Tanzanite

The Stone that Made Tiffany, and How Tiffany Made Tanzanite

AN ENORMOUS AND GEM QUALITY TANZANITE, MERELANI HILLS, ARUSHA, TANZANIA

SHANNON GRAEWIN

Introduction

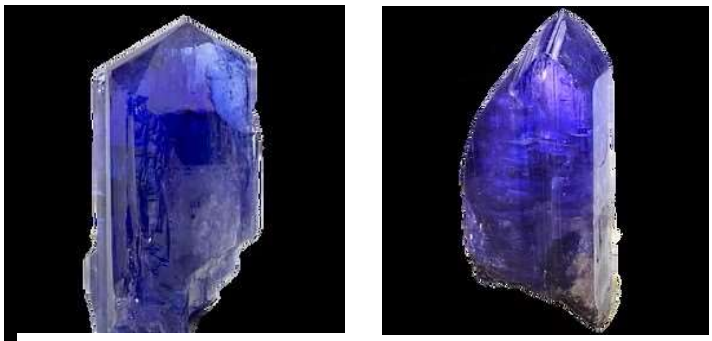
Unlike most gemstones, which have been known and used since antiquity, the remarkable story of tanzanite begins only in 1967. Initially misidentified as sapphire, it soon became the focus of a worldwide marketing campaign which catapulted it to be one of the most asked for gemstones of recent decades. This despite tanzanite not even being a mineral (it's a made-up trade name.) All but the most expert of those same people would not even recognize the word zoisite. Such is the force of media for shaping narratives and identities. Amethyst is also a rich purple color, is harder than tanzanite, less prone to cleavage, and easier to source, but yet runs hundreds to thousands of dollars less per carat than tanzanite because… because… well, you know.

Mineralogy

Tanzanite is really a special color (or variety) of zoisite. It is a sorosilicate with the chemical formula $Ca_2Al_3(SiO_4)(Si_2O_7)$ OH. What gives it its bright blue color are traces of vanadium which (like 8 other transitional elements) is a strong coloring agent. 20% are naturally blue, while most tanzanites are yellow, orange, or brownish colors until they are heated at about 400-600 degrees C. The heating causes a permanent oxidation reaction in the vanadium and somewhat reconfigures the crystal's structure enriching and evening out the color.

Figure 1. A 13-carat stone before and after ~ 10 hours of careful heating in a electric kiln. Stone and photo from Earth's Treasury

Tanzanite is orthorhombic often showing a central peaked termination. It has vertical striations which can aid in its identification and orientation. Crystals can be single, bi, or poly chromatic, and they are prone to cleavage along the b plane (perfect) or a plane (imperfect) which can make faceting tricky



Figures 2 and 3. Typical flattened (left) and peaked (right) terminations in above photo. Below photo shows typical crystal specimens. All specimens and photos New Era Gems

Tanzanite is not fluorescent nor radioactive. It has a Mohs hardness of about 6.5. It is famous for its remarkable pleochroism which is typically red, blue, and purple in deep purple tanzanite. Heating the crystals changes the trichroism to dichroism – destroying the red color. This is an easy way to tell if the crystal or gem has been heated. You can use a polariscope, polarized filters, OR a great cheat is to use a white screen on your smartphone. The screen is polarized so turning the crystal on its axes with the phone as a backlight, should easily show the polarized colors.

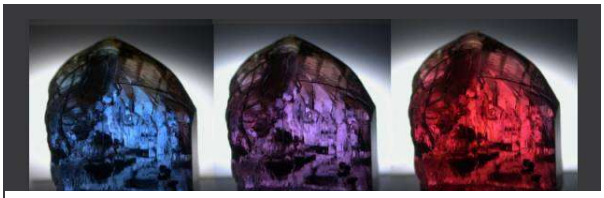


Figure 4. This gem company says these are the 3 pleochroic colors of the same stone. Do you think this is true or do you see a potential problem?

Geography and Geology of Tanzanite

Tanzanite is found only in a 7 x 2 km area in the Merelani Hills near Arusha, Tanzania, just south of Mt Kilimanjaro.

