

Intriguing Sapphire from Montana, a New Source of Emerald in Central China, and Arkansas Turquoise



Fittingly for our Winter issue, which comes out at the 2026 AGTA GemFair in Tucson, colored stones step into the spotlight! Our feature articles focus on sapphires from the French Bar sill in Montana, emeralds from Shaanxi, China, and turquoise from Arkansas's Mona Lisa mine.

In our lead paper, a team of gemologists headed by independent researcher Robert Kane detail the primary sapphire occurrence at the French Bar sill along Montana's Missouri River. Other than Yogo Gulch, this is the state's only other known source of gem-quality *in situ* sapphire. For this study, the authors examined sapphires in matrix, as well as rough, partially polished, and faceted samples. The authors show that the inclusions and trace element chemistry of samples from this primary deposit overlap with sapphires from secondary sources elsewhere in the state.

Emeralds from Zhen'an County, Shaanxi Province, China, are a very recent discovery, first turning up in drill cores in 2017, and again in association with beryllium mining in 2025. In our second article, a team of Chinese researchers led by Yi Guo provide a comprehensive study of the gemological and spectroscopic characteristics and trace element chemistry of these new emeralds using traditional and advanced gemological methods.

Many historic turquoise sources—especially those across the American Southwest—are depleted, so when turquoise from the Mona Lisa mine in Arkansas reentered gem markets in 2018, a renewed interest followed. The mine's unique geology provoked questions about the identity of the material. Our final paper, authored by GIA's Alexander Goodsuhm, uses careful fieldwork backed by gemological evaluation, X-ray diffraction, Raman spectroscopy, and chemistry to investigate the mine's geologic setting and confirm the nature of the material as turquoise.

Our regular columns offer a rich variety of content! The *Lab Notes* section, which features reports from GIA's global laboratories, includes polished specimens of the rare minerals armenite and friedelite, the largest cuprite ever submitted to GIA, fracture-filled diamonds mounted in jewelry, and an extraordinary cat's-eye boulder opal.

Micro-World dives into the remarkable interiors of gems. This issue's entries present a "bamboo forest" and a colorful "artist's palette" in emerald, nacre platelets resembling a human fingerprint in pearl, elongated wormlike inclusions in opal, and more.

Be sure to check out the summaries of presentations from Converge in our *Gem News International* section. This recent conference, which took place in Carlsbad, California, covered the most important gemological topics challenging the industry. Also in the *GNI* section, we highlight new red garnet production from northern Vietnam, an interesting new jadeite imitation, and deceptive reconstructed rough gem-on-matrix specimens from Pakistan.

Colored Stones Unearthed celebrates the diversity of gemstone deposits, exploring where specific gem minerals are found together and the conditions that produce each distinct geological setting.

In the Spotlight surveys the GIA Museum's current Temples and Treasures of Southeast Asia exhibit, which showcases the extraordinary crystals and gems central to the cultures of the area. The exhibit is on display at the Institute's Carlsbad campus until April 2026.

Welcome to our Winter issue!

Duncan Pay | Editor-in-Chief | dpay@gia.edu