

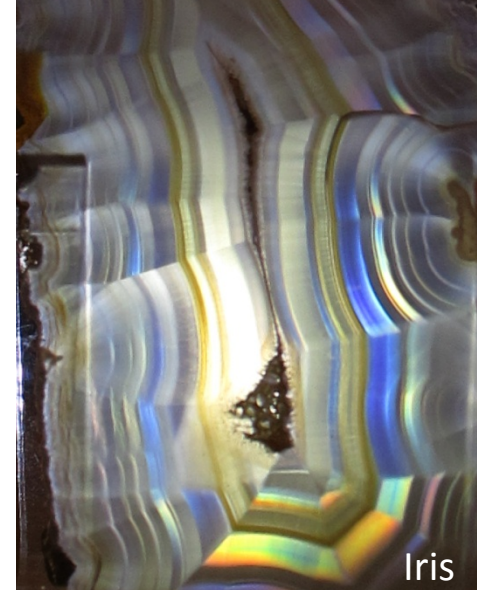
06-23-2020

# AGATES

Presented by:  
Missy Fox



Woodward Ranch  
Plume Agate Cab



Iris



Dryhead

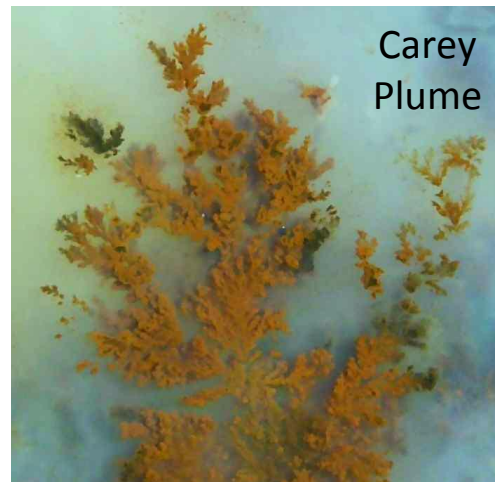


Laguna

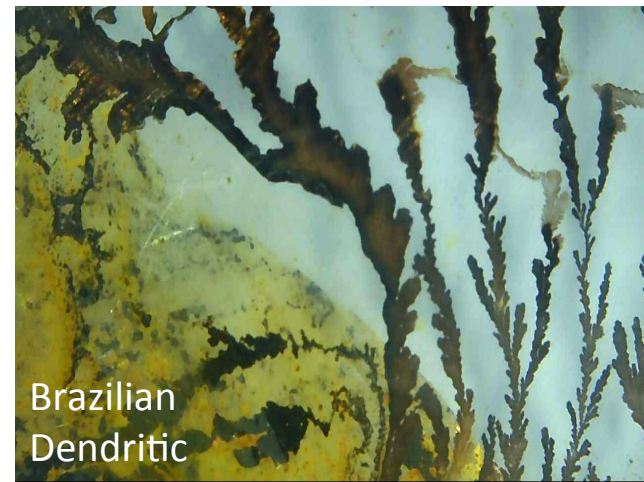
Agates: No wonder we love them – so many colors and such a variety of patterns.



Friday Plume

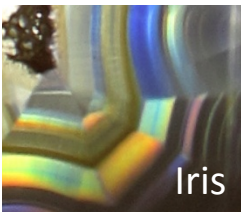


Carey  
Plume



Brazilian  
Dendritic





Iris



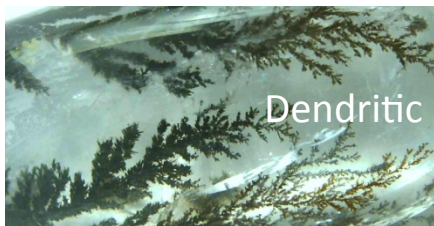
Royal Aztec Lace



Crazy Lace

Agates – this family of rocks is one of the most popular due to their amazing variety of colors and patterns and for the ease in cutting and shaping.

It is believed that the word "agate" was derived from the ancient Achates River in Sicily, where agates were first described in writing.



Dendritic



Laguna



Carey



Nipomo



Moss



Priday Plume

The basic composition of agate is chalcedony which is a form of quartz (silicon dioxide or  $\text{SiO}_2$ ) in the form of microscopic fibrous crystals. No single theory of formation has accounted for all of the types of agates. What we do know is that the shape of the agate depends on the shape of the void that is being filled with the chalcedony solution. Some of the shapes that agates can assume are “amygdule” which is spherical or oval shaped, “vein” which is flat, or “fossilized” where the agate takes the shape of or replaces the fossil plant or animal.



Fire



Amethyst Sage

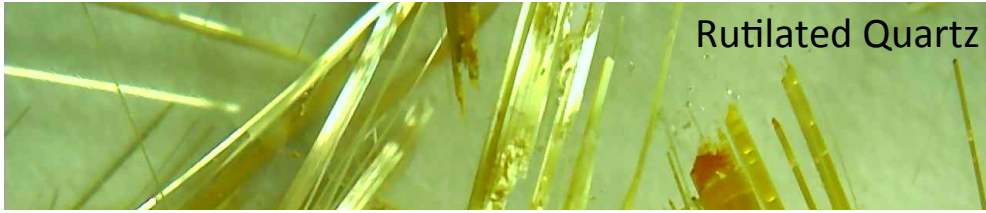


Stinking Water

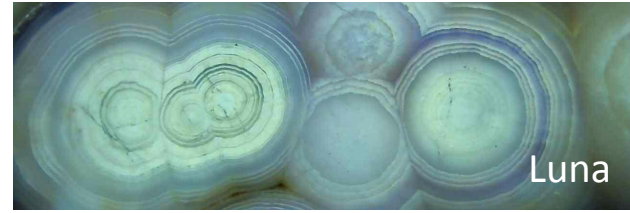




Moss

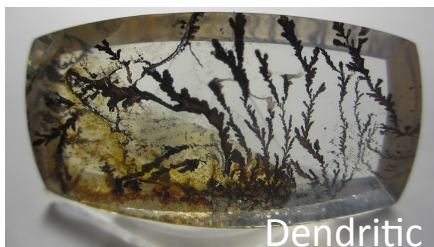


Rutilated Quartz



Luna

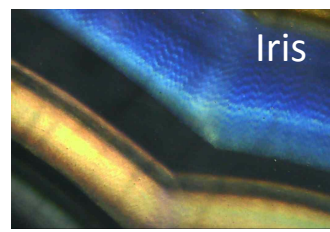
The colors of agates are caused by “impurities”, or chemical elements and compounds. Some of the mineral coloring agents include iron oxide (red, orange, yellow, brown, black), manganese (pink, purple, black), chromium (green, yellow), titanium (blue), nickel (green) and copper (blue or green). Light refraction can also produce colors in agates.



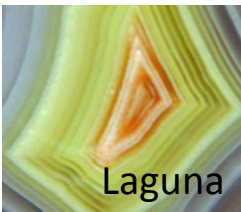
Dendritic



Laguna



Iris



Laguna



Botswana



Carey Plume

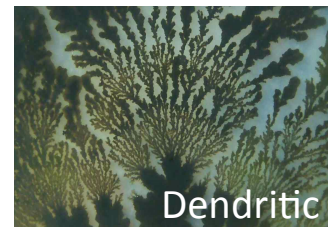
Agates are named in a number of ways. It can refer to the location where the agate is found (Agate Creek agate which is found in Agate Creek, Australia or Brazilian agate from Brazil), a physical characteristic of the agate (Polka Dot, Blue Lace, or Snake skin agate), or something completely different (Dryhead agate which is named after a method of buffalo processing used by American Indians who would stake a buffalo head up until it was dry).



Moss



Dryhead



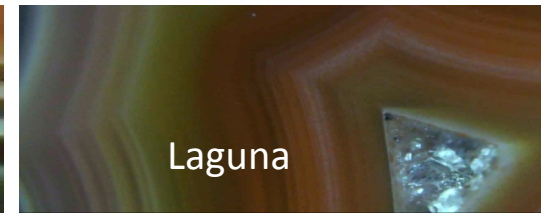
Dendritic



Dendritic

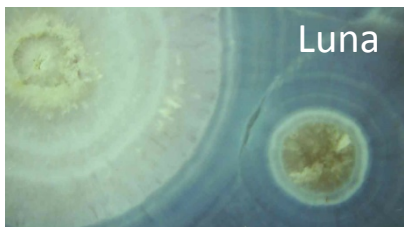


Brazilian

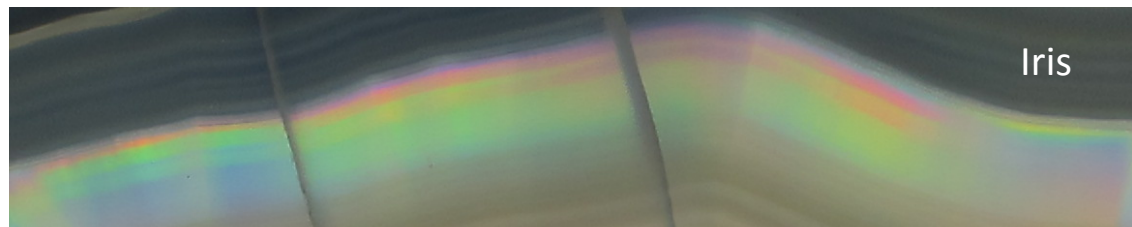


Laguna

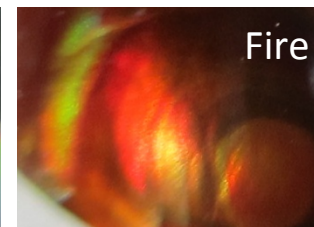
The uses of agates are many. Nero had an agate goblet, 10th century Anglo-Saxons made charms and used them for protection against evil spirits, and during the Renaissance era agates were used to make bowls and vases. Mosaics from agate pieces are found in Florence, Italy and Asian specialties included statues and snuff bottles. Agates have been cut into jewelry, bowls, weapons, tools, bookends, marbles, and many other useful and beautiful items.



Luna



Iris

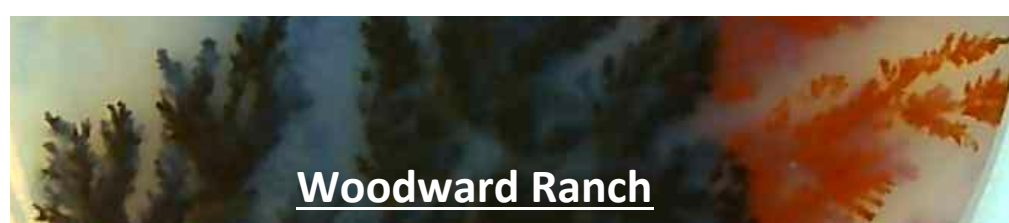


Fire





Flame

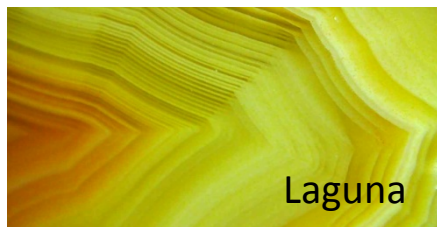


Woodward Ranch



Dryhead

There are a number of agate patterns. They can occur as concentric rings (fortification), tree-like (dendritic), feathers or flowers (plume), bush-like (moss), sprays (sagenitic), flames, iris, or tubes.



Laguna



Amethyst Sage



Luna

## **Fortification**

This is a banded agate with parallel layers that more or less follow the shape of the nodule or vein. The banding often makes sharp angular turns that resemble the parapets of old fortresses which is how the term fortification originated. The bands are actually composed of micro dots of color vs. a solid banding of color. The dots are not normally seen with the naked eye but can be seen with a high magnification microscope.



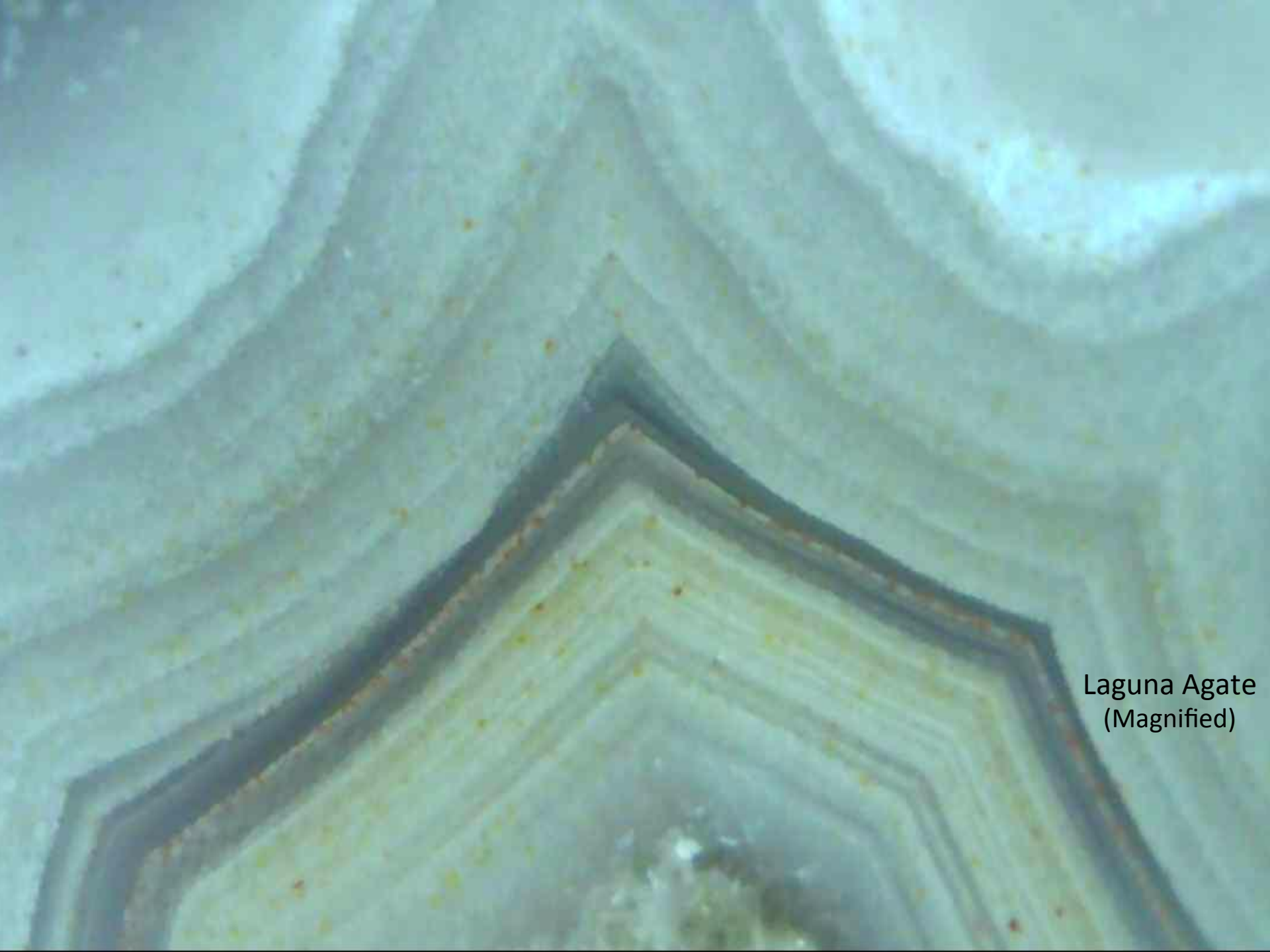
Laguna Agate



Please notice the micro  
dots vs. solid banding

Laguna Agate  
(Magnified)





