

Low-Temperature Heating of Mogok Ruby, Copper-Diffused Feldspar, Porcelain-Treated Turquoise, and the Work of Gem Artist Chi Huynh



Welcome to the Winter 2022 edition of *Gems & Gemology*! This issue concludes our volume year with studies on identifying treatments in various colored gemstones and a field report on the inspiring work of an award-winning gem artist.

In our lead article, E. Billie Hughes and Wim Vertriest examine the difficulty of detecting low-temperature heat treatment in ruby. Using careful microscopic examination, they observed that many types of solid inclusions in Mogok ruby samples, including calcite, mica, spinel, and zircon, were sensitive to heat treatment at lower

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temperatures between 600° and 1100°C. Additionally, Raman analysis of calcite and spinel

inclusions provided complementary evidence of low-temperature heat treatment.

Next, Qingchao Zhou and colleagues present their findings on identifying copper diffusion treatment in red andesine feldspar, which has been in question for more than a decade. Conducting experiments on both colorless labradorite and light yellow andesine feldspar to modify their color, the authors studied the samples' fluorescence characteristics and verified that strong fluorescence provided key evidence of treatment.

A team led by Liying Huang contributes our third article, which distinguishes a newer treatment technique used to mimic the color and luster of high-quality untreated turquoise. Known in the Chinese trade as “porcelain-treated” turquoise, this material can be identified by its surface features in combination with low specific gravity, strong luster, and trace element chemistry.

In our final feature article of this issue, Tao Hsu and coauthors profile the groundbreaking work and artistry of Chi Huynh, the designer behind Galatea: Jewelry by Artist. During a visit to the Galatea store and workshop, Huynh shared several of his innovative designs and patents, along with stories of inspiration as an artist and pioneer in the jewelry industry.

G&G's regular columns continue to offer exciting gemological findings from all over the world. Highlights from *Lab Notes* include an extraordinarily large cat's-eye emerald reportedly from Brazil, details of pearl submissions to GIA labs worldwide, and the largest extraterrestrial peridot examined at GIA to date. Observations of fascinating gemstone inclusions are captured in the *Micro-World* section, sharing a glance at spiral-like “horsetail” inclusions in demantoid, a bluish green omphacite crystal in a Fancy brown-pink diamond, aegirine crystals in two rare samples of poudretteite from Mogok, and more. *Colored Stones Unearthed* returns in this issue, focusing on gem minerals that form in magmatic environments. Finally, in *Gem News International*, catch up on the latest information from around the globe, including the observation of an extremely rare hellandite inclusion in a ruby from Mogok and coverage of the 2022 Geological Society of America annual meeting.

We hope you enjoy the latest issue of *Gems & Gemology*!

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