



In the footsteps of Pliny: tracing the sources of Garamantian carnelian from Fazzan, south-west Libya



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ABSTRACT

References in the ancient sources indicate that the Libyan desert was a source of ‘carbunculi’: semi-precious red stones and gemstones variously interpreted as ruby, garnet and spinel, amongst others. While gemstones are not attested in the geological strata of Fazzan (south-west Libya), a range of silica-based stones including chert, chalcedony, agate and carnelian are known to originate in this area, linked to an early civilisation known as the Garamantes. It has been long proposed that the geochemical signature and the variations in the relative proportions of quartz:moganite phases can be used to distinguish between groups of stones of different origin. The proposed methodology was tested on a number of archaeological samples from the Garamantian sites of Jarma (ancient Garama) and Saniat Jibril, in Fazzan. Fragments of chert, carnelian and amazonite found at the two sites have been identified as raw materials associated with beadmaking. Trace elemental data obtained by LA-ICP-MS were combined with mineralogical data obtained by X-ray powder diffraction and Raman spectroscopy on the same samples and a group of reference samples. The dataset has been compared with the available literature and data from other localities around the world. To this purpose a preliminary database of silica-based materials was established for provenance work. Based on the scarce data available in the literature, the importation of these stones from Eastern localities such as India may be ruled out. The measured data on archaeological samples and debitage allow us to define a reliable reference group of parameters for materials from Fazzan, which are likely to be derived from a unique geological source. The methodology should be extended and compared with cherts and carnelians from a range of Mediterranean and Sub-Saharan sites. This characterisation work is a tool of high potential utility for a new investigation of ancient contact and trade across the Trans-Saharan zone.

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1. Introduction

Chert, chalcedony and other silica-based semi-precious stones (Rapp, 2002) have a prominent place in the archaeological record, as basic materials for tools and ornaments. In Northern Africa such materials are widespread both as geological and archaeological occurrences, although provenance investigations linking artefacts to geological sources are surprisingly scarce. Carnelians have been frequently recorded in Fazzan, and have been linked with Garamantian civilisation (c.500 BC – AD 700). Garamantian trade in carbuncles and other ‘gems’ was described by Pliny, who explicitly

mentions a *Mons Giri* as the source location in the territory of the Garamantes (Pliny, *NH* 5.37: *Mons Giri in quo gemmas nasci titulus praecessit*). Carnelian is the most certain of a range of materials described by Pliny as *carbunculi* coming from a Saharan context. He specified in another passage that the Sahara was one of two main sources of carnelian for the Roman world, the other being Northern India (*NH* 37.92). He also refers to the Garamantian carbuncles being known as “Carthaginian stones” at Rome – probably a reference to the fact that Roman traders initially accessed the carnelian via Carthaginian traders? The Saharan source of carnelian only became known to Rome after acquiring her North African territory through the defeat of Carthage. Other references are less specific about the location of carnelian sources in the Sahara, suggesting that Nasamones and Aethiopes (black Africans) were also involved in procuring them (Pliny, *NH* 5.5; 37.104). Strabo likewise

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referred to ‘Carthaginian stones’ brought from Saharan mountains and linked them to the Garamantian territory (*Geography*, 17.3.11; 17.3.19, ‘the land from whence Carthaginian stones brought’).

A further reference to Saharan “gems” was made by Vibius Sequester (“*Cinybs Africae, in quo plurima genera gemmarum inveniuntur...*”) who incorrectly assumed that the Libyan river Cinybs (Cifani and Munzi, 2003) originated from Mons Giri. At the triumphal procession in Rome of Cornelius Balbus in 19 BC, celebrating victory over the Garamantes, a placard was carried referring to Mons Giri as the “place where precious stones were produced.”

The exact locations of Mons Giri and/or carnelian sources in the Sahara are uncertain (Desanges, 1980). However, the volcanic area of the Jabal Bin Ghanima (in the basalt province of al-Haruj), the Tibesti mountains (c.300–400 km south-east of the Garamantian heartlands) or the plateau/mountains to the north of the Wadi ash-Shati (al-Hasawina and Jabal as Sawda on Fig. 1, c.200 km to the north-east of Jarma) may be potential source areas. Arab sources refer to at least one other source of carnelian, known by the desert name of Tas-an-samt, about a third of the way between Tadmakka and Ghadamis in the Adrar des Iforas (Levtzion and Hopkins, 2000; Insoll et al., 2004). There is also evidence of neolithic exploitation of carnelian for bead production in the Sahara and West Africa, though the exact source of the material is unknown (Calegari, 1993). Despite the distance of the potential raw material sources