Laguna Agate  
(Magnified)



Laguna  
Agate



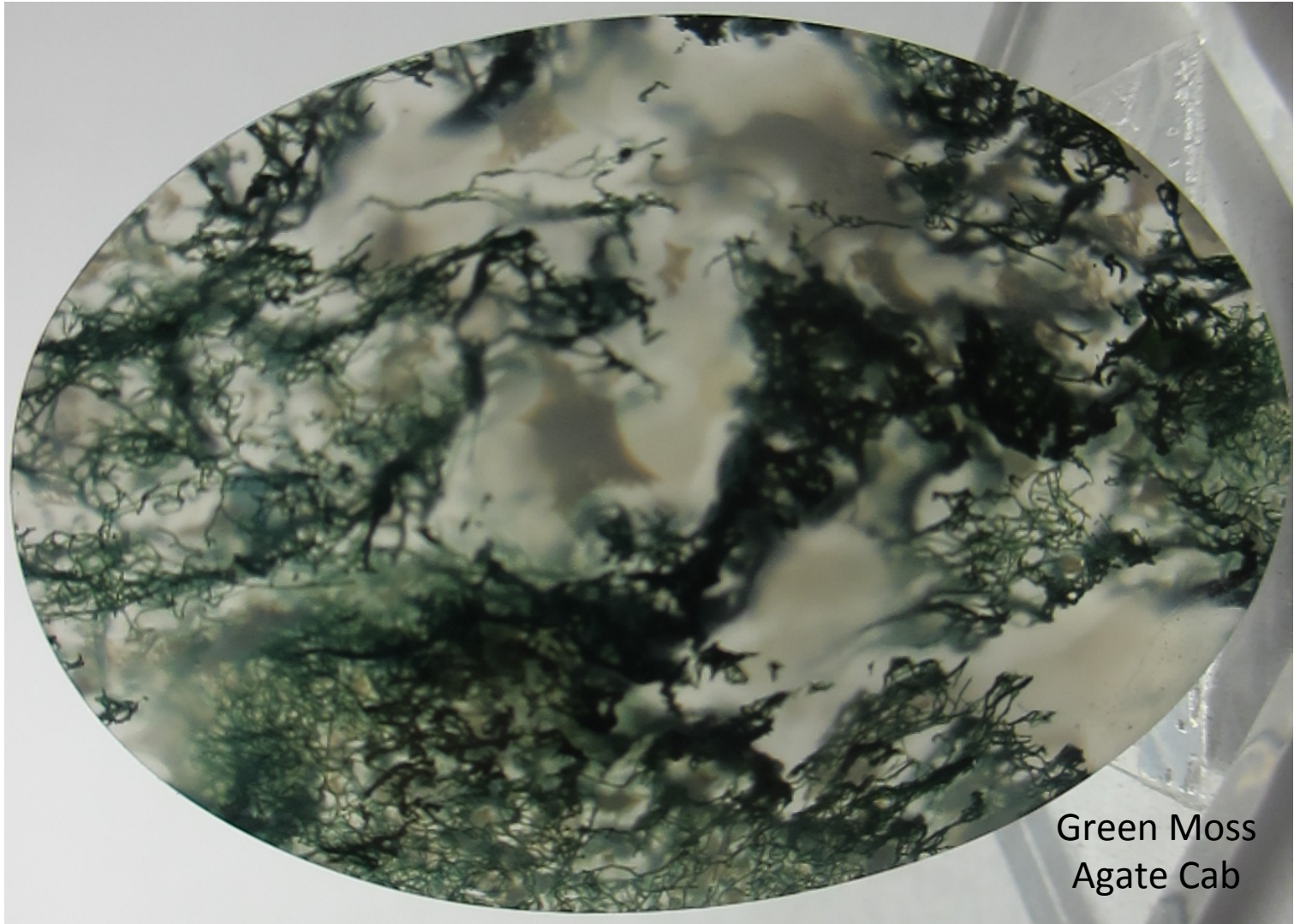


Laguna Agate  
(Magnified)

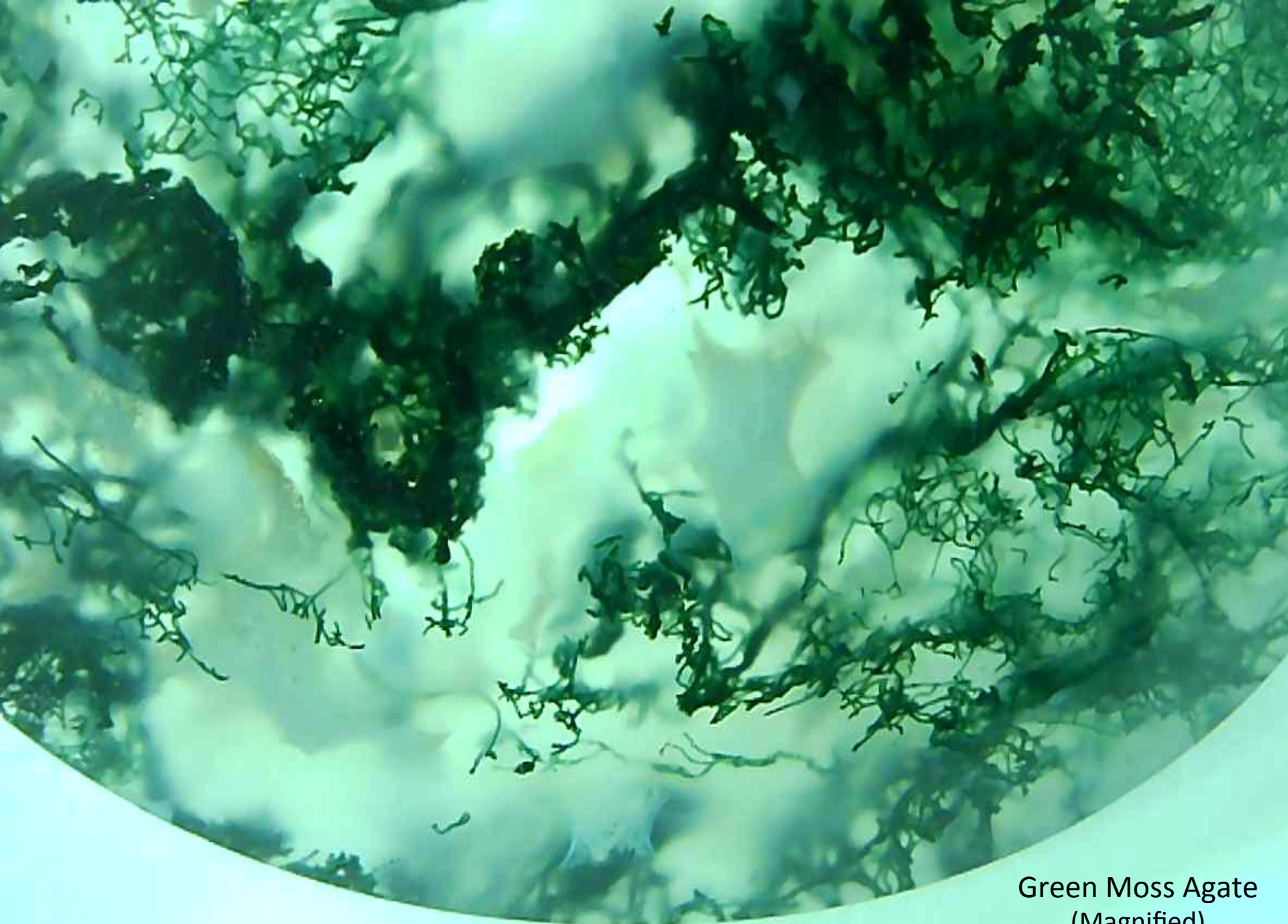


## Moss Agate

Agates sometimes appear to have sections of moss or bush-like inclusions. For many years it was thought that the "moss" was actually organic plant matter but eventually it was determined that there was no carbon in the rock and the "bushes" were composed of mineral impurities, typically iron or manganese oxides.



Green Moss  
Agate Cab



Green Moss Agate  
(Magnified)





Moss Agate Cab

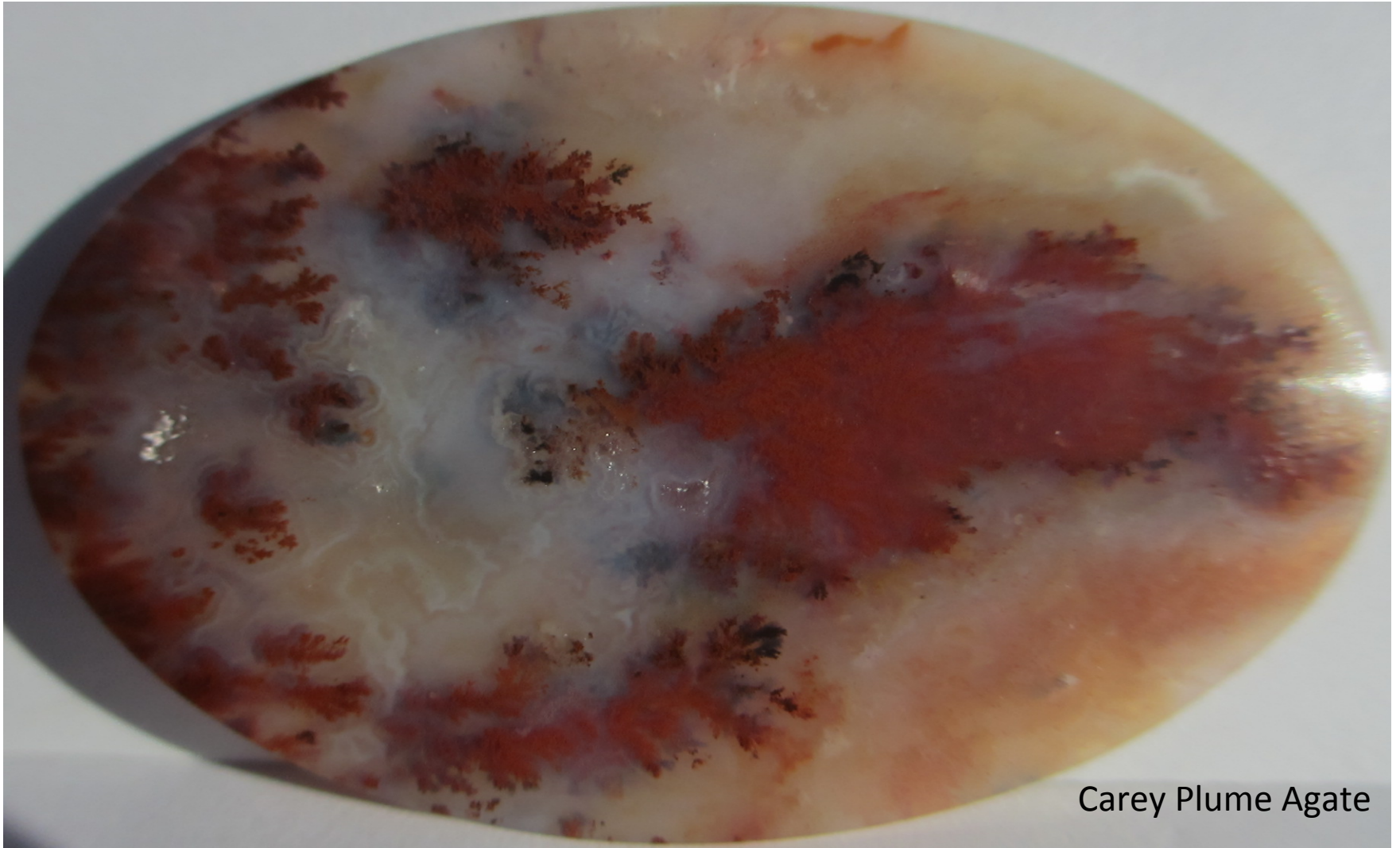




**Moss Agate Cab  
(Magnified)**

## **Plume Agate**

Plumes are formations in agates that can resemble feathers, ferns, or flowers. Plumes are usually three dimensional and are typically black, red, yellow, or white but can be any color of the rainbow. Black plumes tend to be crystals of goethite, hematite, or one of the manganese oxide minerals.



