

# Colorless to Near-Colorless Diamonds, Emeralds from Pakistan, a History of European Royal Jewel Sales, and More...



Welcome to the Fall *Gems & Gemology*! This issue offers an exciting glimpse into the world of D-to-Z diamonds, characterizes the inclusion features and chemical composition of emeralds from Swat Valley, and details the acquisition and auction of crown jewels by European royalty.

In the lead article, a GIA team led by Sally Eaton-Magaña and Christopher M. Breeding examines colorless to light yellow/brown diamonds with a “D-to-Z” color grade, which make up the vast majority of the world’s gem diamond trade. Because this group of mostly type Ia diamonds has not been subjected to HPHT decolorizing treatment or laboratory growth, researchers usually investigate their more rare diamond type counterparts. This study evaluates diamond

*“An exciting glimpse into the world of D-to-Z diamonds...”*

type properties and grading quality factors of D-to-Z diamonds submitted to GIA in 2017 and sheds light on their unique geological formation story.

The second article comes from a team led by Hongshu Guo, a student at the School of Gemology, China University of Geosciences in Beijing. The authors present the gemological and geochemical details of emeralds (including trapiche emeralds) from Swat Valley in Pakistan.

In the third article, Russell Shor examines how European royal families acquired their crown jewels, which were later sold at important auctions. The most recent of these was Sotheby’s historic Bourbon-Parma auction in 2018, in which 10 of the lots once belonged to Marie Antoinette.

Next, Ling Liu and colleagues from the Gemmological Institute, China University of Geosciences in Wuhan characterize turquoise from China’s Hubei Province with a rare surface pattern of spots resembling raindrops. They identify the color origin and formation mechanism of this distinctive pattern.

The final article is a field report from Hạ Long Bay in northern Vietnam, where in late 2019 Nicholas Sturman and coauthors visited a shell nucleus manufacturing factory and two pearl farms, all managed by Orient Pearls (Bangkok) Ltd. The team observed how high-quality bead nuclei are fabricated and used to produce Vietnamese bead cultured pearls suitable for fine jewelry on a commercial scale.

Our regular features continue to highlight interesting gemological findings from around the world. In *Lab Notes*, discover how gem cutters cleverly use color zoning in alexandrite and closely spaced needles in diaspore to showcase phenomena, and how areas of dramatic fluorescence correspond to diamond defects and produce a “lightsaber” effect. Curiosities abound in the *Micro-World* section: epigenetic residue mimicking a fried egg, metal sulfide inclusions resembling trees, and ferrocolumbite posing as star cruisers. *Gem News International* reports on bead cultured pearls with embedded electronic devices and Maxixe beryl with an unusual violet color, among other exciting topics.

This issue also contains the list of winners from this year’s *G&G* Challenge quiz. Congratulations, and our special thanks to everyone who participated!

A handwritten signature in black ink, appearing to read 'Duncan Pay'.

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