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Medieval and Early Modern alabaster exploitations in Germany: isotope fingerprints of the Forchtenberg and Witzenhausen deposits and their use in sculpture

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Medieval European alabaster exploitations were relatively limited in number though not in their geographical extension. The main alabaster-exploiting regions before the 16th century were situated in the English East Midlands, in Spain (Aragon, Catalonia), France (Alpine deposits, Provence) and in Germany (Harz mountains, Franconia). From the 16th and 17th century onwards, the use of alabaster in sculpture considerably increased and new deposits were discovered and exploited. In the French Jurassic mountains, the Saint Lothain quarries gained in renown, in Tuscany, the antique quarries around Volterra reopened and East European deposits became important, from Eastern Germany, over Poland to the Western Ukraine.

We present two historical alabaster quarries in Germany, comparatively well documented from written sources: the Witzenhausen alabaster, quarried in Hesse, east of Kassel first mentioned in 1458, and the Forchtenberg mine, in Württemberg, 70 km SW of Würzburg, exploited in the late 16th to 17th century by several generations of the same family of sculptors, the Kern dynasty.

We were able to localize the Witzenhausen deposits around the nearby village of Hundelshausen where Permian ("Zechstein") evaporites outcrop and are still quarried for plaster production. Most of the encountered varieties are light to dark grey, strongly folded, with brecciated layers. The earliest surviving documented artwork made from this material dates back to 1516, the funeral monument of William II, Landgrave of Hesse (1469-1509), in the church St. Elisabeth, Marburg, Hesse, by the sculptor Ludwig Juppe. The Sr, S and O isotope signatures of the Hundelshausen quarries and the funeral monument are identical and fall in the typical range of Permian alabaster, which, together with the characteristic texture should enable us to identify this type of stone in artworks with unknown provenance.

The Forchtenberg alabaster was quarried from the mid-16th century onwards in galleries and was the privileged material of the Kern family whose house had a direct entry to the alabaster mine.

Prominent members of this family are Michael Kern III (1580-1649), who worked for the counts of Hohenlohe and produced many monumental sculptural ensembles in alabaster and his younger brother Leonhard Kern, working in alabaster, ivory and wood, considered as one of the major sculptors of the German Baroque. The Forchtenberg alabaster of Triassic (Muschelkalk) age shows a very characteristic banking and its isotope fingerprints distinguish it from all other Triassic (Keuper) deposits so far investigated in S Germany, notably by a distinct enrichment in ^{34}S .