Burmese Blue Sapphire and Peridot from Mogok and a History of Emerald Mining in Habachtal, Austria

Welcome to the Winter 2021 issue of *Gems & Gemology*! This exciting conclusion to the volume year features new content examining blue Burmese sapphires, the source of rich olive color peridot in Pyaung-Gaung, and the history of emerald mining in Austria's Habachtal region.

Our lead article by Wasura Soonthorntantikul and coauthors features an extensive gemological analysis of 248 blue sapphires from Mogok, a source long known for producing high-grade material. This study uses samples collected on a series of expeditions by GIA's field gemologists over the last decade, filling a gap in modern analytical data. Findings indicate that the sapphires show a wide range of blue color intensities but maintain a very consistent inclusion scene.

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Next, Montira Seneewong-Na-Ayutthaya and fellow researchers investigate the internal, spectroscopic, and chemical features of peridot from the Pyaung-Gaung area in the Mogok township of Myanmar. This location is an essential source of high-quality peridot, producing rough both large in size and rich in olive green color. A combination of various gemological tests and advanced analytical methods presented in this study prove effective in differentiating Pyauang-Gaung peridot from other sources.

The final article delves into the mining history of Austria's Habachtal region, which is considered one of the early emerald deposits, with references dating back to 1797. In part one of this two-part series, Karl Schmetzer traces the history of the Habachtal emerald mine through several centuries up to World War I, using largely unpublished works sourced from Austrian and German archives.

As always, our regular columns offer an assortment of gemological findings from around the globe. Highlights of the *Lab Notes* section include an impressive diamond faceted as the iconic Apple Inc. logo, exquisite antique spectacles crafted with diamond and emerald lenses in mid-seventeenth-century India, and an exceptionally large and well-saturated orange sapphire from Sri Lanka. The *Micro-World* section presents a demantoid faceted to showcase spectacular "horsetail" inclusions, a remarkable example of rainbow graining in a yellow diamond, and an unusual occurrence of a hematite crystal hosting a network of rutile crystals. In *Gem News International,* stay up to date with recent studies on biogenic carbon in pink corundum from southern West Greenland, the latest on mining the Yogo sapphire deposit in Montana, and a new blue zircon deposit discovered in Malawi.

Finally, this issue includes the debut of an exciting addition to our regular columns, *Colored Stones Unearthed*, exploring the formation of colored stones from the crust-mantle and below. This first installment covers some of the gemstones that provide important information on the mineralogy, composition, and evolution of the earth, including peridot, sapphire, and ruby.

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

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