

## **Mookaite – The Stone That Shines.**

*by Ray Wilson*

Several years ago I bought a piece of this rock from a fairly large supply at Peppertown. It has sat in a drum in the shed until recently when I was looking for a “red” stone. The piece I had was maroon and brown, so I slabbed it up for members to use for their president’s competition stone. Some slabs are still available if you see the duty officer at a work session.

When cabbing this stone I was intrigued by how it reached a very high polish reasonably easily, although not without some other problems. Venturing into Google I discovered a very interesting stone which I think is worth sharing.

Mookaite is the local name of this stone, named for the location in Western Australia where it is mined. Mooka Creek (Mooka is aboriginal for running waters) is about 160 kilometres east of Carnarvon and it appears that there are several mining leases where this material is produced in large quantities.

Geologically the area is part of the Windalia Radiolarite (WR), a siltstone that outcrops over much of the Carnarvon Basin. This area was previously the bed or shelf of the ocean. Radiolaria are tiny (0.1mm – 0.2mm) protozoans that had intricate mineral skeletons and lived in the Cambrian era (540 million to 480 million years ago). They are found as zooplankton throughout the ocean, and their skeletal remains cover large areas of the ocean floor. In the Carnarvon area as the ocean retreated the skeletons of these organisms decomposed creating a high silica content in the clay, which under pressure and heat cemented into place as a siltstone to create what we now call Mookaite.

The stone has variously been called jasper, opalite or chert but according to Mindat.org these terms are incorrect and the stone should be more correctly known as a porcelanite. Geologically, Mookaite is best defined as a silicified type of Windalia Radiolarite whose silification is opaline to chalcedonic.

Glenn Archer and John Bennett own Australian Outback Mining and claim to be the largest miners of Mookaite in WA. They exhibit and sell annually in Quartzite, Tuscon and Munich.

Mookaite does vary in quality and according to Glenn the quantity of silica in the material determines its quality. Pieces that are very high in silica (more opaline) are problematic as they are brittle and fracture at the slightest jar. I’ve also seen a piece fracture while being warmed ready to dop. Material that is more chalcedonic is the best type. It will have a hardness of 6.5 – 7.0 and very fine grained. Outback Mining have slabs for sale on their website ranging from \$40 - \$75 for 200- 300 gram slabs (around \$100 kilogram) plus GST plus freight – an expensive cabbing stone.

Colours of Mookaite are from maroon to bright red to browns and yellows – sometimes all in the same stone. Whites and blacks are also seen in some of the stones to various degrees. If you think of the bright earthy colours of central Australia then Mookaite has those colours. Glenn says that in some rocks, fossil casts of ammonites are found and I have seen cut pieces with fossilized flora in place.

Finally, this stone is not perfect for the lapidary person. From my experience it can fracture very easily with thermal shock – care is required when warming to dop. The slabs I have cut also seem to have natural cleavage lines where layers of siltstone have overlaid each other. Commonly where colours abut, fractures can occur, so it is difficult to get a piece with multi colours included. And finally the piece that I was cutting for the competition developed tiny pinprick holes on the surface as I got closer to being finished. I'm not sure what would have caused this but it could be pieces of silica dislodging from the surrounding stone. It is plainly visible to the naked eye after using tin oxide as a polish as the holes fill up and show as white spots on the red shiny background. This can be removed by scrubbing gently with a soft bristle tooth brush or placing in the ultrasonic jewellery cleaner. While not suitable as a competition stone, the stone is still usable commercially.

All in all though it is an interesting stone that is very uniquely Australian and well worthwhile as a cabbing stone.. Peppertown have some smaller slabbing material at around \$22 per kilogram.

**References:**

[www.mindat.org](http://www.mindat.org)

[www.outbackmining.com/mookaite](http://www.outbackmining.com/mookaite)

[www.facebook.com/outbackmining](http://www.facebook.com/outbackmining)