

HUI PŌHAKU 'O HAWAII

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INCLUSIONS

BY DEAN SAKABE

Quartz is the most common mineral species on earth: it is found on just about every continent. Even our little corner of the world has several locations on different islands where Quartz specimens can be found. Consequently, with the large, diverse nature of quartz occurrences, there is an excellent chance that somewhere quartz will be found with something else growing by it only to be engulfed by the faster growing quartz crystal.

This foreign mineral encased in quartz is generically called *inclusions*. To find out about inclusions in Quartz, here is a simple two step process. (1) Obtain the August 2008 issue of Rock & Gem. (2) Turn to page 48, and read Mr. Jones article Quartz Stars, Phantoms and Arrows.

I for one have not heard of a Negative Quartz Crystal. But as Mr. Jones elaborates, it is an empty space inside a quartz crystal that looks like a real crystal. It may form when quartz is growing in a solution and there are not enough silicon dioxide molecules to fill in the growing crystal completely. The deficiency causes the available molecules to add to the growth at the prism edges leaving an internal gap, which develops into the exact shape of a quartz crystal. As more silicon dioxide molecules become available, crystal growth continues, and encloses the gap within the crystal.

Inclusions can be generalized as two types. (1) Minerals that formed earlier and were captured by later forming quartz. (2) Minerals that were forming in or floating in the hydrothermal fluids that were deposited on the growing quartz crystals. Examples of the first type include rutile, actinolite,

hedenbergite, some hematite, and tourmaline crystals that formed early and had rock crystal deposited on it, thereby encasing the early minerals. The latter type includes chlorite, cookeite, hematite, mica, pyrite, galena, adularia, and many others that were deposited as the quartz was crystallizing. In some specific instances, such as asteriated quartz, rutile is thought to have been in solid solution in the quartz, and upon cooling, the rutile was forced out of the quartz structure, resulting in microscopic highly oriented needles. The light, playing off these oriented needles, presents a six-ray star typical of asterism. The various types of included crystals give rise to a variety of lapidary materials and uses.



(1) Double-phantom quartz
(Mato Verde, Brazil)

ROOM CHANGE!

PLEASE BE AWARE THAT WE WILL NOT BE MEETING IN THE ARTS AND CRAFTS ROOM. WE WILL NOW BE MEETING IN THE ADMINISTRATION BUILDING. THERE WILL BE HELPFUL SIGNS, TOO!

MEETING

Wednesday

September 24
7:00—9:00 pm

Makiki District
Park
Administration
Building
“Orange & Black
Minerals”

NEXT MONTH

Wednesday
October 22, 2008

LAPIDARY

Starts September
11
Every Thursday
7pm-9pm
Second-floor Arts
and Crafts Bldg
Makiki District
Park

MEMBERSHIP COSTS

2008

Single: \$10.00
Family: \$15.00