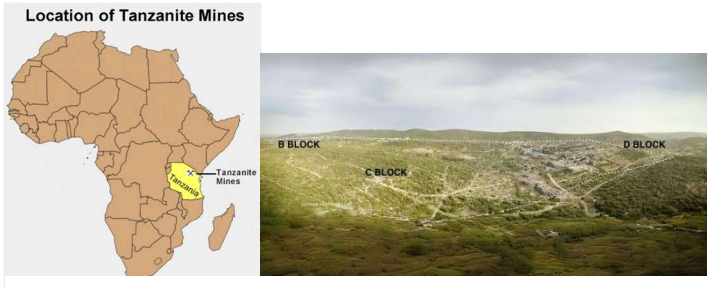


Figure 5. Tanzanite Mine Location and picture of Block B-D. Block A is to the left off of the picture

Tanzanite formed ~585 million years ago when there was extreme regional metamorphism created when two massive plates of Gondwana collided. Intense ductile deformation conditions (~650°C and 5–6 kbar.) combined vanadium rich black shales with other host rock in what is now the Mozambique Orogenic Belt. Gems occur in boudinage structures, which are oblong ovoid shaped gem bearing structures. Here they are usually in hydrothermal fractures, graphite-bearing gneisses, or graphite and kyanite schists. Tanzanites are often found with bright green tsavorite garnet (a grossular garnet also colored by vanadinite,) diopside, calcite and quartz. The matrix is usually graphite and calcite rock.

Figure 6. A rare matrix specimen. Note the graphite patches within the calcite and quartz matrix mix.

First found as weathered out pieces by the Maasai people In 1967, and properly identified as vanadium zoisite by GIA, the full rights to sell tanzanite for 10 years was secured by Tiffany in 1968. Maasai miners rushed to stake claims and mine in a flurried "rush" Due to the chaos, the Tanzanian government nationalized the mines and used state mining company STAMICO to mine the area. However, inexpertise, protests, and overall continued chaos led to inefficient extraction and other problems. Therefore, in 1990, the Tanzanian government demarcated the region into four distinct blocks—A, B, C, and D—to organize operations between large-scale commercial entities and local artisanal miners. (Figure 5.) Blocks A and C werereserved for foreign investment and medium to large scale operations. In the 2000s until recently, Block C was mined by Tanzanite One which was large scale and mechanized. Blocks B and D were for artisanal miners, but block B was plagued by logistical problems and repeated flooding. Block D was also mined artisanally and produced large clear crystals with the famous rich blue color of top tanzanite (although all blocks produce this.) Smuggling and cheating was so rampant that a 24-km perimeter wall was built in 2018. All wholesale trading must now pass through government-run hubs or the Tanzanian Central Bank. In 2024, Tanzanite One stopped operation and supply is now mostly artisanal once again.

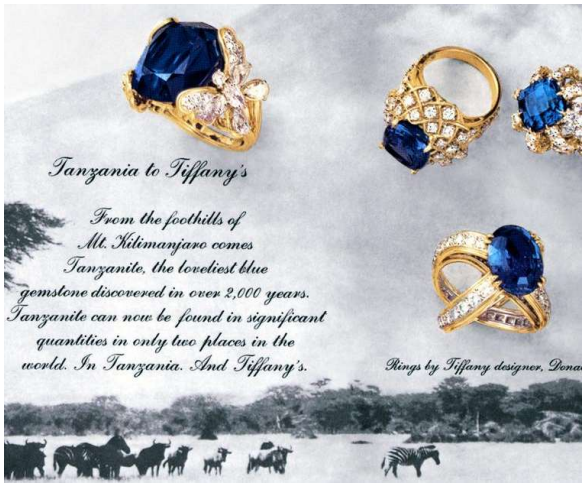


Figure 7. Tiffany's ad from the 1970s

Tanzanite and Tiffany's

The partnership between **Tiffany & Co.** and tanzanite is one of the most successful marketing stories in gemological history. Initially known as **blue zoisite**, **Henry Platt**, the great-grandson of the Tiffany's founder, loved the stone, but felt its name was unmarketable as it sounded too much like "suicide." He renamed the gem "**tanzanite**" to honor its single-source origin in Tanzania. For the first ten years, Tiffany controlled the global supply and positioned the stone as an exotic luxury item. Tiffany commissioned legendary designers like **Donald Claflin**, who created an 84-carat tanzanite floral brooch, and **Jean Schlumberger**, who famously featured tanzanite in whimsical "Bird on a Rock" designs. Its slogans **"The most beautiful blue gem discovered in 2000 years"** and **"Only in Tanzania and at Tiffany's** transformed tanzanite from an obscure mineral into the world's second most popular colored gemstone.

Figure 8. A Jean Schlumberger "Bird on a Rock" brooch design for Tiffany