



41. Carnegie Museum of Natural History display at the Tucson Gem & Mineral Show.

Specimens: Carnegie Museum of Natural History.

Photos: Debra Wilson.

42. **Papagoite in Quartz.** 6.5 x 4.2 x 3.3 cm. Transvaal, South Africa. CM27033.

An included crystal occurs when a growing crystal completely engulfs an earlier-formed mineral. The crystals trapped within the later crystal are then called inclusions within that crystal. This quartz crystal has inclusions of blue papagoite.



43. **Quartz** with casts. 7 x 2.6 x 2 cm. Skardu, Pakistan. CM29383. An included crystal occurs when a growing crystal completely engulfs an earlier-formed mineral. This unusual quartz crystal has inclusions of crystal-shaped holes resulting from earlier included crystals being completely etched away.



44. **Phantom Quartz.** 17.9 x 6.2 cm. Garland Co., Arkansas, USA. CM29603. A phantom crystal occurs when the growth of a crystal is interrupted, tiny bubbles or specks of another mineral are deposited on its crystal faces, and the crystal then continues to grow. The trapped bubbles or mineral specks create a ghostly phantom within the crystal that preserves its earlier shape. Color zonation caused by changes in chemistry during crystal growth may also form phantoms.



45. **Smoky Quartz on Amethyst.** 9.9 x 2.9 x 2.3 cm. Brandberg, Namibia. CM29535. A scepter crystal occurs when its growth suddenly slows down. The quick growing portion of the crystal forms the stem and the later slow growing portion forms the head of the scepter. This specimen also experienced a change in the chemistry of the solution it was growing from resulting in an amethystine quartz stem and a smoky quartz head.



5. Quartz Quirks

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Crystals of the same species can form in many different habits and colors depending upon the physical and chemical environments they grow in. These physical and chemical conditions can change during the crystal’s growth which can also change its color or habit. Our display featured these differences in the species quartz which followed the 2018 show theme of *Crystals and Crystal Forms*. The twelve specimens in the display each had a description explaining its particular quirk. Four of the specimens were from the William W. Jefferis collection that the museum acquired in 1904, each of which was accompanied by its corresponding Jefferis label.

Below are photos of some of the individual specimens with the description of their quirks. The five other specimens that were featured in the display and their specific quirks are: a Quartz from Minas Gerais, Brazil (CM28131) showing a naturally healed shard; a Smoky Quartz from Lincoln County, New Mexico, USA (CM29385) showing a Japan Law twin crystal; a Quartz from Baltistan, Pakistan (CM29594) showing a naturally etched crystal; a Smoky Quartz from Saint Gothard, Switzerland (CM1899) showing a twisted crystal known as a Gwindel that Jefferis acquired in 1892; and a Quartz from Cornwall, England, UK (CM1631) showing the use of the archaic term “*Ice Quartz*” that described an etched quartz that looked like partially melted ice that Jefferis acquired in 1865.



46. **Stained Quartz.** 10 x 7.4 x 4.4 cm. Hot Springs, Arkansas, USA. CM1717.1. A stained crystal occurs when a very thin surface coating changes the appearance of its true color. These quartz crystals are white inside but are naturally stained a beautiful iridescent golden color by iron oxides. William W. Jefferis acquired this specimen in 1890 for \$0.75.



47. “**Hacked**” **Quartz.** 8.1 x 7 x 2.7 cm. Cumbria, England, UK. CM1688.

Hacked Quartz is an archaic term that was used to describe quartz from England that looked like it had been chopped by a cleaver. The hacked texture resulted when platy crystals of a mineral like calcite or anhydrite were etched away from the later-growing quartz that had partially enveloped them. William W. Jefferis acquired this specimen between 1879 and 1900.



48. **Quartz with Rutile.** 6 x 3.7 x 3.3 cm. Minas Gerais, Brazil. CM29773.

An included crystal occurs when a growing crystal completely engulfs an earlier-formed mineral. The crystals trapped within the later crystal are then called inclusions within that crystal. This polished quartz crystal has inclusions of golden rutile.