Carey Plume Agate

Carey Plume Agate  
(Magnified)







Priday Plume  
Agate Cab



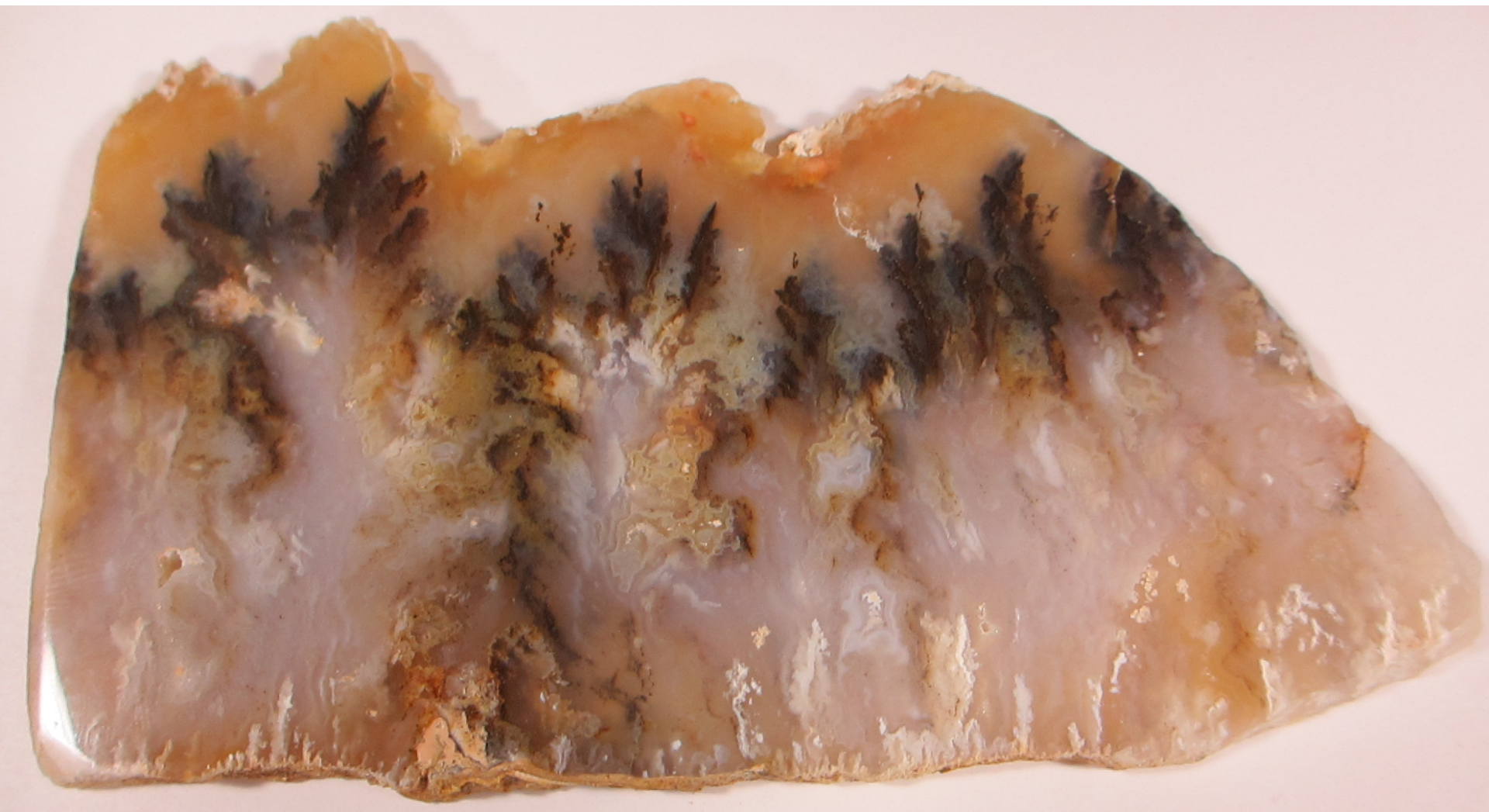
Priday Plume Agate  
(Magnified)





Priday Plume Agate  
(Magnified)



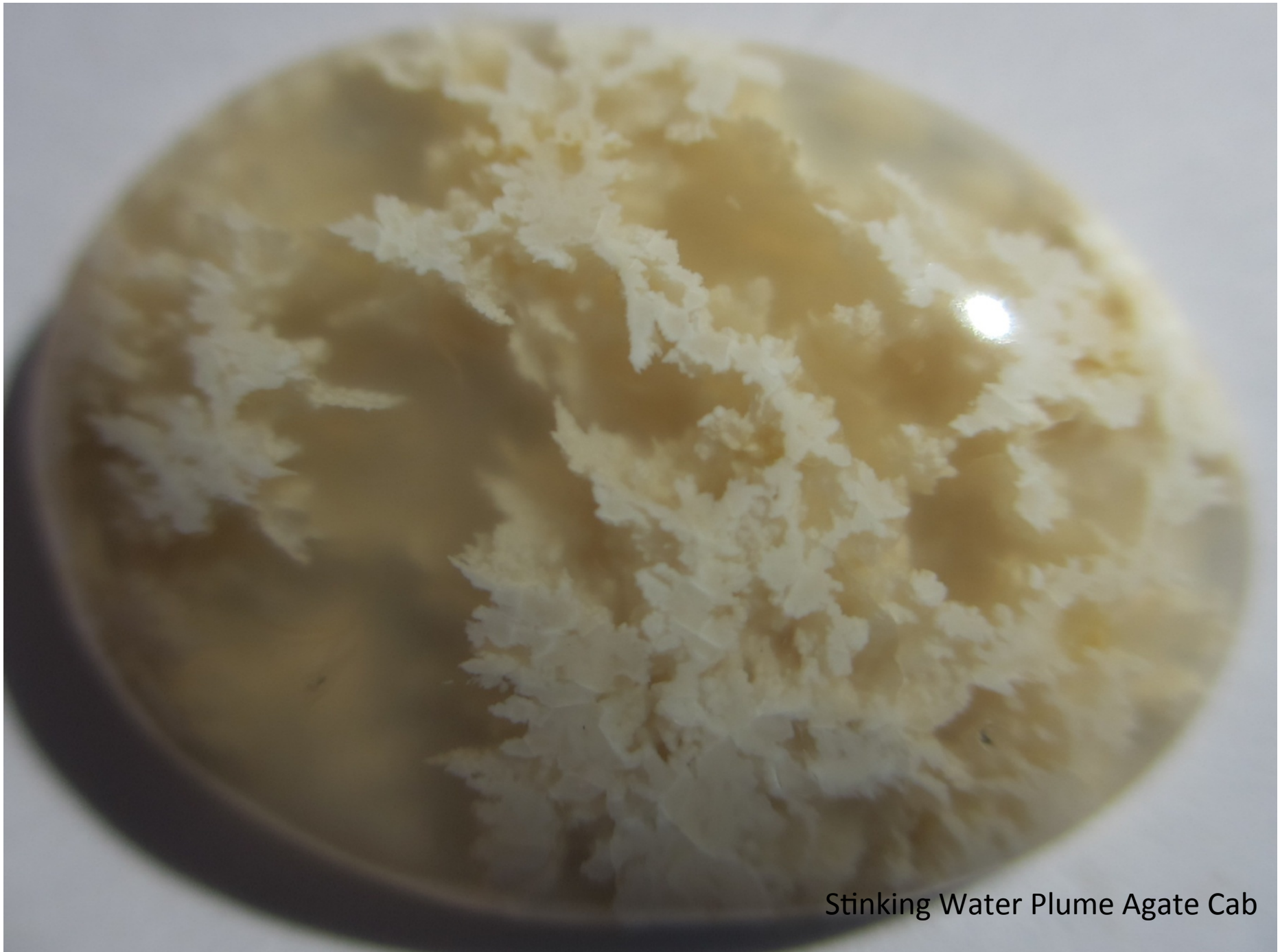


Graveyard Point Plume Agate



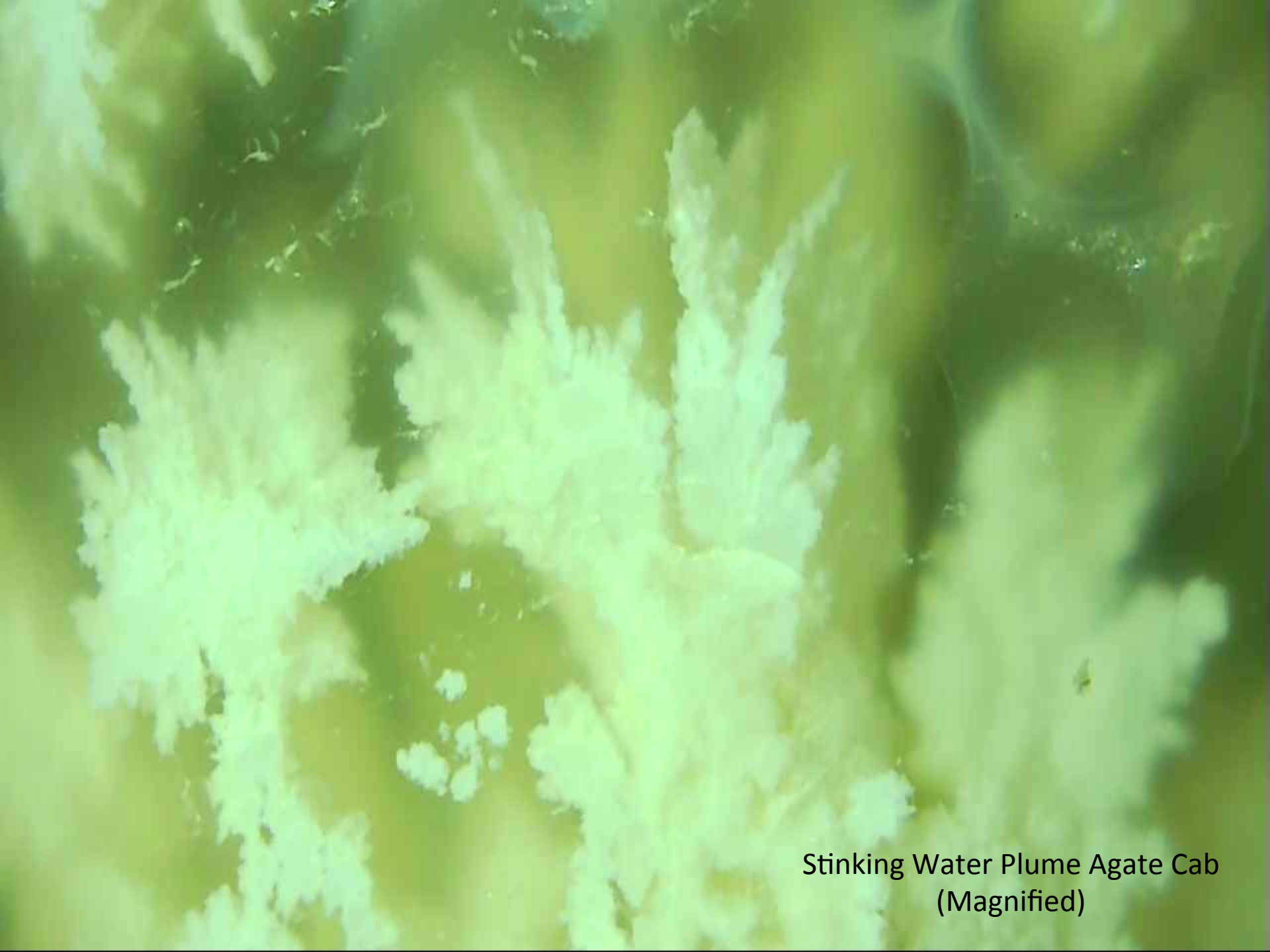
Graveyard Point Plume Agate  
(Magnified)





Stinking Water Plume Agate Cab





Stinking Water Plume Agate Cab  
(Magnified)

## **Tube agate**

The formation of the tubes is caused by a single filament in the center of a stalactite-like tube around which multiple layers of agate surround the tube. When a tube is cut cross way one can usually see the central filament surrounded by concentric circles.



