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Raman spectroscopy for the mineral identification of precolumbian lapidary products in Basse-Terre (Guadeloupe, French West Indies)

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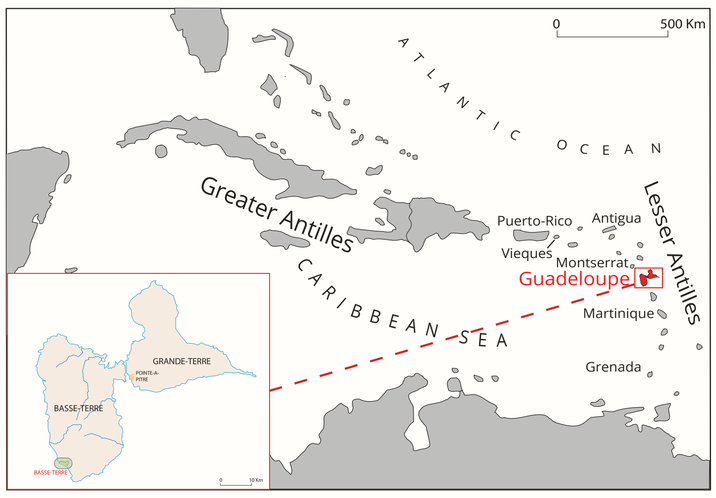
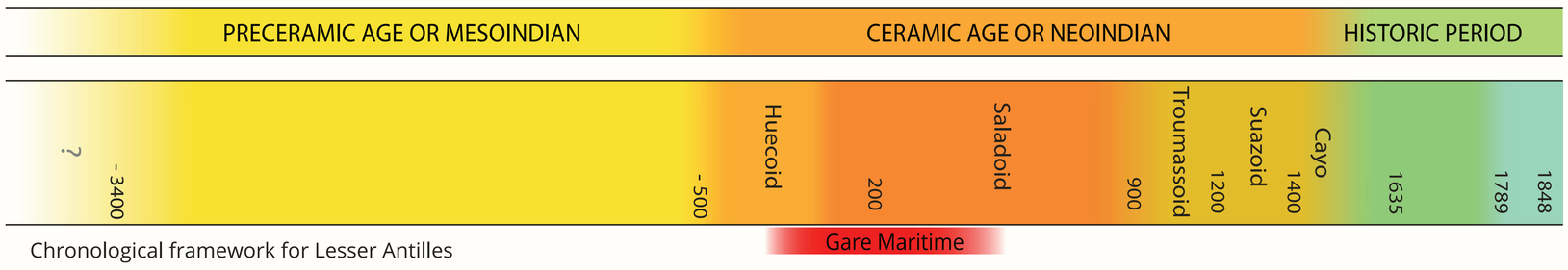
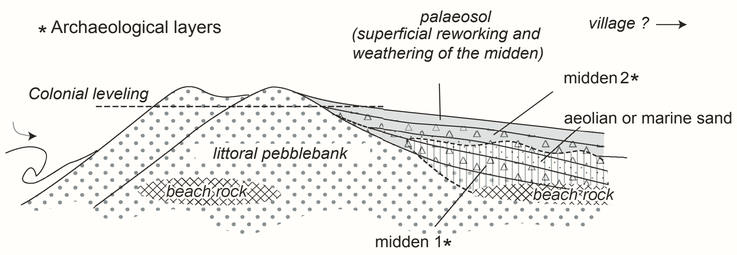
Many archaeological sites have yielded mineral beads and pendants in the Lesser Antilles during the past decades. These special artifacts have been the basis of numerous hypothesis regarding networks and even sociopolitical organization. Nervertheless, it remains actual that, as Roobol & Lee (1976) already pointed out, precise greenstone attribution «could provide an estimate of inter-island trade or migration within the Greater Antilles» and it does stand for Lesser Antilles as well. The preventive archaeological excavations of «Gare Maritime» in Guadeloupe (Paulet-Locard and Chancerel, 2005, Romon, 2006) brought to light numerous lapidary artifacts discovered in the midden deposits of this coastal Early Ceramic Age site.

