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DISCOVERY OF A POSSIBLE NEW GEM MINERAL OF THE BERYL FAMILY FROM THE MOGOK STONE TRACT, MYANMAR

PALKE, Aaron C.¹, HENLING, Lawrence M.², MA, Chi³, ROSSMAN, George R.⁴, SUN, Ziyin¹, RENFRO, Nathan D.¹ and THU, Kyaw⁵, (1)Gemological Institute of America (GIA), 5355 Armada Dr, Carlsbad, CA 92008, (2)Beckman Institute, California Institute of Technology, Pasadena, CA 91125, (3)Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, CA 91125, (4)Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, CA 91125-2500, (5)Macle Gem Trade Laboratory, Yangon, 11141, Myanmar

The Mogok Valley in Myanmar is one of the most alluring locales in the gemological world. It can be hard to understand how one relatively small area could have developed such vast mineralogical treasures. Of course, what put Mogok on the map was its production of the world's finest rubies for more than 800 years. But Mogok's gemological wealth is almost unbounded - the region likely contains the most diverse accumulation of gemstone deposits in the world consisting of fine rubies, sapphires, spinels of all colors, peridot, tourmaline, gem feldspar, chrysoberyl, lapis lazuli, and countless others. Additionally, the tectonic and geochemical oddity that is the Mogok Valley has also given rise to several rare and unusual mineral species discovered there such as painite and kyawthuite. In this contribution we will describe a possible new mineral species uncovered from the Pein Pyit mining area of the Mogok region.

The possible new mineral was submitted to the Identification Laboratory of the Gemological Institute of America. Initial analyses failed to match the stone's properties with any known mineral, although the chemistry and Raman spectrum indicated some similarity with beryl. Combined microchemical analysis by LA-ICP-MS and Electron Probe MicroAnalysis provided a chemical formula consistent with a mineral of the beryl family with beryl's octahedral site occupied by Mg²⁺, substitution of B³⁺ for Be²⁺ in one of the distorted tetrahedral sites, and a Cs⁺ ion in the channels defined by the Si₆O₁₈ rings. The simplified formula can be written as Cs[Be₂B]Mg₂Si₆O₁₈. Analysis by EBSD and single-crystal X-Ray Diffraction confirm the possible new mineral's structural similarities with beryl, being topologically almost identical except with the addition of Cs⁺ at a channel site. If accepted as a new mineral species this would constitute the 6th member of the beryl group along with pezzottaite, bazzite, avdeevite, and stoppaniite.

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Wednesday, 25 September 2019: 1:30 PM-5:30 PM