Tube Agate

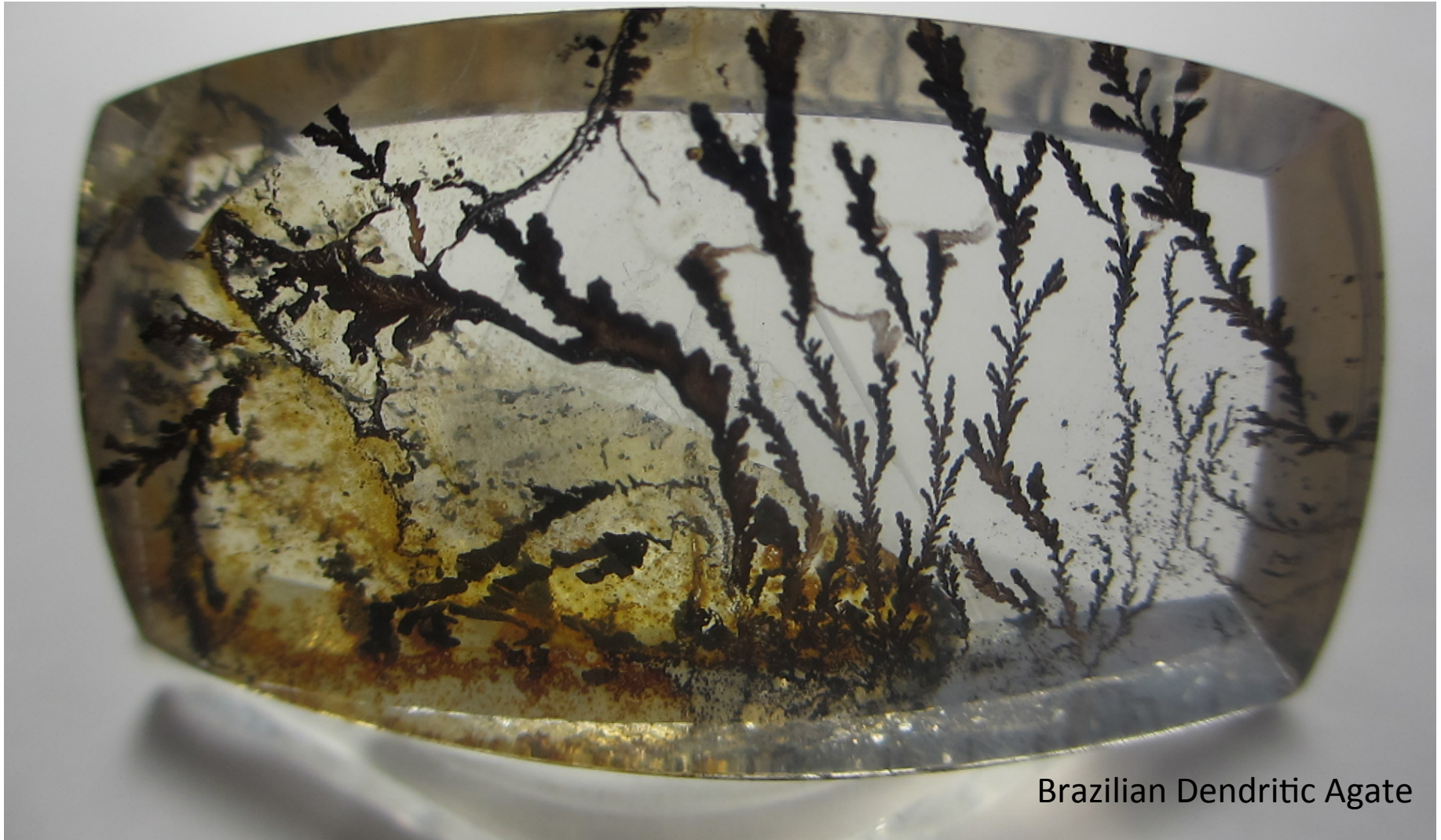


Tube Agate  
(Magnified)



## Dendritic Agate

Dendrites differ from plumes in the dendrites are more branch-like and they are two dimensional. The dendrites occur between bands of chalcedony or in healed fractures. The dendrites are usually black or brown and are composed of iron or manganese oxides. The name dendrites comes from the Greek word "Dendron" or tree

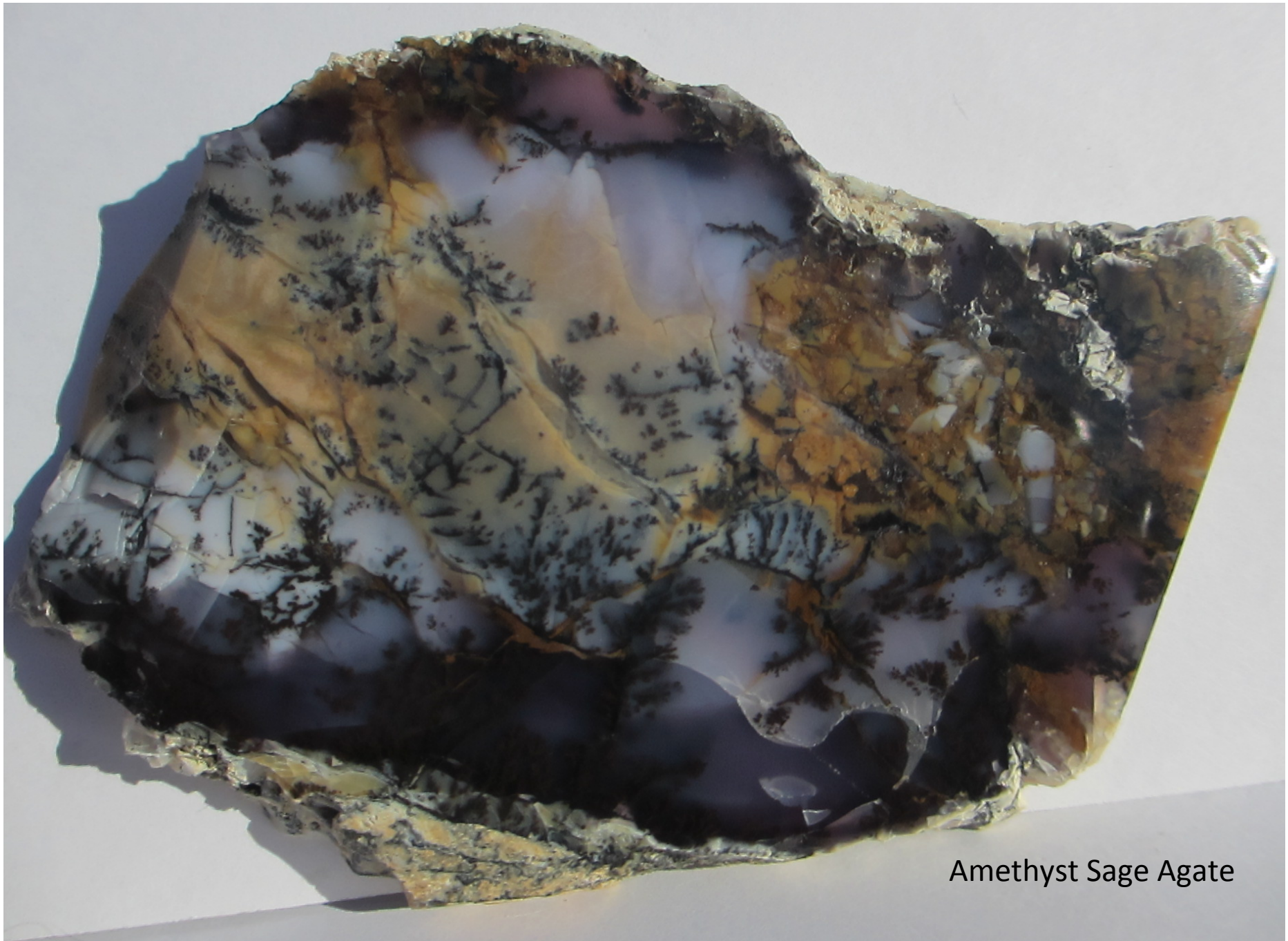


Brazilian Dendritic Agate

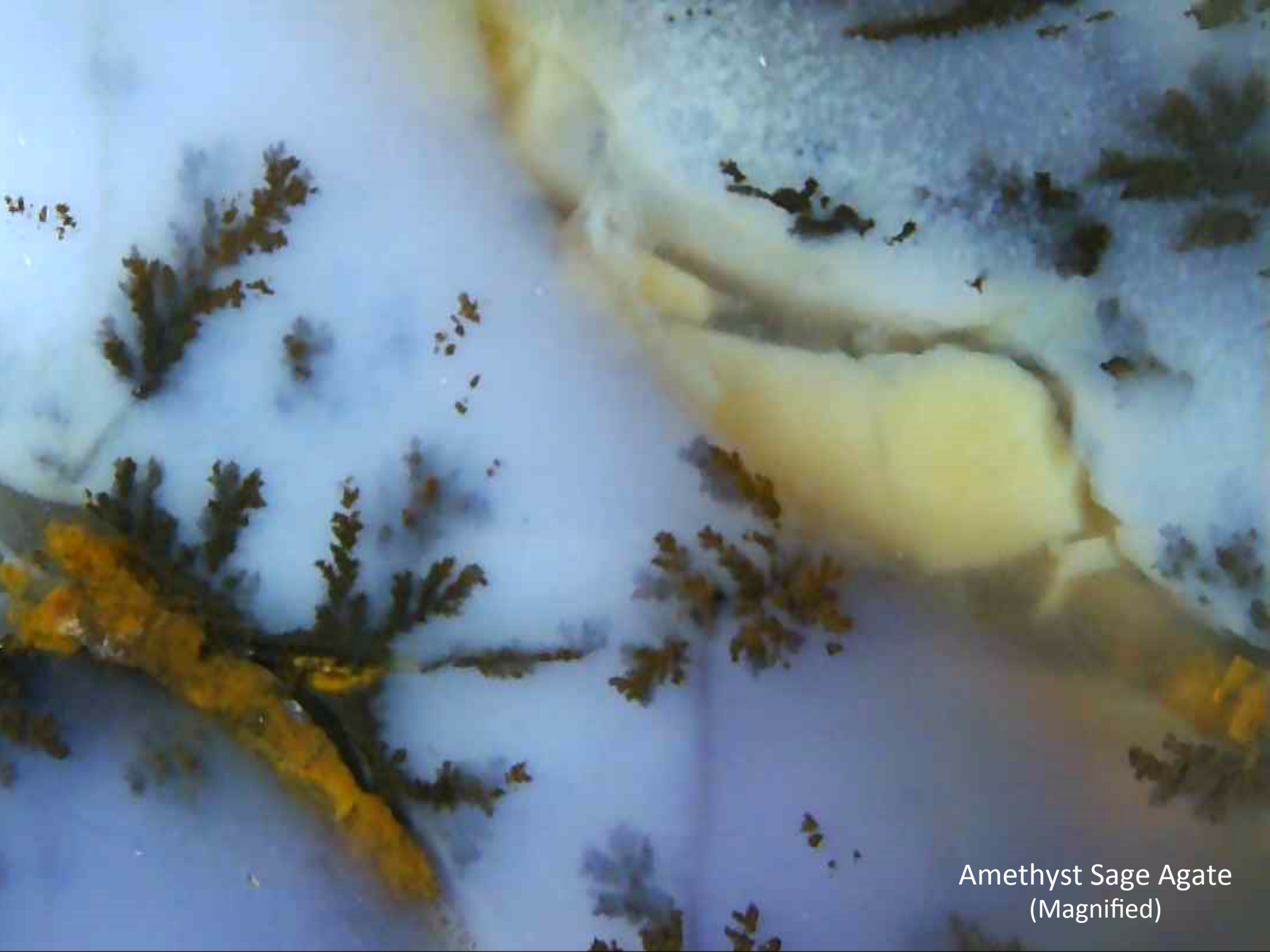
A close-up photograph of a Brazilian Dendritic Agate specimen. The image shows dark, branching, dendritic inclusions of iron oxide (limonite or hematite) set within a lighter-colored, translucent agate matrix. The inclusions vary in thickness and branching pattern, with some appearing as thick, irregular veins and others as finer, more delicate branches. The background matrix has a mottled appearance with some yellowish and greenish tones. The lighting is bright, highlighting the textures and colors of the mineral.

Brazilian Dendritic Agate  
(Magnified)





Amethyst Sage Agate

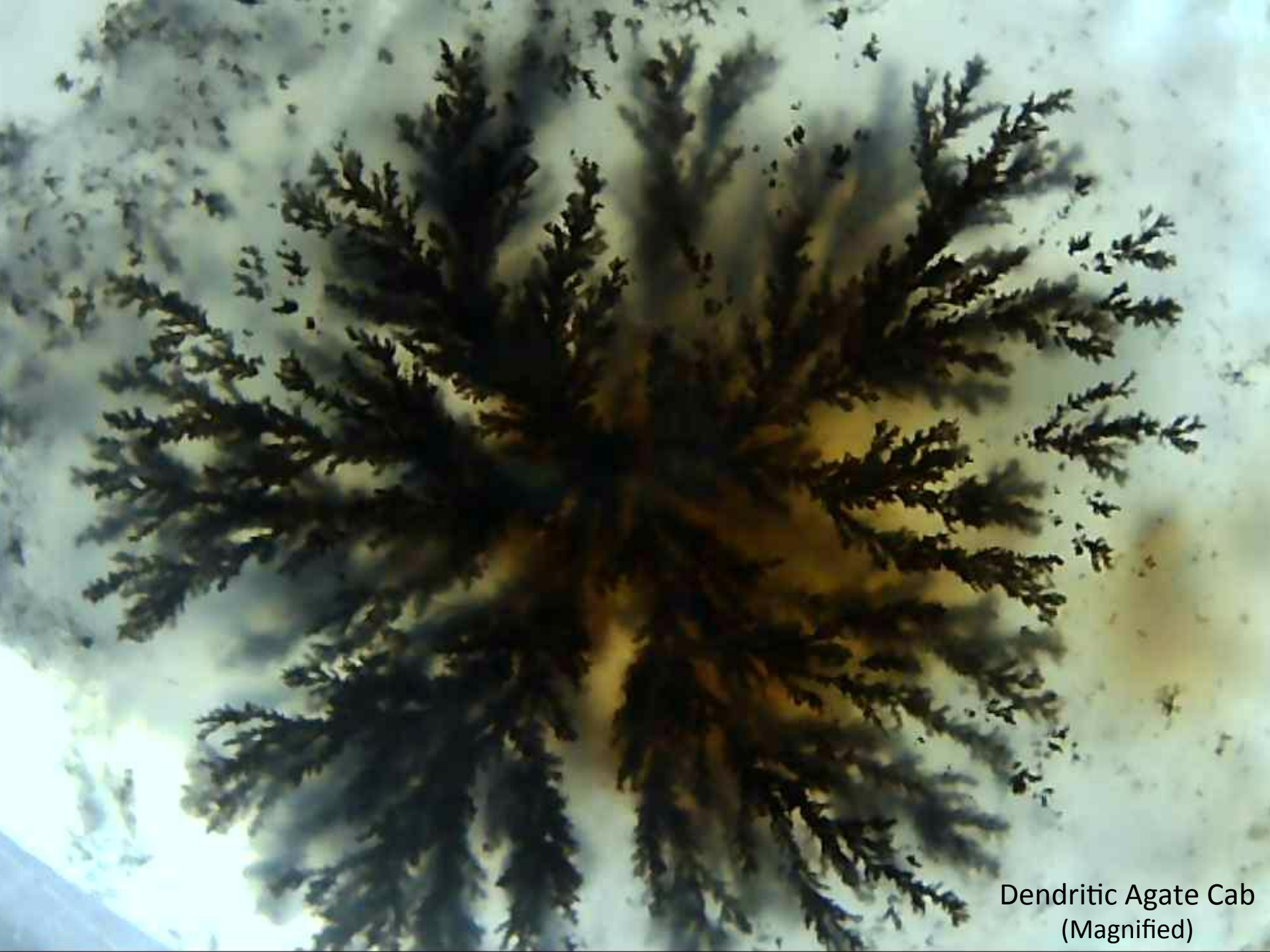


Amethyst Sage Agate  
(Magnified)





