

Unusual Agates from Chaleur Bay, Gaspésie, Quebec, Canada

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On the beaches of Chaleur Bay in Gaspésie, Quebec, Canada, interesting small agates are found that are as yet largely unknown among collectors outside the region. They are usually between just 5 and 25 mm in size. Their external shape is typically spherical or nearly perfectly oval, resembling an agate nodule. Remarkable combinations of these two shapes are also possible.

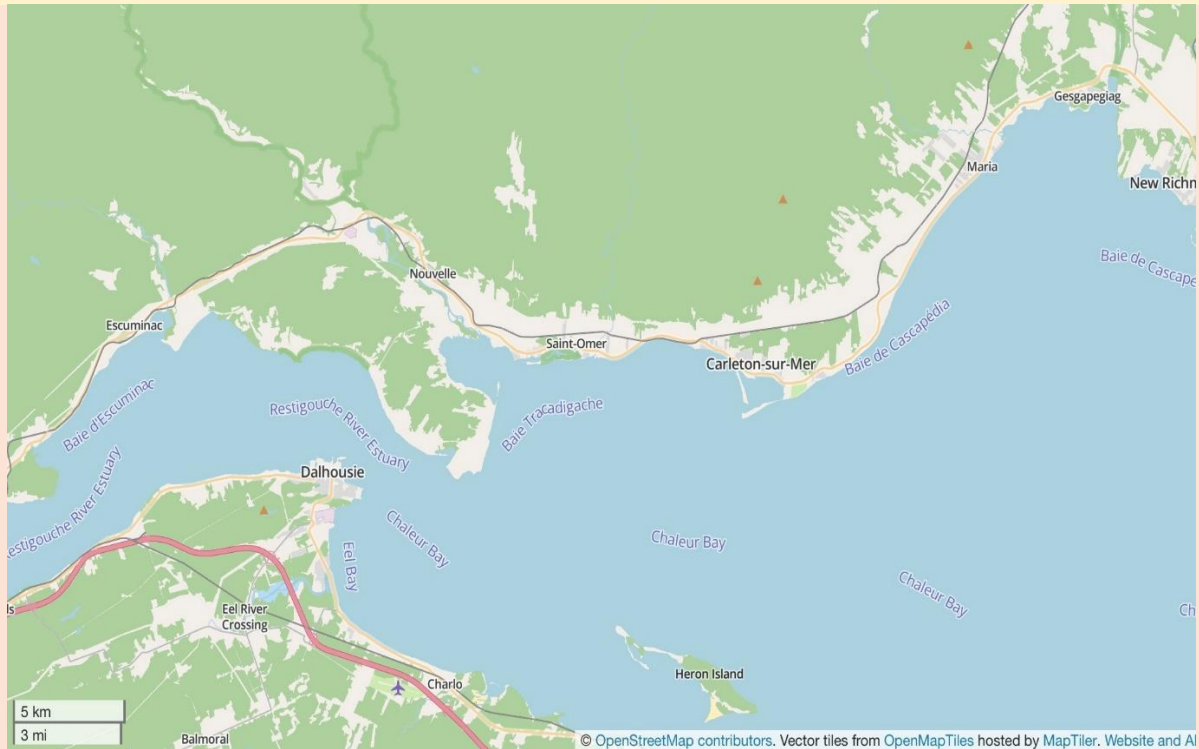


**Natural agates, such as those found on the beaches of Chaleur Bay.
All of the agates shown are part of the author's collection
and were photographed by him.**

Unusual shapes

When examining his finds at the end of a gathering expedition, it is therefore not uncommon for the attentive (and not selective) rockhouser to notice the presence of one or more round or ovoid stones in his harvest. He will deduce that those became rounded due to the erosive action of waves and tides. Indeed, the types of stones that fit these shapes naturally at

the time of their creation are very rare and are not normally the result of systematic production. However, the large collection of nodules that I have assembled over the decades demonstrates the opposite, which is also confirmed by recent publications on the formation of agates.



