Nickel-Diffused Spinel, Vietnamese Augite, Brown Mammoth Ivory, and More…

Welcome to the Summer 2023 issue of *Gems & Gemology*! Loaded with noteworthy content, the articles in this volume cover timely topics, such as a new treatment process identified in natural spinel, a recent source of augite in Vietnam, and research identifying the origin of the surface color of brown mammoth ivory.

In our lead article, Dr. Michael Jollands and fellow GIA researchers report on an undisclosed diffusion treatment process for spinel that is being used to convert lightly colored gems to hues ranging from green to blue. Testing a set of spinel samples represented as "cobalt diffused" revealed that the stones were actually diffused with nickel. With this treatment now present in the gem market, the authors suggest identification criteria for spinel samples within the green to blue color range.

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Next, a team led by Le Ngoc Nang investigates a variety of gem-quality augite from Dong Nai, Vietnam. The magnesium-rich augite, characterized by its intense dark orangy brown or dark green color under transmitted light, has potential use in jewelry and as a carving material.

Another carving material, mammoth ivory, is typically found with a brown surface color. Our third article, from Zhaoying Huang and coauthors, examines the origin of this color. They determine that iron oxides and sulfides and manganese oxides and hydroxides crystallized on the mammoth ivory's surface while underground, causing it to turn brown.

Our regular columns offer a host of interesting finds from all over the globe, including an aquamarine displaying asterism, a CVD-grown diamond over 34 carats, and an exceptionally large South Sea cultured pearl in the *Lab Notes* section. Explore the inner wonders of gemstones in *Micro-World*, with a feather inclusion resembling a mountain range in natural diamond, metallic platelets in Brazilian Paraíba tourmaline, an intriguing metal sulfide crystal in garnet, and more. *Colored Stones Unearthed* returns in this issue, covering gemstones that formed through metamorphic processes. Highlights from the *Gem News International* section include the characteristics of treated rubies from Greenland as they become more common in the market, the 2023 Sinkankas Symposium, and the latest auction season. Also in this issue, we put fire obsidian *In the Spotlight*. Tom Dodge's impressive lapidary work reveals the vivid spectrum of iridescent colors in this rare volcanic glass found only in the Glass Buttes region of Oregon.

Lastly, we invite you to join the *G&G* Facebook group (facebook.com/groups/giagemsgemology). Since its launch in February 2020, our growing community has surpassed 35,000 members. Thank you for your continued support and interest in *Gems & Gemology*!

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