Dendritic Agate Cab



Dendritic Agate Cab  
(Magnified)





Kazakhstan  
Dendritic Agate Cab





Kazakhstan  
Dendritic Agate Cab  
(Magnified)





Dendritic Agate Cab

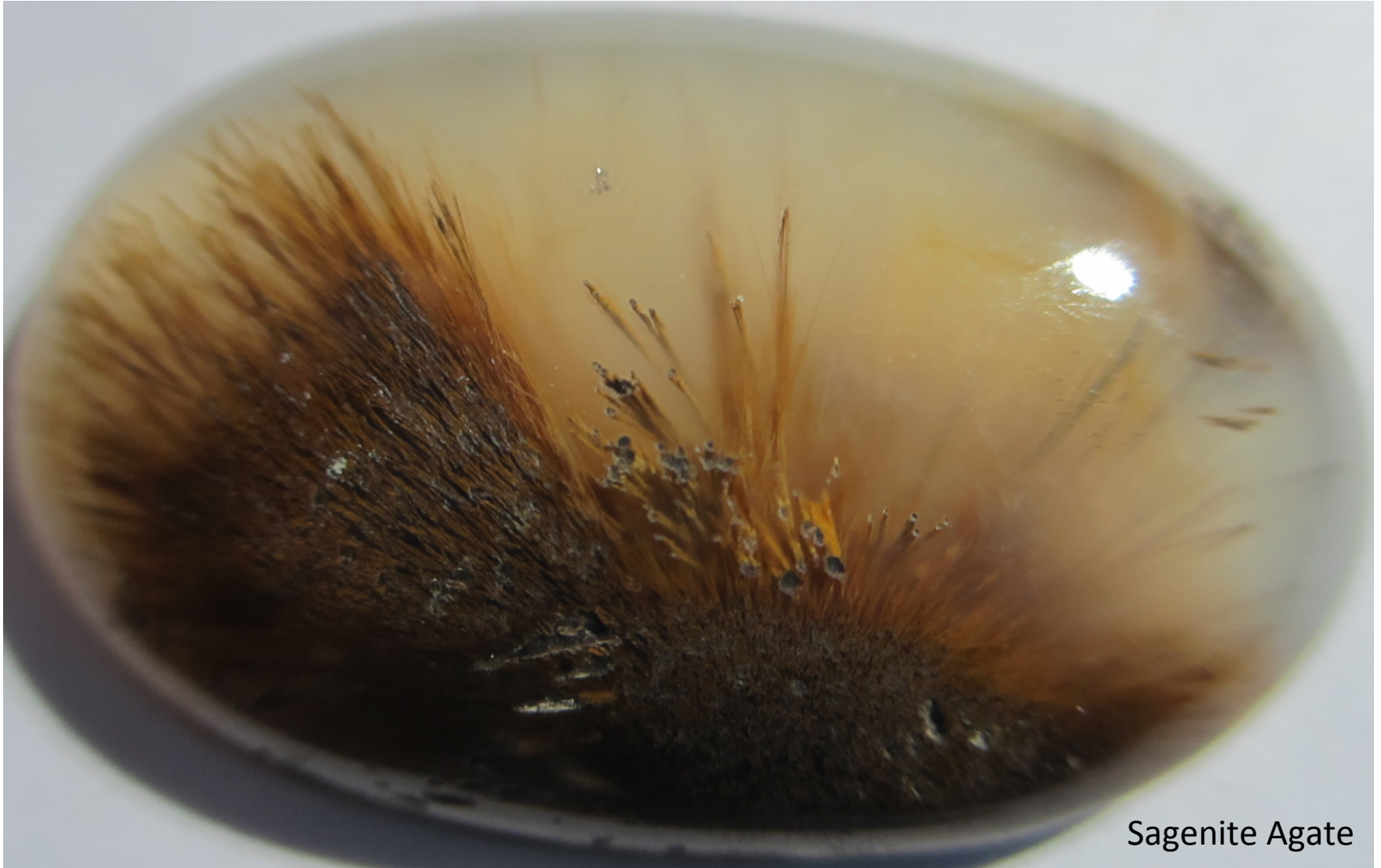


Dendritic Agate Cab  
(Magnified)



## **Sagenitic Agate**

Sagenite formation in agates describes fan-like clusters or sprays. The sprays tend to be in colors of yellow, gold, white, black or pink. The needles are usually replacements of other minerals.



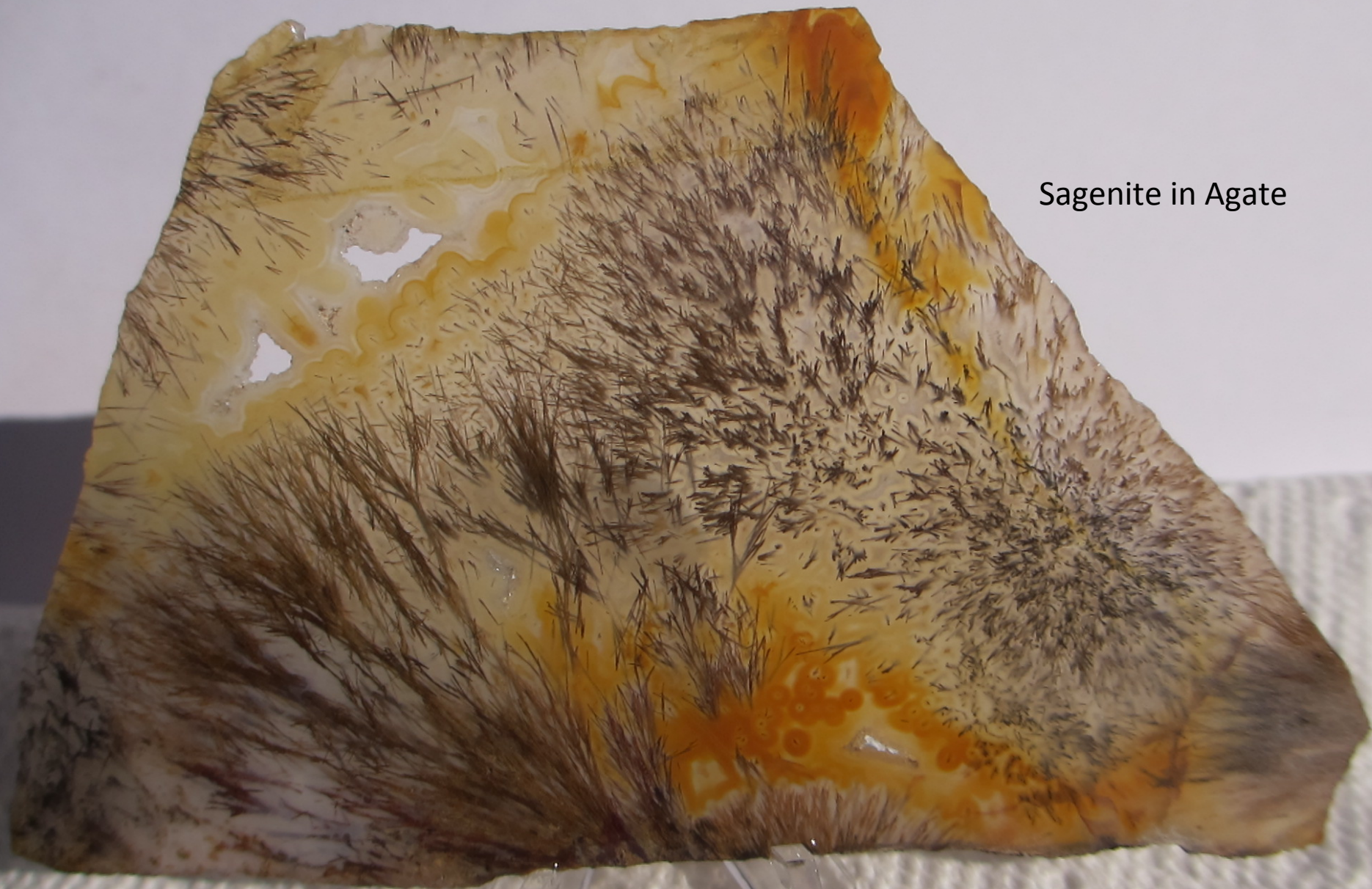
Sagenite Agate



Sagenite in Agate  
(Magnified)



Sagenite in Agate



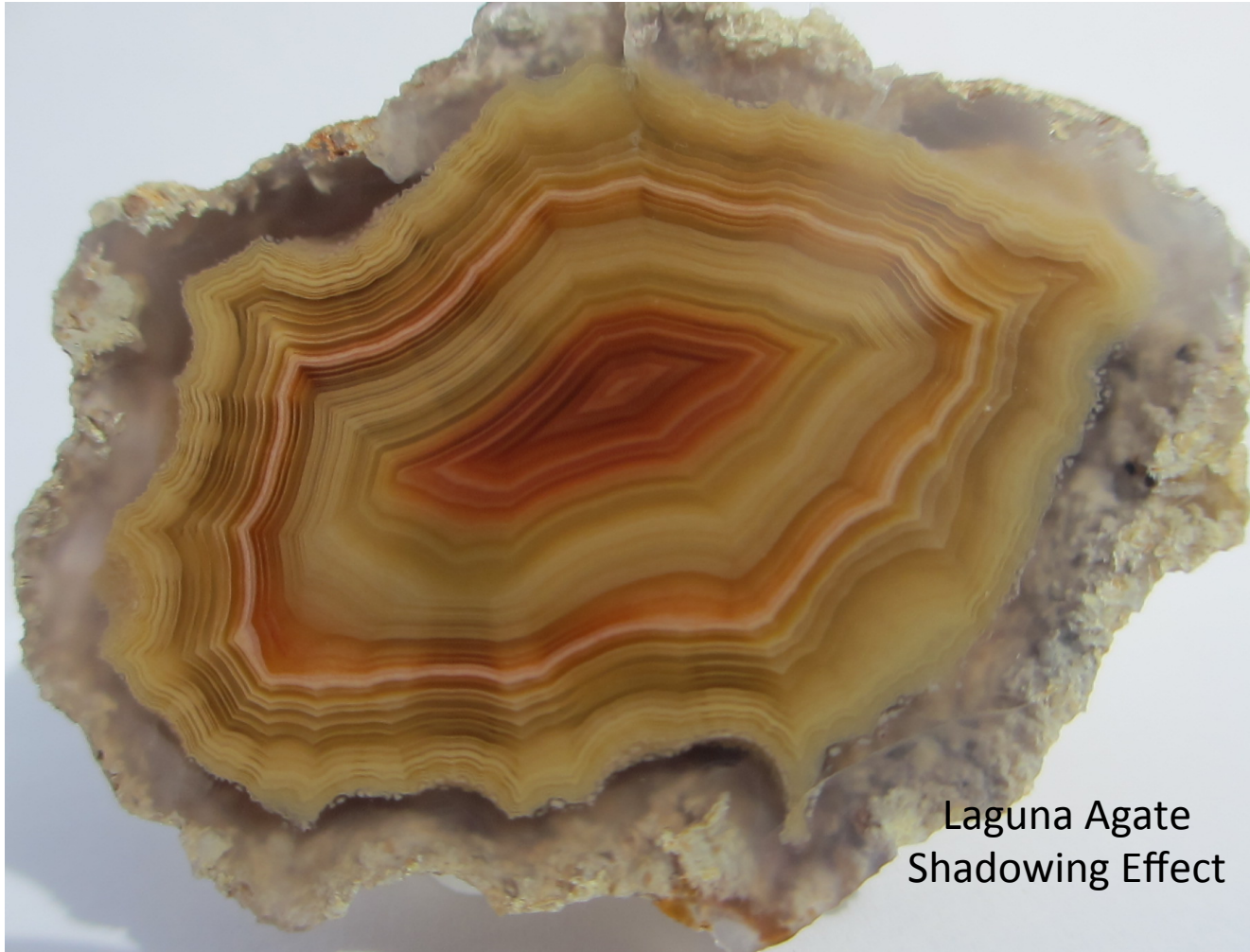


Sagenite in Agate  
(Magnified)



## Shadowing

Shadowing refers to the optical effect created by the perception of depth between the opaque and clear bands of agate. The shadow appears like a silvery area of motion across the agate's surface when it is tilted back and forth. The agate that displays this effect must have many clear and opaque bands.