**The map excerpt shows the location of Chaleur Bay in the province of Quebec.
Source: OpenStreetMap.**

Intense volcanic activity

Located between the Gaspé Peninsula and northern New Brunswick on the east coast of Canada, Chaleur Bay is a favorite place for agate picking. The geology of the area was indeed marked by intense volcanic activity during the Paleozoic era, and more particularly during the Silurian and Devonian periods. This is evidenced by the important sequences of volcanic rocks (andesites, basalts, rhyolites) of the Baie des Chaleurs Group. It is therefore because of this geological past conducive to their formation that this Gaspésie region is known for its beaches rich in agates and jaspers, especially those of small size. Indeed, the relative narrowness of this arm of the sea partly shelters its beaches from the breaking waves coming from the open sea, as well as those raised by the prevailing winds from the west.

The shoreline is also protected from winter conditions, as the water of large parts of the western area of the bay freezes during the cold season. All of these conditions are favorable to the presence of gravel-rich shorelines that are partially unaffected by erosion, which probably explains the presence of very small jaspers and agates that would otherwise have been crushed or reduced to sand in a more disturbed environment. This is particularly the case of the beaches of Carleton-sur-Mer, located on the secondary bay of Tracadigache or Miguasha, on the small bay of Escuminac, both appreciated by agate picking amateurs.



**A typical cove near Carleton-sur-Mer where agates can be found.
Photo by André Cellard.**



**A perfect beach for agate hunting near Miguasha.
André Cellard photo.**

An extraordinary collection

I have been collecting agates from the Chaleur Bay for more than sixty years. I have made it my favorite hobby to the point of becoming my main activity for eight years now and I believe I am in possession of one of the most important collections of agates from Gaspésie.

Among my finds, round and ovoid nodules have always intrigued me and I have focused most of my research on them for the last two decades. I therefore own a few thousand of them. They are examined, sorted and classified according to their shape, color or other peculiarities.



However, it is because of the importance of this collection that I was able to observe certain similarities and recurrences that leave no doubt: these perfectly spherical or ovoid agates are born in this state according to a process of systemic formation. This finding is particularly noticeable following the observation of broken stones.

Indeed, among my collection of nodules, I have a few hundred that are chipped, broken or split. It is by looking at the photos of damaged stones that follow that it becomes obvious that the rounded or oval shape of these agates is not the result of chance or any form of erosion:



It is clear that, perfectly round or oval, these agate nodules are made up of a spherical or ovoid internal structure set within a thin but very hard "shell" of chalcedony or carnelian. The few hundred stones of this type that I have collected all have a similar configuration: spherical or ovoid interior, covered with a very hard and uniform "film".

I also have a good number of nodules that appear to be interrupted in their formation process or to have amalgamated with others at the time of their creation:



The agate "eggs" and "balls" that I have collected show a very great diversity in terms of their appearance, their colors, or their mineral constitution. The following photos of ovoid agates amygdules show a heterogeneous assortment of "eggs" with regular or fanciful patterns:





The following photos of spherical agate banded or eye patterns and mineral nodules also show a wide variety of signatures:



Concluding remarks

Finally a few observations: The very large number of nodules, broken or intact, that I have accumulated over the decades allows us to see that their perfect round or ovoid shapes are not the result of erosion or chance. Their variation in terms of mineral composition also suggests diversified hatching environments by virtue of a dynamic or a natural systemic mechanism. I am neither a mineralogist nor a gemologist, but I am of course aware of the different theories explaining the formation of agates. Their birth in a volcanic environment suggests the formation of spherical or

ovoid nodules inside cavities resulting from gas bubbles by the infiltration of fluids rich in minerals. Trapped in the friable volcanic rocks (basalt, rhyolite, andesite), the much harder agates will eventually be "released" by erosion.

Recent publications, including that of Mahmut MAT (2024) describe this natural formation process.



Perfect oval agate nodule (0.5 cm) in host rock. 2.5 cm.

Finally, I would like to add that, despite my research, I have not yet been able to find a collection or public exhibition featuring agates similar to mine, and I would be grateful if anyone could help me with this...

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Sources and further reading

MAT, M. (2024): Amygdaloidal Agate. GeologyScience 7/2024. Online publication.
<https://geologyscience.com/gemstone/amygdaloidal-agate/>

