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Mineralogy of the Louvres Merovingian garnet cloisonné jewelry: Origins of the gems of the first kings of France

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ABSTRACT

Proton-particle induced X-ray emission (p-PIXE) analyses have been performed on cloisonné jewelry from a necropolis excavated in 1987 at Louvres (North Paris) that dates from the Early Middle Ages (fifth through sixth centuries). Stylistic analysis of the jewelry indicates that they may have belonged to members of the close entourage of Childéric I or Clovis I, the Frankish kings that founded the French monarchy. The analyses suggest that all red cloisonnés of the treasure are garnets of three types: rhodolite (type I), pyrope (type II), and Cr-rich pyrope (type III). These garnets have moderate-to-high Mg contents (40 to 70 mol% pyrope). Surprisingly, no common almandine garnets were found. Type III garnets are likely to have originated in the Podsedice area (Bohemia, Czech Republic). Types I and II garnets probably originated from granulitic-type terrains, which are relatively rare in the ancient world. India-Sri-Lanka, Central Europe, and Scandinavia are the most likely origins for these garnets but it is not possible here to constrain these origins more accurately. These results emphasize the variety of possible sources for raw material used in Merovingian cloisonnés. The most aristocratic sepultures contain the geologically rarest garnets (i.e., the garnets richest in pyrope end-member). This correlation may suggest a relatively modern knowledge by the Franks in their evaluation of gem garnets (i.e., the geologically rarest gems are the most precious). This concept is more consistent with the Arab gemological writings of the fifth through ninth centuries than with those of the Roman lapidaries of the first through seventh centuries.