

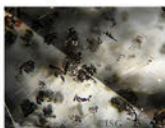
Cuneiform and Exploded Snowballs!

More fun with gemstone inclusions

For a lot of us in this business, a large part of the fun of gemology is the study of gemstone inclusions. Not the technical stuff...the fun stuff. The weird, unusual, strange and just plain bizarre. Below are a few of the latest additions to our gemstone photo collection of strange and unusual inclusions. As always, we turned to the PHOTOATLAS of Inclusions by Koivula and Gubelin to confirm the identity of these. For our specimens today we relied on Volumes 2 and 3. These books are an absolute must for any gemologist, no matter what part of this industry you work with. As John Koivula wrote in my Volume 3 autograph: "To Robert, Inclusions are small, but they answer big questions". Absolute truth from the most highly respected authority on gemstone inclusions. You can find his books at this link: [PHOTOATLAS](#).



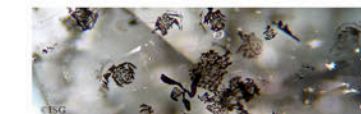
The aquamarine at left came into the ISG office in a parcel of aquamarine study specimens some time ago and it took a while to realize we had something weird in the mix. As you can see in the 10x image at left, the stone was full of black inclusions that looked more like a heavily included diamond than the usual aquamarine. This stone appeared to have had someone hold a pepper shaker over it and just shower it with black flakes. But it got stranger with high magnification.



Looking at this stone under 30x it almost appeared that someone from the Far East had written secret messages inside the stone as the writing first looked like some ancient Chinese writing, or perhaps some ancient cuneiform writing. Or just maybe...this was a secret message from a previously unknown and super secret aquamarine mine hidden somewhere out on a remote Tibetan desert! Could it be?

Fortunately, the PHOTOATLAS Vol. 2 was close at hand and reviewing page 317 relieved us to find that we have a natural aquamarine with inclusions.

...and a bunch of them. After a further search, we found one of our fellow World Gem Society members has a wonderful specimen for sale on Ebay. Here is the link to that offer: [Aquamarine with Inclusions](#). Below you can see a wide shot panel of these unusual inclusions at 60x. A great collectors piece for anyone who loves to study inclusions. And a great demonstration of the importance of the PHOTOATLAS to anyone doing gemology in today's market. But there is more....

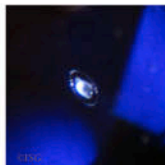


This past week we were asked to identify the sapphire at left for origin and any treatments. Once again a simple review turned into a fun learning experience. Yes, it is natural, and yes it is heated. But the indicator of the heat treatment turned out to be a "photo op" all its own. Why? Snowballs! And not just snowballs...exploding snowballs. When sapphires are heated high enough to cause color alteration, certain inclusions "explode" (Photoatlas, Vol 3 pp 314) causing not only the discoid fractures you will see, but also the snowball looking remnants left by the original inclusion that exploded. The result from a technical view is verification of high heat treatment of the sapphire. From the romantic view...we have exploded snowballs in sapphire due to heating. And as always, the romantic is far more fun than the technical. But let's take a look at both sides should benefit from these images....

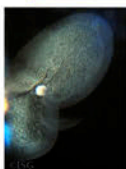
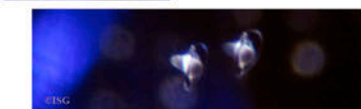


At 10x magnification the "exploded snowball" appears to be just a tiny white inclusion in this sapphire. The color bands along the crystal growth faces are quite apparent in the image above, but in this side lighted view the banding is not so apparent. But the small white inclusions (there are several in the stone) start showing up quite nicely under 10x.

At 90x at right the snowball and discoid fracturing is easily visible. This is a very strange inclusion when you first see it as the first thing that comes to mind is precisely the name from the Photoatlas...*snowball*. And while some of our Tuesday night group thought it looked a lot like the planet Saturn (which it sort of does) the snowball image is unmistakable. An image very much like this one is on page 315 of the Photoatlas Vol 3.



Here is a look at yet another exploded snowball in this sapphire. All are a bit different in size and shape except for the image below. In this image we all decided that these look like space ship starfighters (the Tuesday night ISG Discussion Group has a great imagination), but after going back and looking at this image and the actual specimen we realized that this is a single exploded snowball being reflected in mirror image off of facet junctions, and not star fighters inside this sapphire.



And finally is this large fracture surrounding an exploded snowball that caused the fracture to form. This is a great shot and demonstrates the violence that occurs inside of gemstones during high heat treatment. While we found no indication of anything other than heat treatment in this stone, the high heat was most likely used to try to get the blue color to be more uniform and not so banded in this stone. Beautiful sapphire on its own merits, but when we consider the beauty of the inclusions inside it makes this gemstone even more desirable in our view.

If there is one thing that we as an industry need to remember is that the desire to own gemstones is based on beauty and romance. And even in included gemstones, beauty can be found in many ways and places. Sometimes we get caught up too much in the technical and lose our vision of what is really important when it comes to gemstones.

Consumers never lose that vision. We should not either.

Robert James
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If you have trouble viewing the images in this edition, please visit the ISG Forms to see the article in its entirety: [Exploded Snowballs](#)

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