Laguna Agate  
Shadowing Effect

Laguna Agate  
Shadowing Effect  
(Magnified)

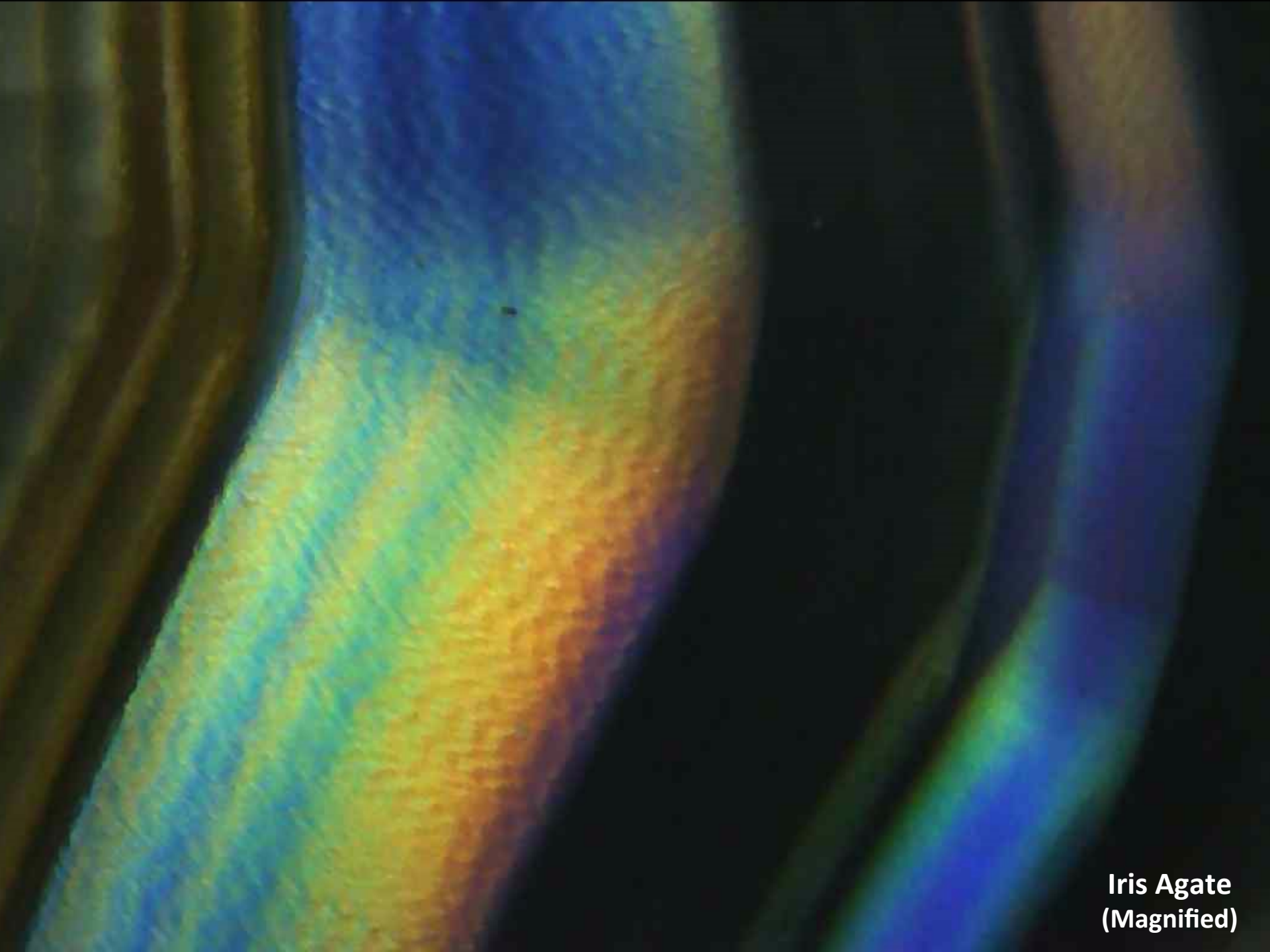




## **Iris Agate**

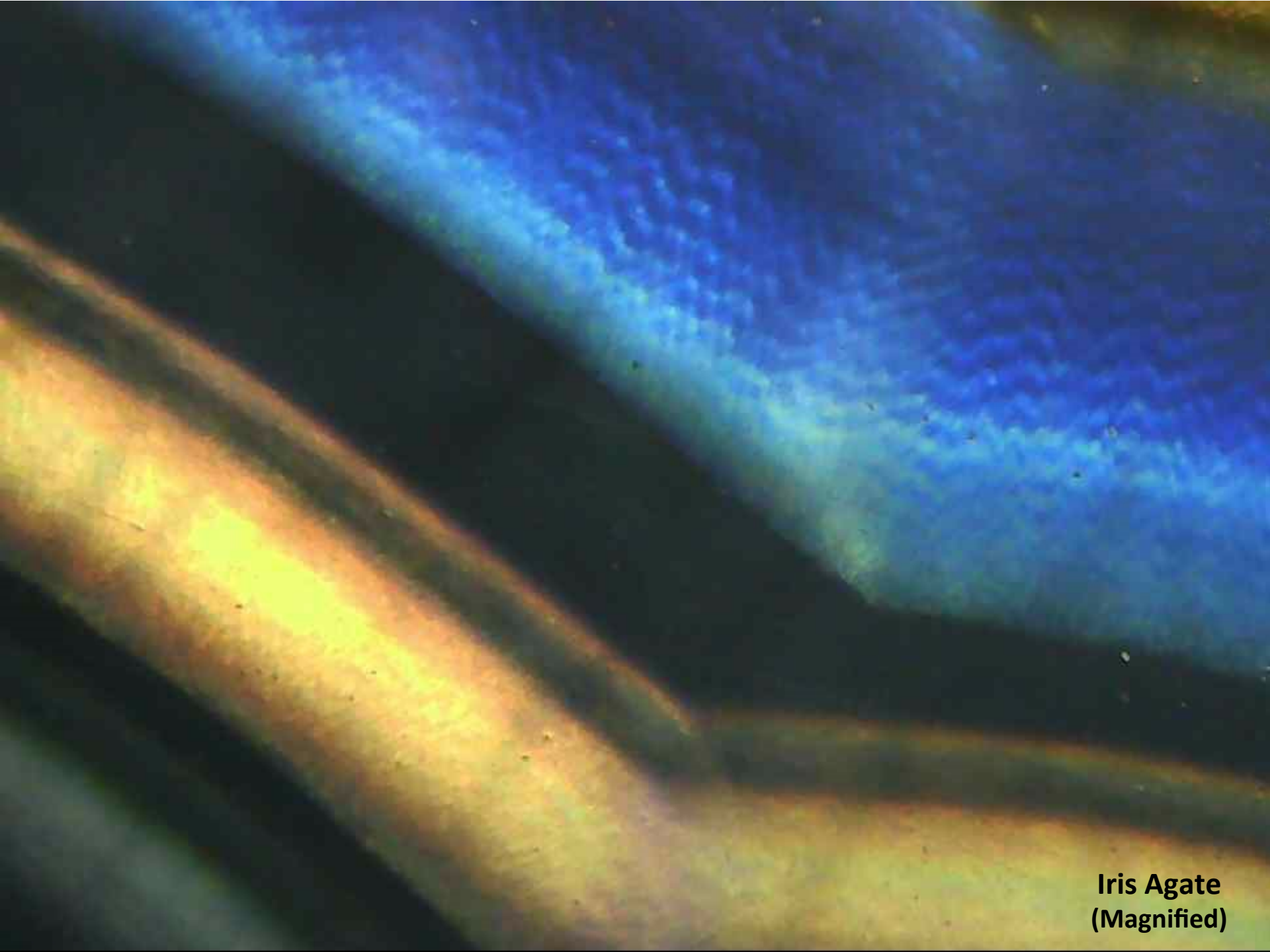
Iris effect is another optical effect caused by refracted light passing through the tight banding of a very thin slab (2mm) of the agate. The effect is best seen by holding the slab up to the sun or a very bright light. This shows a wonderful iridescent play of bright shiny colors.





**Iris Agate  
(Magnified)**





**Iris Agate  
(Magnified)**

## **Fire Agate**

Fire agates have a dark brown to almost black chalcedony base with brilliant patches of rainbow color. The colors are displayed in bubbly, reniform or undulating surfaces. Common colors are green, purple, orange, and yellow with red and blue being more rare. Research shows fire agate obtains its color from the orderly arrangements of hexagonal platelets of quartz. The play of color is due to the interference of light waves with the quartz platelets.



**Fire Agate Cab**

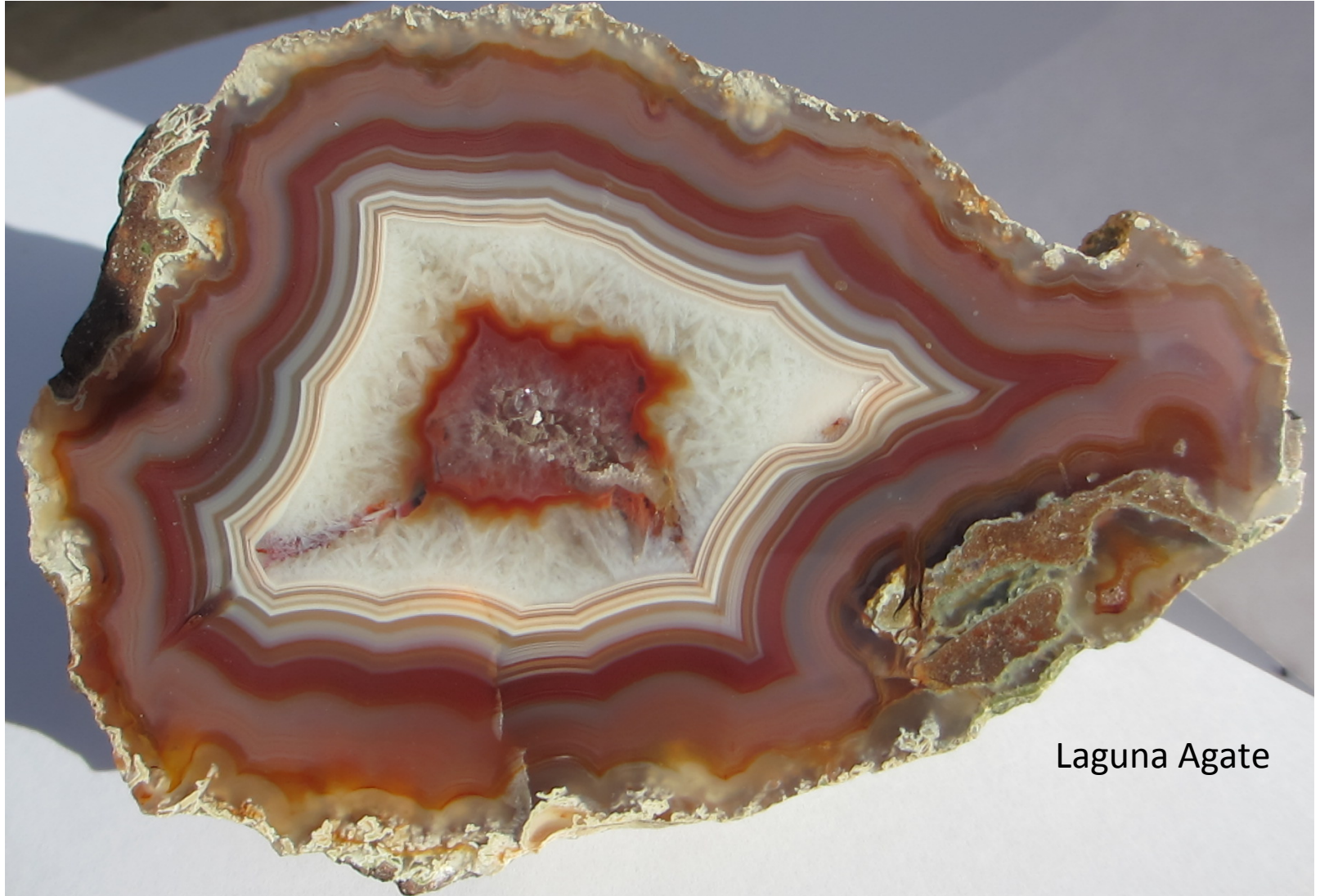




**Fire Agate**  
(Magnified)

## **Laguna Agate**

Laguna agate is one of the most desirable agates. They display a large variety of vividly colored bands with clear bands of chalcedony. Again, the bands are actually composed of micro dots of color vs. a solid banding of color.



