

Yellow and Orange Diamonds, New Identification Techniques, and the Chronicles of Chivor



Welcome to the Summer *Gems & Gemology*! This issue is packed with informative contents, including the characteristics of yellow and orange diamonds, new gem identification techniques, and the colorful history of the Chivor emerald mine.

In the world of fancy-color diamonds, yellow diamonds are by far the most common while those with an unmodified orange hue are among the very rarest (kudos to Robert Weldon for capturing them on the cover). Both yellow and orange diamonds owe their color to nitrogen-related defects. In the lead article, a GIA team led by Christopher M. Breeding and Sally Eaton-Magaña presents the last in their series

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documenting the gemological and spectroscopic properties of fancy-color diamonds.

Next, Colin McGuinness and colleagues present a luminescence imaging technique developed by De Beers Group Technology that can quickly and easily distinguish colorless and near-colorless natural diamond from laboratory-grown diamond. One marker can identify more than 99% of natural type Ia and type IIa diamond. A pair of newly developed instruments expand on the technology of the DiamondView instrument introduced by De Beers a quarter of a century ago.

In the third article, Karl Schmetzer and coauthors conclude a sweeping two-part series chronicling the Chivor emerald mine in Colombia. This article examines events from 1924 to 1970, when the mine was principally owned by an American firm. While the early era was marked by stock market speculation and scandal, there were also highly productive periods at the fabled mine.

Optical brightening agents for pearls, which are separate from bleaching and *maeshori* treatments, are the topic of the fourth article. A team of GIA researchers led by Chunhui Zhou provides a fluorescence spectroscopy technique for confidently separating optically brightened pearls from non-brightened pearls.

In the final article, a team of researchers led by Kong Gao of NGTC in China provide a means of discriminating the geographic origin of dolomite-related nephrite from the four most important sources worldwide. This determination relies on hydrogen and oxygen stable isotope ratios. Isotope analysis is an emerging method in gemological research.

As always, our regular columns offer an illuminating array of insights. Highlights of the *Lab Notes* section include an exceptional purple sapphire from Montana, a vivid blue hemimorphite cabochon resembling Paraíba tourmaline, and interesting observations on an irradiated blue diamond and a rough diamond crystal with irradiation staining. *Micro-World* reveals rare and breathtaking observations from the inner landscapes of gemstones, including what is believed to be the first reported inclusion of fluorophlogopite in spinel (or any other gem material). In *Gem News International*, you'll find a characterization of purplish pink diasporite reportedly from a new deposit in Afghanistan, a look at the cutting and identification of the world's largest faceted kunzite, a study of petrified woods from the Russian Far East, and much more.

On a final note, the *G&G* Facebook group (www.facebook.com/groups/giagemsgemology) is now more than 10,000 members strong. We thank you for your participation and your continued interest in the journal.

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