

## **MEXICAN GEMSTONES AND GEM LOCALITIES**

**Ostrooumov Mikhail (ostroum@umich.mx)**

**Institute of Earth Sciences, University of Michoacan, Morelia, Mexico.**

At the beginning of the third millennium, despite extensive research, scientists paradoxically still have not appropriately explored the Mexican territory from a mineralogical or especially a gemological point of view. Moreover, some gemologists have considered this country as a “sterile” territory that is characterized by insignificant production of gem materials. Unfortunately, there have been relatively few publications dedicated to the evaluation and characterization of Mexican gem deposits, while those reports that have been published are often confusing and even contradictory. Taking into account these facts, this paper proposes to provide missing elements in gemological knowledge bases by presenting a critical review of all so far known Mexican gemological minerals and their deposits. The other purpose of this paper is to show some relevant features of traditional Mexican gemstones and ornamental stones, including rare collector stones and several recent finds.

The most economically important gemstones produced in relatively large amounts today in Mexico are worldwide volcanic opals with or without play-of-color from Jalisco and Queretaro States. The crystal chemistry and spectroscopic features of these volcanic opals were investigated recently. Other traditional gems, ornamental and collector’s stones such as amber, amethyst, apatite, danburite, fire agate, malachite, moonstone, obsidian, “onyx” marble, topaz, pearl and coral are exploited on a limited scale. Some gemstones discussed are very uncommon such as almandine and grossular garnets, peridot, sphene, tourmaline. A series of the traditional gemstones and ornamental stones, including rare collector stones has been found in Mexico during last years that can be proposed for the gemologic aims: bertrandite (Coahuila State, municipality of Acuña, Sierra de Aguachile), blue calcite (Coahuila State, Sierra de Corazones), creedite (Chihuahua State, Santa Eulalia mine), eudialyte (Tamaulipas State, Sierra de San Carlos, Cerro del Diente; Nuevo Leon State, Sierra de Picachos, Sombrerito), legrandite (“Aztec Sun”: Durango State, municipality of Mapimí), ludlamite (Chihuahua State, municipality of Serdán Aquilles, mine San Antonio), nifontovite (San Luis Potosí State, Mine Charcas), phenakite (Durango State, municipality of Durango, Victoria de Durango), rhodochrosite (Hidalgo State, municipality of Mineral del Monte), turquoise (Zacatecas and Sonora States), rhodonite (Chihuahua State, municipality of Allende; Hidalgo State, municipalities of Mineral del Monte and Pachuca; Sonora, municipality of Huépac), green and red sphalerite (Sonora State, municipality of Cananea, Manzanil mines), stroncianite (Coahuila State, municipality of Sierra Mojada: Sierra Mojada, mine Rica Veta), topazolite and demantoide (Veracruz State, municipality of Profesor R. Ramirez, Las Vigas), variscite (Queretaro Sate, Pinal de Amoles mine), zircon (Oaxaca State, municipality of de la Fe and San Francisco).

Recently, amazonstone was discovered for the first time in Mexico (Chihuahua State, Municipality Coronado, Sierra de Bahues). Jadeite-bearing pebbles have been found in secondary deposits overlying Cretaceous sediments in the Vizcaino Peninsula (Baja California Sur State, Sierra San Andres), the first in the country. Lately, during mineralogical investigations of Mexican garnet, we made the first reported discovery of fine topazolite crystals in Mexico. These finds demonstrate the importance of systematic research of the Mexican subsoil, which could lead to the discovery of other gem localities. Future research will lead to achieving complete gemological characterization of the Mexican territory along with the creation of a modern Gemological Map of Mexico.