Laguna Agate





Laguna Agate  
(Magnified)

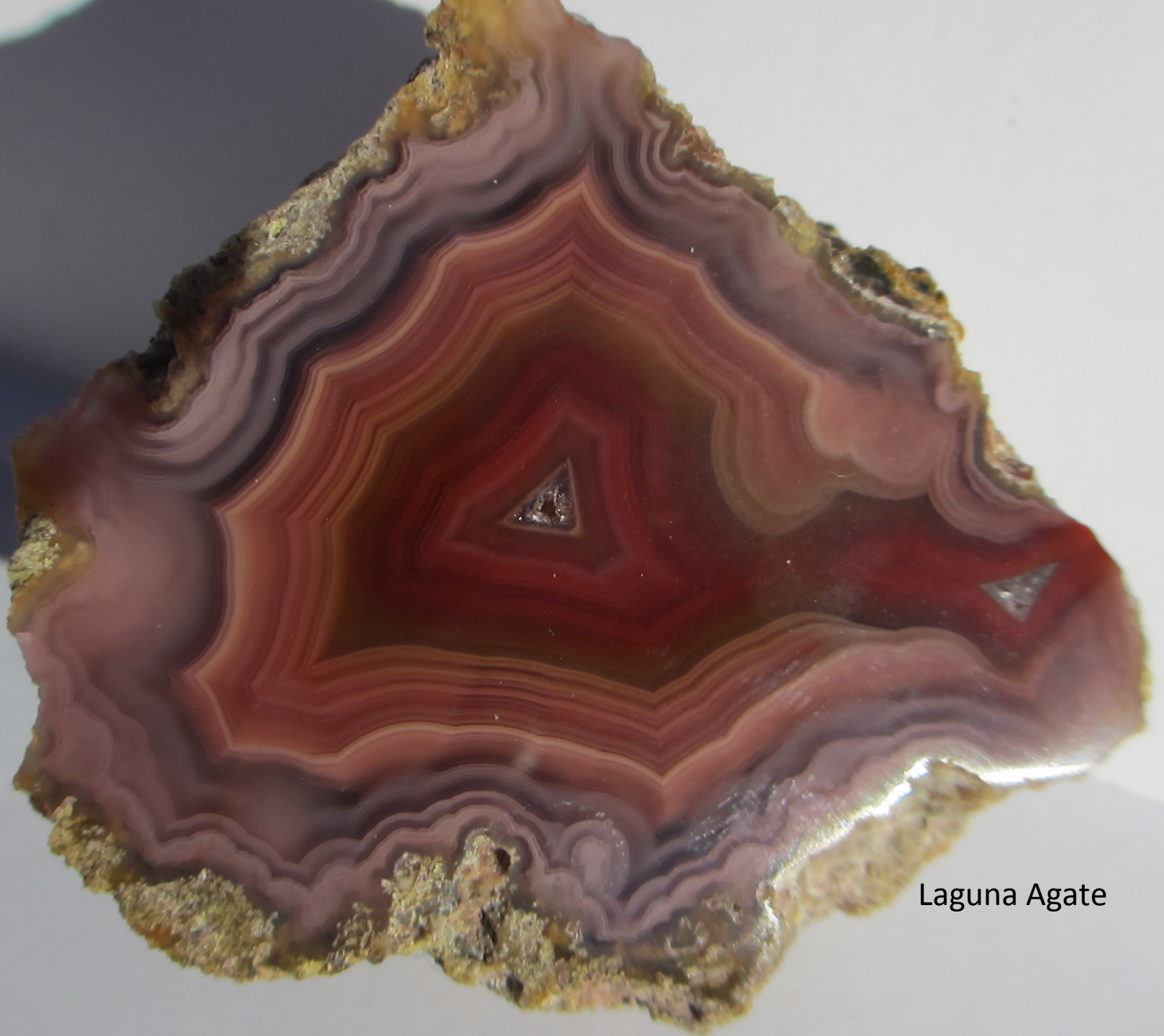


Laguna Agate





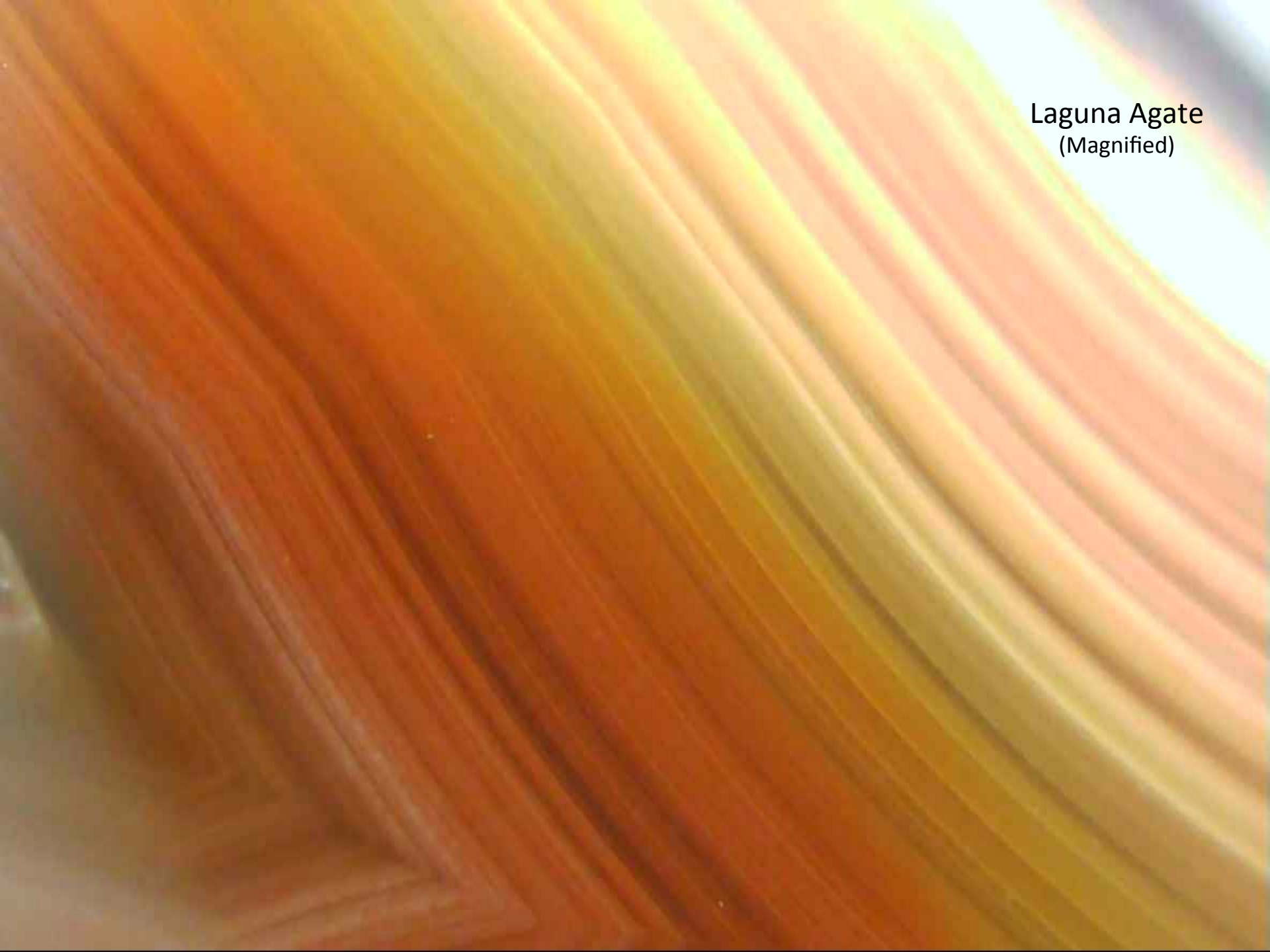
Laguna Agate  
(Magnified)



Laguna Agate



Laguna Agate  
(Magnified)



## **Crazy Lace Agate**

The typical crazy lace has bands that are distorted, twisted and curved. Eye and tube inclusions are commonly seen. The typical colors are grey and white which by themselves can be striking. If iron oxide pigment is present then the additional colors of yellow, orange, red, brown or black will be present making the bands contrast beautifully.



**Crazy Lace Agate**



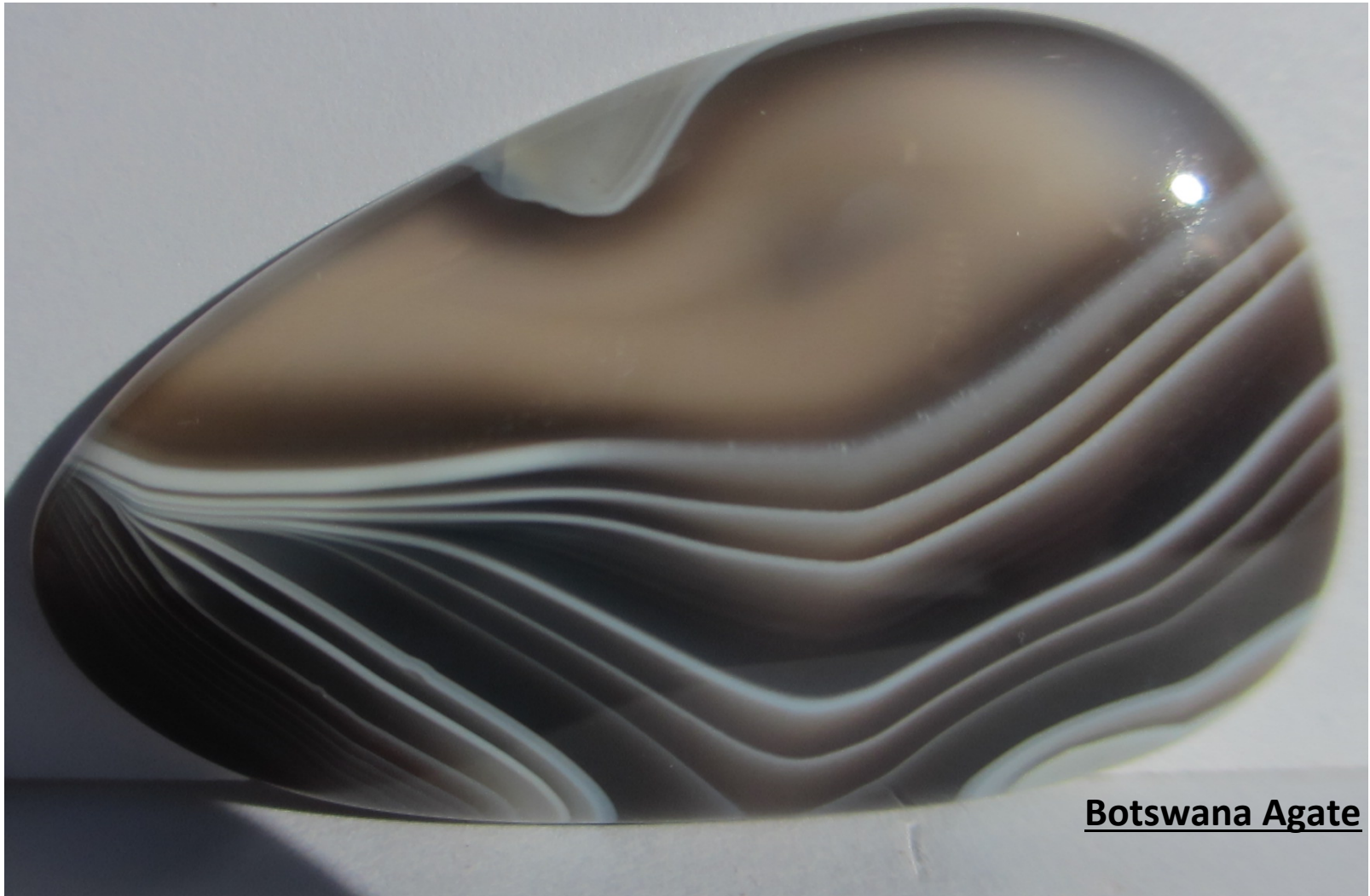


Crazy Lace Agate  
(Magnified)



## **Botswana Agate**

Because of the very distinct patterns and circular banding Botswana is a very desirable agate among collectors. The predominate colors are white and black or grey and sometimes pink can be found. Besides the striking banding, shadow effect can also frequently be seen and occasionally a dark green can also be noted.



**Botswana Agate**

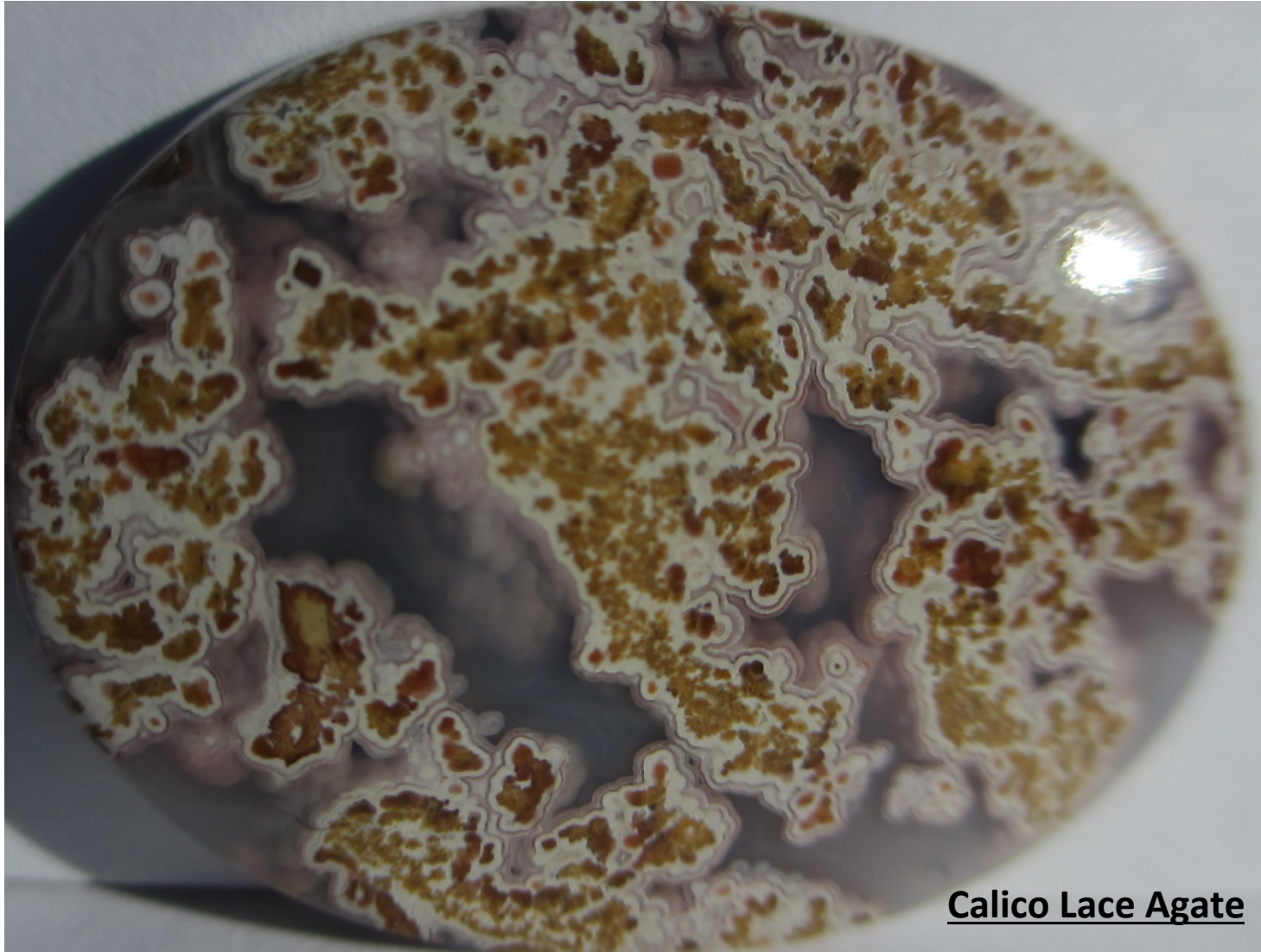




**Botswana Agate**  
**(Magnified)**

## **Calico Lace Agate**

Calico Lace Agate is a beautiful moss agate. It has yellow or gold moss that is surrounded by a purple chalcedony. Small pin-point sized pockets of druzy are also seen.