from their capital at Jarma, the Garamantes appear to have had control of quarries and transported large amounts of the raw materials there for further processing. Debitage from primary and secondary processing was recorded in excavations of Garamantian levels at Jarma (Mattingly, 2013) and at the nearby site of Saniat Jibril (Mattingly, 2010). Carnelian debitage also is a relatively common surface find at other Garamantian era settlements (Mattingly, 2003), suggesting that future excavations would enhance the emerging picture of carnelian working (Fig. 2). Although there is no potential carnelian source close to Jarma, the attested scale of primary processing carried out Garamantian sites certainly suggests a source within a few hundred km rather than further afield.

Following 19th century European travellers, Mons Giri has variously been identified with the Tassili-n-Ajjer or Tibesti mountains. In the absence of specific finds from the Wadi ash-Shati area, the most suggestive records relate to the south-east Fazzan, in the approaches to Tibesti south of Tijirhi and al-Qatrun (Fig. 1). Both the Denham and Clapperton expedition of the 1820s and that of Rohlfs in the 1860s noted numerous finds of flint, hornstone, chalcedony, and carnelian samples in this area. König quoted in Denham and Clapperton 1826: “Yellowish white substance intermediate between hornstone and chalcedony, in angular pieces, with cream-coloured cachalong on the surface. ‘On the way from Gatrone to

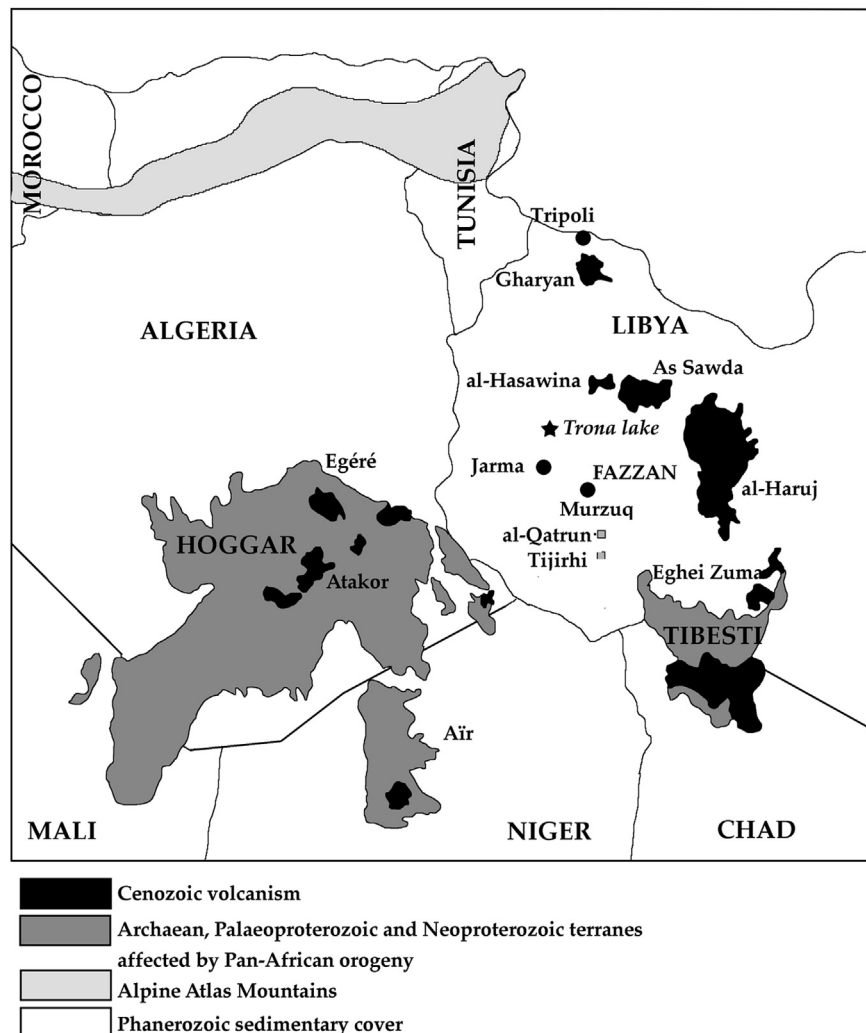


Fig. 1. Cenozoic volcanism in northern Africa and main Saharan locations mentioned in the text (after Liégeois et al., 2005).

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