bulk chemical data, these rocks can be distinguished in different rock types (basalts/andesites and minor gabbros) with different chemical affinities: a) The relatively LILE-enriched amphibolites resemble typical low- to medium – K calc-alkaline basalts (CAB), comparable to the recent Aegean back-arc volcanics. b) Other amphibolites display chemical affinitities similar to island arc tholeiites (IAT). c) The retrogressesd blueschist – to –greenschists facies metabasites are coarse-grained gabbroic rocks with mixed IAT/MORB chemical affinities. Further geochemical work need to be carried out in order to improve our knowledge on the tectonic setting and emplacement of the Serifos amphibolites.

Gemmological examination of 3 jewellery objects from the Veliki Preslav treasure in Bulgaria

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In August 2009, by a special permission from the director of the Veliki Preslav Museum it was possible to examine 11 jewellery objects of the Preslav treasure. Between the late 9th and the early 10th century, Preslav was the capital of the great Bulgarian empire, in 971 it was devastated by the wars between Sviatoslav from Kiev and the Byzantian emperor John I Tzimiskes. In spring 1978, a treasure was discovered near the former Preslav royal palace, after farmers had been ploughing into a depth of 0.60-0.70m the winter before. The treasure box had probably been hidden since 971 in an old dwelling. The jewellery objects shows a distinct Byzantine influence but may have been produced in local workshops under Byzantine masters.

Standard gemmological equipment was used for the testing procedures. Results relating to three gold medaillons, two round ones (5cm in diameter) and one rhomb-shaped (6.5x6cm) will be described. A total of 30 drilled emeralds of hexagonal prismatic shapes with polished surfaces was examined, measuring between 0.20 to 0.60mm in length and 0.40 – to 0.72cm in width and showing a pale to intense green colour.13 of otherwise non-transparent emeralds have translucent to small transparent areas that allow to observe mica platelets, tremolite needles and small negative crystals (two-phase inclusions) under the microscope (30x-120x). The inclusion pictures observed would correspond with what could be expected of emeralds that were formed by pneumatolytic contact metamorphosis.

The European emerald deposits in Upper Egypt and the Austrian Austrian Habachtal do both belong to this basic type of formation and are discussed as possible sources of origin. Examples of comparable emerald crystals in –Roman and early medieval jewellery, observed by the authors in museums in Sofia, Cairo, Alexandria and Aachen, are discussed as are other possible worldwide sources of origin. As they were discovered at a later date (Colombia in 1514, Ural in 1830 and all others in the 20th century), the question remains if the deposit in the Hindukusch area of Afghanistan, mentioned by Theophrastus in 314BC, might be a possible source although there are no further written sources and there is no evidence of mining between the 4th century BC and the 1970s when the desposit was rediscovered by the Soviet occupation. Pliny's reference to Scythian emeralds is discussed and compared with Scythian jewellery objects.

24 pearls in barrel and button shapes, measuring between 0.35 and 48cm, were examined; their light to dark grey colour is interpreted as the result of environmental influence. Pearl surfaces show moderate to distinct signs of dissolution. They are most certainly of marine origin and do probably come from classical finding places like the Persian Gulf, the Red Sea or the Strait of Manaar between India and Sri Lanka.

11 drilled purple gemstones or irregular polished shapes, in a size range of 0.55-0.68 cm, were identified as 10 purple sapphires and 1 garnet. They had before been described as amethysts. The possible origin in Sri Lanka is discusssed.