



## **Stable isotopes back-track the origin of alabaster from the ,Ulrich Epitaph‘, Güstrow, Germany**

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Natural calcium sulphate minerals (like gypsum, in the variety of ,alabaster‘) have been used for a long time for art and ornamental works despite it’s high solubility in aqueous solution due to its easy way of recovery and handling. To identify different European source provenances, geochemical and stable isotope forensic methods have been applied, thereby defining historical pathways of trade. A detailed geochemical characterization of both alabaster samples from the monument and potential sources is a pre-requisite for a backtracking material sources. Several tracers have been tested in the past identifying the coupled sulfur and oxygen isotope composition of the sulfate molecule in the evaporite minerals to be highly characteristic.

In the present study, we analyzed the stable sulfur and oxygen isotope composition of raw alabaster from the famous Ulrich Epitaph in Güstrow, Northeastern Germany, and compared the results with new measurements from one of the major European contributors of alabaster in the 16th century, the Cellaston quarry, Derbyshire (England) and literature data for further potential Spanish and French source quarries (Kloppmann et al., 2014; Archaeometry, 56).

We found that the stable sulfur and oxygen isotope signatures of alabaster from the Ulrich Epitaph indicate the origin from the Upper Triassic (Keuper) evaporites of the English Cellaston quarry and are not related to other potential alabaster sources. This further illustrates the alabaster trade way between England and Germany in the late 16th century.