View of the excavation and the sieving involved in the beads collection

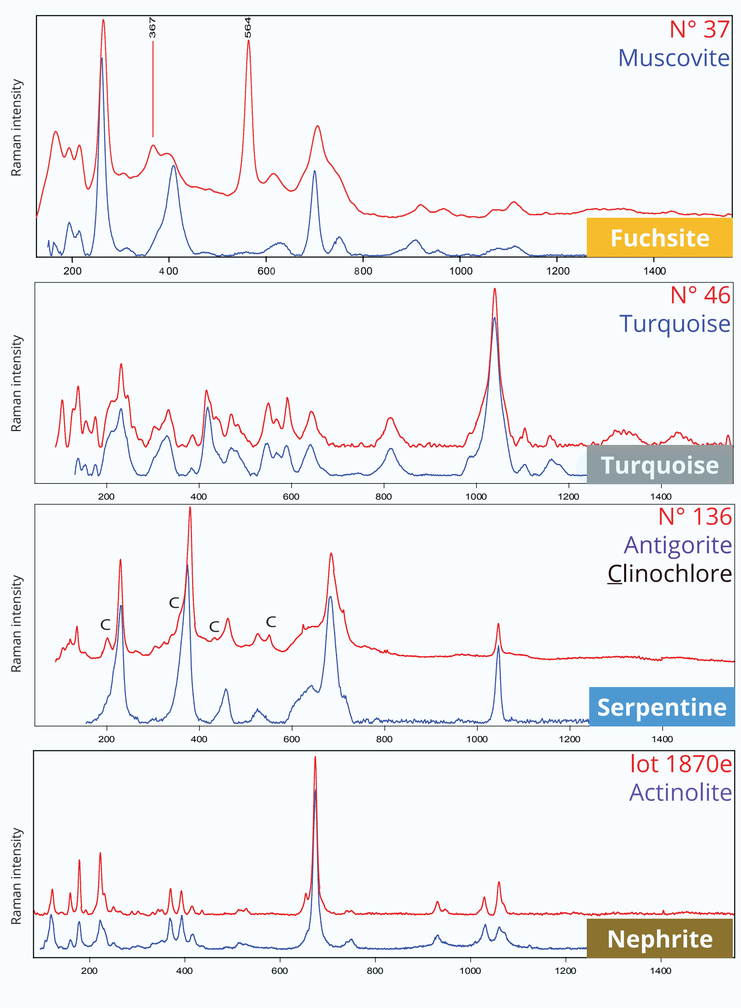


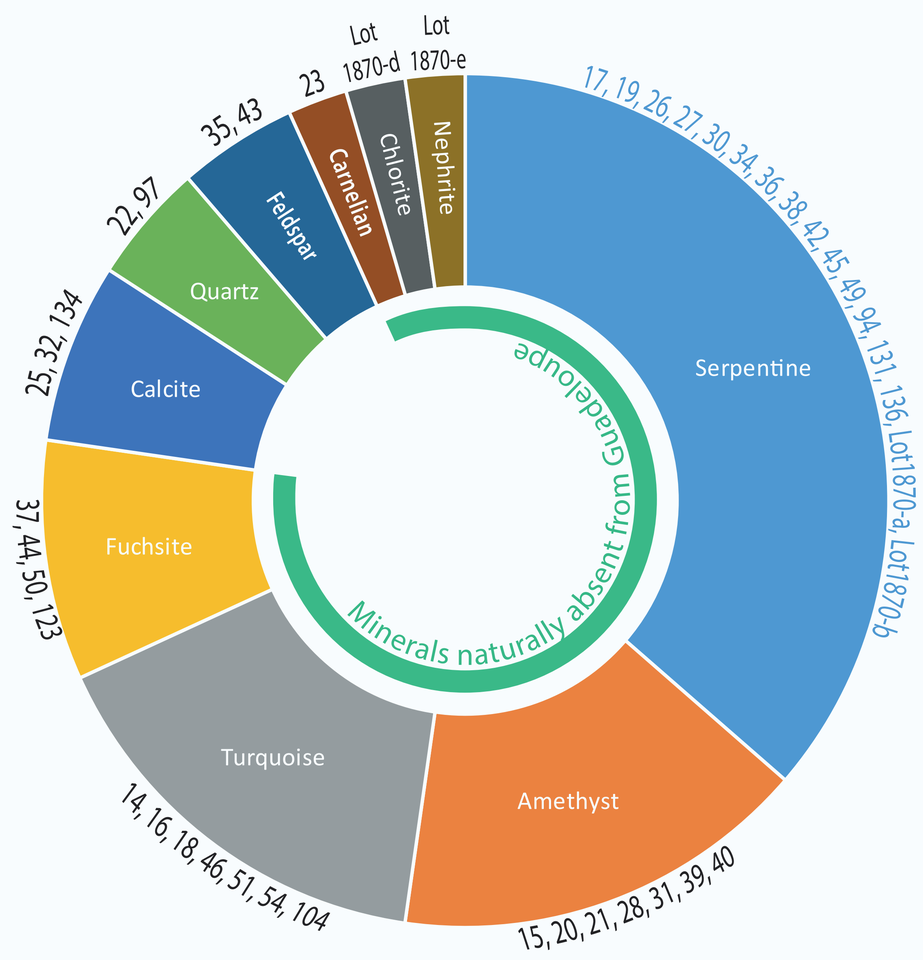


Chronological framework for Lesser Antilles



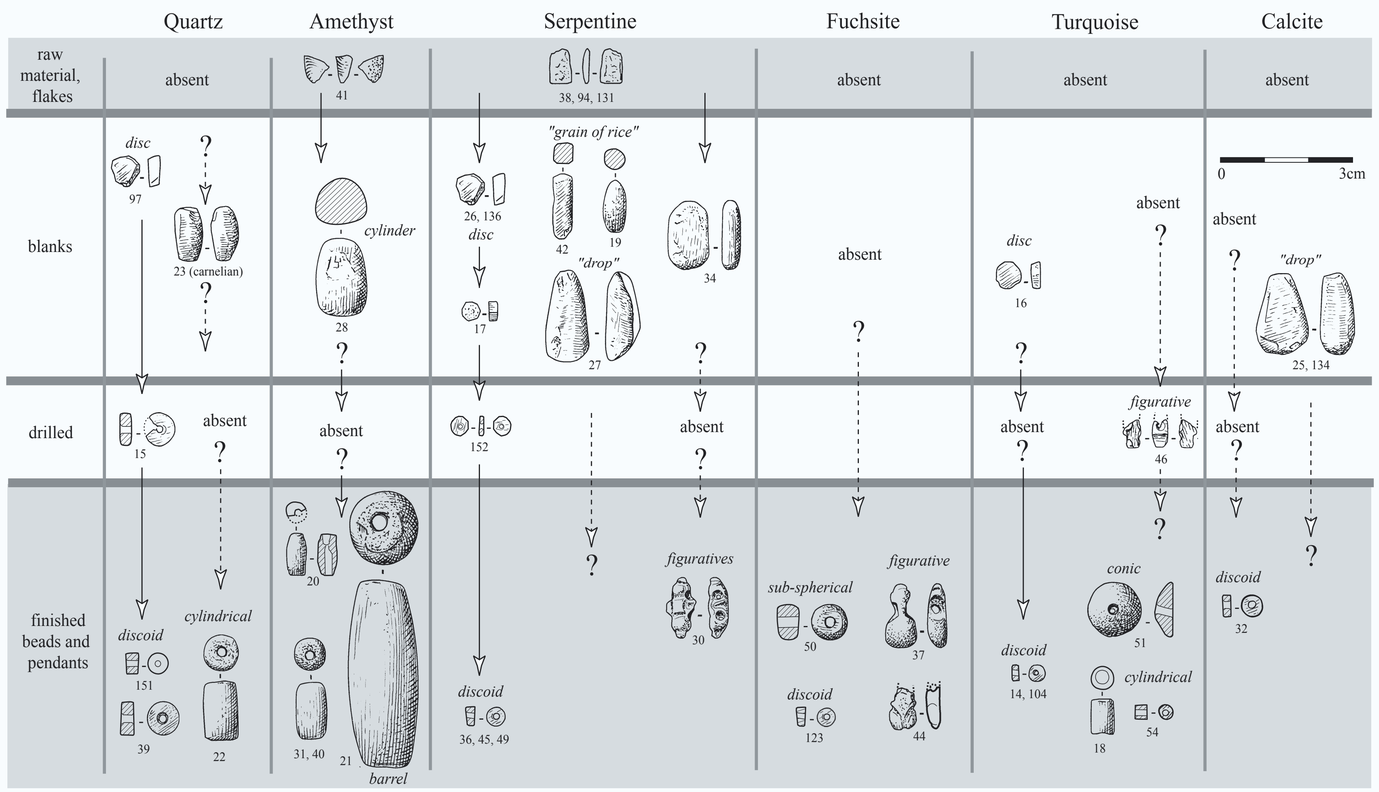
Interpretative stratigraphic section representing precolonial period (modified after Bertran in Romon 2006)





✓ Large diversity of minerals ✓ Exotic minerals dominant

✓ High input from Raman spectroscopy to greenstones determination



✓ Variety of importation stages and local production

→ It remains difficult to source these materials due to lack of referentials and gitologic knowledge of the Caribbean region

→ Comparison with other sites shows differences in proportions and a need for greenstone precise attribution by non-invasive means

→ Techniques involved in drilling such quartz beads remain unknown in this archaeological context missing metal and very hard minerals

Paulet-Locard and Chancerel (2005). Basse-Terre, Gare Maritime, Diagnostic archéologique, Rapport d'opération, SRA Guadeloupe.

Romon (2006). Fouille préventive de la Gare Maritime de Basse-Terre (Guadeloupe). Basse-Terre, Guadeloupe

Roobol, M. J., & Lee, J. W. (1976). Petrography and source of some Arawak artifacts from Jamaica. In Proceedings of the 6th congress of the IACA. Guadeloupe.