The last battle of Anne of Brittany: Isotopic study of the soldiers of 1491

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A multidisciplinary team of researchers from INRAP, CNRS, the universities of Ottawa, Rennes 2, Toulouse III Paul Sabatier and the Max Planck Institute has recognized the soldiers of the last battles of the siege

of Rennes in 1491. These are the only witnesses of the forces involved in the conflict between the armies of Duchess Anne of Brittany and the King of France. This research and its methodology are currently the subject of two articles in the *PLOS ONE* review.

The excavation of the Jacobins convent in Rennes

From 2011 to 2013, a team from INRAP excavated the convent of the Jacobins, site of the future congress center in Rennes Métropole, giving rise to numerous scientific publications, particularly on Louise de Quengo (a noble Breton naturally mummified in her lead coffin), a musical score engraved on a slate and even the diet in Rennes during the Ancient Régime. The presence of two mass graves, containing more than thirty subjects, remained to be elucidated. These pits are contemporary and have 4 and at least 28 individuals respectively. The simultaneity of the deposits indicates a sudden episode: osteological analyses show that these soldiers, no doubt professional, died from stab wounds; radiocarbon analyses date the event from the mid-15th century to the end of the 16th century. All these criteria correspond to a single conflict: the War of Brittany (1487-1491).

The last Franco-Breton war

In the 15th century, the Duchy of Brittany experienced a period of prosperity due to the policy of the Montfort family, creating a princely state independent of the kingdom. Several reasons led to the conflict: the desire of the King of France, following the Hundred Years' War, to impose himself in Brittany; divisions within the Breton nobility and a ducal policy supporting revolts against the King of France. Moreover, since Duke François II did not have a male heir, the King of France, Charles VIII, claimed Brittany while the Duke positioned his daughters as the legitimate heirs. The war broke out in 1487. It involved many

European forces: England, the Kingdoms of Castille and Aragon, the German Holy Roman Empire. The consequences of this conflict are still famous since it marked the end of Breton independence. The siege of Rennes in 1491 ended with the marriage of Duchess Anne of Brittany, then 14, to Charles VIII.

Two camps, two pits

The two pits excavated by INRAP in Rennes contained exclusively male skeletons. Large, mainly young, some are marked by perimortem trauma. But what camps did the Jacobin burials belong to? Sulfur, strontium and oxygen isotopic analyses were conducted to determine the geographical origin of these soldiers.

Preserved in mineralized tissues (bones and teeth), the proportions of these isotopes vary according to various factors such as geology (particularly for the strontium isotopes), climate, altitude and latitude (for the oxygen isotopes), and even distance to the coast (for the sulfur isotopes). By combining these three tracers, we can therefore identify restricted geographical areas for which all these criteria can explain the isotope values observed in the teeth (at the time of childhood and adolescence) and bones (approximately the last 10 years of life of the subject).

Thus, the first grave shows that three out of the four skeletons have a high probability of Breton origin. The fourth has old stab wounds that have scarred over. Its sulfur isotopic values suggest that this was a professional soldier, allied to the Breton camp. Indeed, his diet, rich in animal proteins, and his genomic characteristics (his mitochondrial haplogroup is identical to that of Louise de Quengo and two of his burial neighbors) favor the hypothesis of a noble soldier rather than a mercenary. The combination of isotopic and genetic analyses reveal that this nobleman had family ties in Brittany, had grown up far from his

region of origin, but had returned to fight in the war threatening his independence.

The 28 subjects in the other pit belong to the French camp. Indeed, sulfur isotopic analysis on most of the individuals indicates a non-Breton geographical origin. The geographical origin models based on sulfur, strontium and oxygen isotopes suggest that these soldiers come from the north of the Paris Basin, the Poitou region, the Rhône valley and the Alps. These geographical origins support the rare historical data on the recruitment of French soldiers during this war. Some individuals would have a more distant geography, and would come from Castille, Aragon, England and the German Holy Roman Empire. The isotopic analysis of their diet indicates heterogeneous consumption of animal proteins, suggesting soldiers of varied social status.

The study of human bone remains from mass graves provides unique, first-hand historical insights into sparsely documented conflicts. This research shows that the cross-use of three isotopes can verify assumptions about alliances and recruitment strategies in wars, and completes deficient historical archives about the lives of ordinary soldiers.

Predictive maps serving the history of migration

Here, the researchers develop geographical origin probability maps combining the sulfur, oxygen and strontium isotopes. They compiled 2,680 sulfur isotopic analyses from 221 sites across Western Europe in a database to observe the variations. These sulfur isotopic compositions across Europe are highly predictable and vary mainly with local deposits of sea salt and dust aerosols. Sulfur isotopes are highly complementary to those of strontium and oxygen and improve the accuracy of geographical attributions. The combination of these three isotopes then makes it possible to quantitatively and precisely assess the origin of the

archaeological subjects, in particular making it possible to trace migratory flows.

More information: Rozenn Colleter et al. The last battle of Anne of Brittany: Solving mass grave through an interdisciplinary approach (paleopathology, biological anthropology, history, multiple isotopes and radiocarbon dating), *PLOS ONE* (2021). DOI: 10.1371/journal.pone.0248086

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