**Calico Lace Agate**





Calico Lace Agate  
(Magnified)

## **Royal Aztec Lace Agate**

This agate has beautiful bands of purple or lavender along with white, gray or amber bands. Many also contain flowers, moss, and quartz druse in the agate also.



**Royal Aztec Lace Agate**





**Royal Aztec Lace Agate**  
**(Magnified)**

## **Luna Agate Cab**

Luna agate consists of purple or lavender background agate with white and lavender concentric eyes. The white banded eyes give rise to the name "Luna" which means moon in Spanish.



**Luna Agate**  
**Cab**





Luna Agate Cab  
(Magnified)

## **Flame Agate**

This agate displays bright orange-red to deep red streaks or "tongues" of flame shooting up through clear agate. Green or pink moss is also sometimes present.



**Flame Agate**

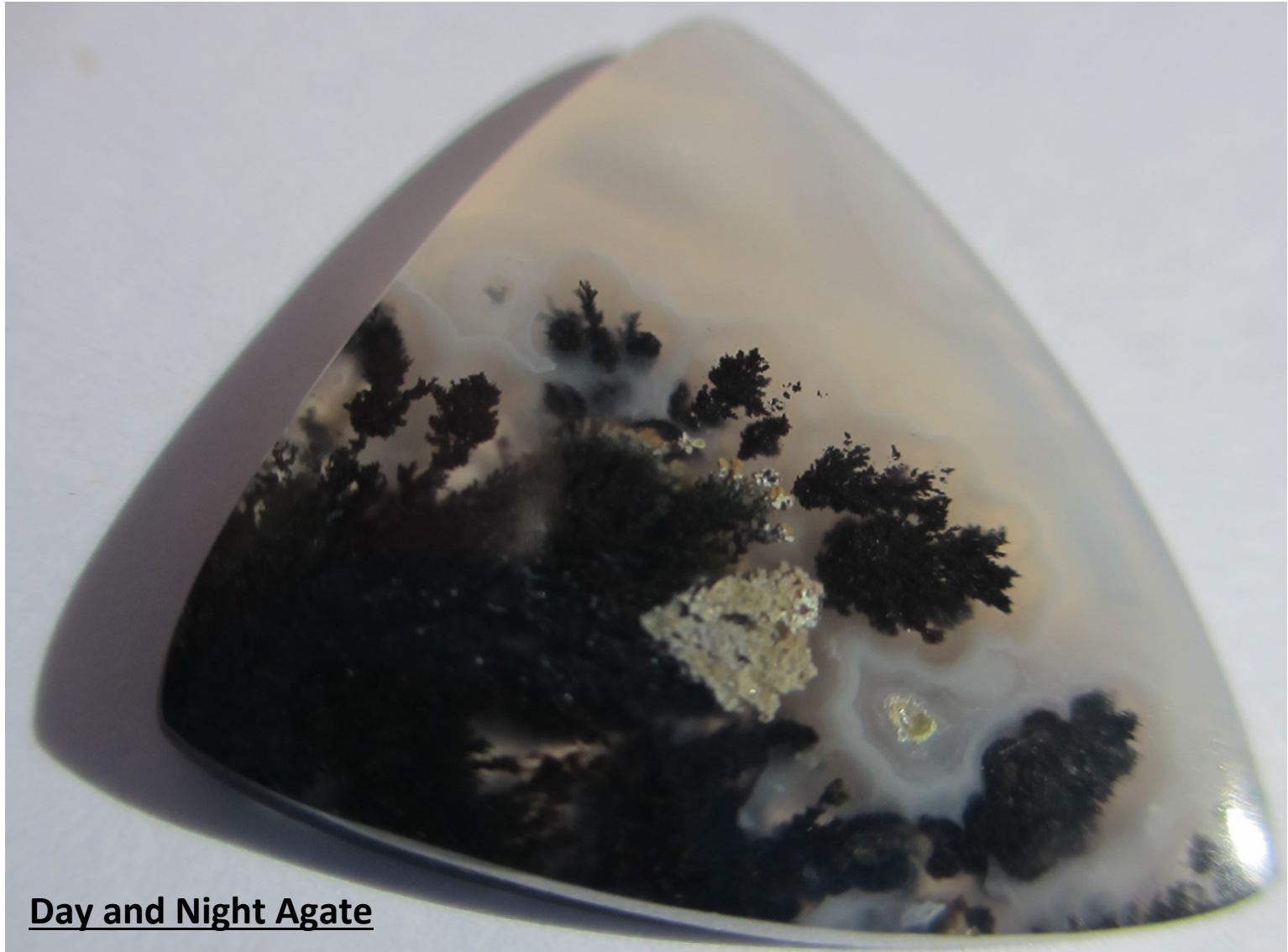




Flame Agate  
(Magnified)

## **Day and Night Agate**

This beautiful agate has inclusions of both black plumes and white plumes in a clear surrounding agate. This makes for beautiful contrast in the stone.



**Day and Night Agate**





Day and Night Agate  
(Magnified)

## **Dryhead Agate Cab**

While there is a lot of color in this Dryhead agate it is still considered an agate since chalcedony can be seen along with fortification lines.







Please notice micro dots

Dryhead Agate Slab  
(Magnified)

## **Montana Agate Cab**

This beautiful agate has inclusions of black flowers and frequently has black dendrites as well in a clear surrounding agate. This makes for beautiful contrast in the stone.







Montana Agate Cab  
(Magnified)

## **Polka-Dot Agate Cab**

Polka Dot agate is known for its beautiful dots which are usually golden or brown is a clear, white or amber background.



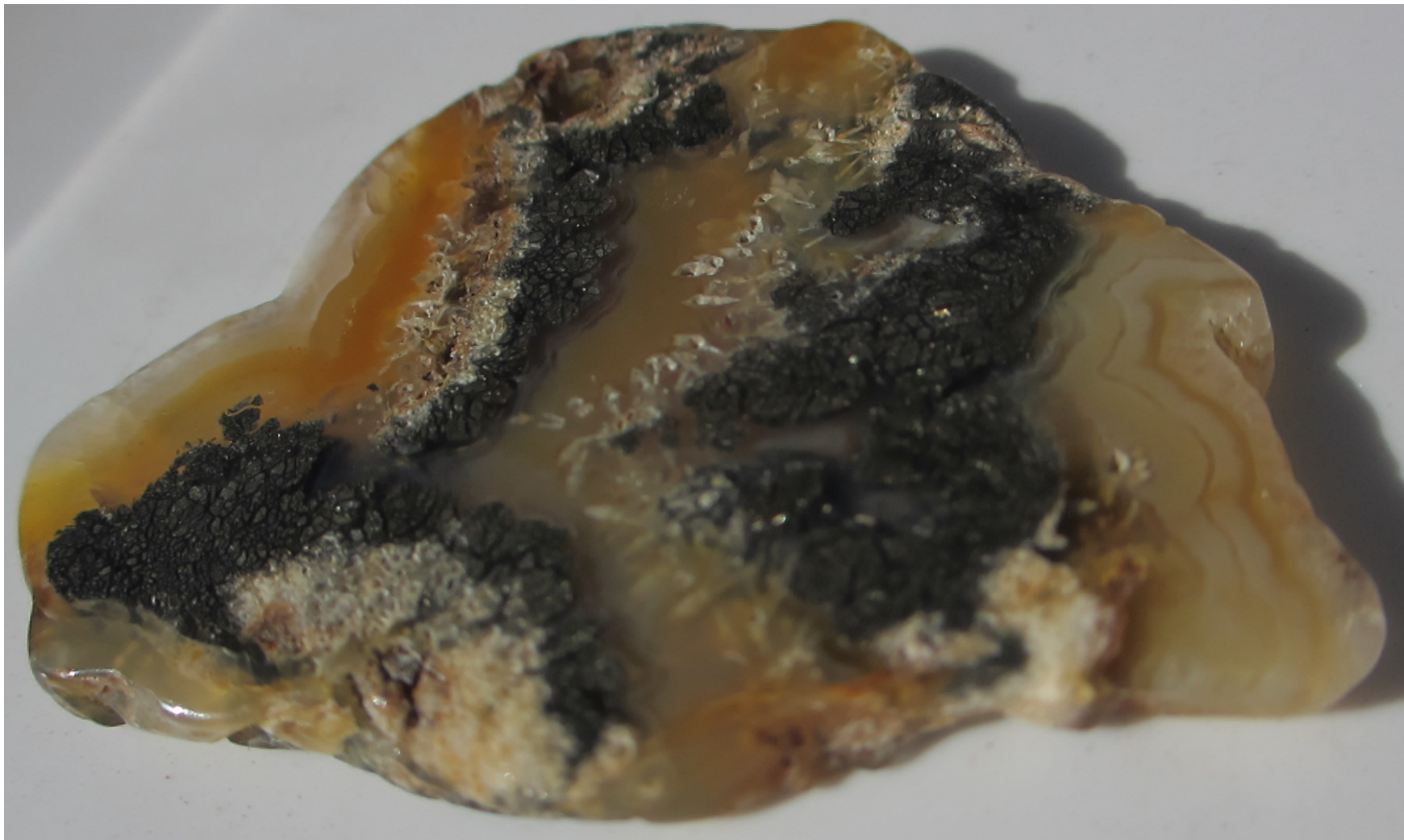




Polka-Dot Agate Cab  
(Magnified)

## **Nipomo Slab**

This agate is known for its beautiful inclusions of marcasite, which when polished, displays a lovely metallic sheen.



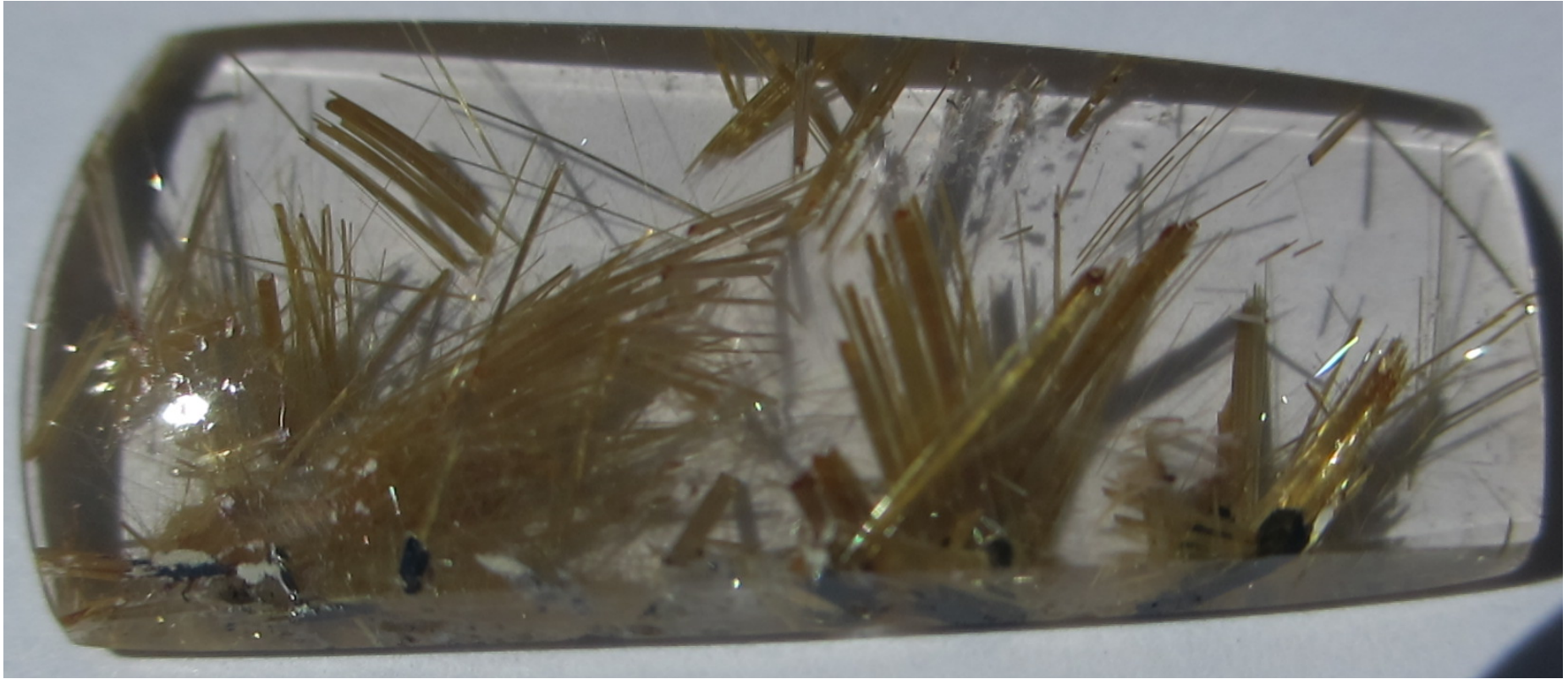




Nipomo Agate Slab  
(Magnified)

## **Rutilated Quartz Cab**

This rutilated quartz was added just for fun.







Rutiled Quartz Cab  
(Magnified)

A cross-section of an Iris Agate slab. The outer layers consist of concentric, wavy bands of various colors including blue, green, yellow, and red, creating an iridescent effect. The center of the slab features a large, irregular, and highly textured core of clear, crystalline material. The entire slab is set against a solid black background.

# THE END

Iris Agate Slab