-mount damage that comes from rings. *

THE ORIGIN OF COPPER-BEARING TOURMALINES SUDDENLY BECAME AN IMPORTANT ISSUE AS SUPPLIERS OF BRAZILIAN MATERIAL FOUGHT TO PRESERVE ITS PREMIUM IN THE MARKETPLACE

Megan Austin FGAA FGA Dip DT BA, is an in-house gemmologist and registered valuer for a retail jeweller. For more information about exotic gemstones, visit: gem.org.au