Late Upper Paleolithic funerary behavior at Arene Candide Cave (Finale Ligure, Italy)

INTRODUCTION: The Arene Candide cave (Finale Ligure, Italy, Fig. 1) was excavated from 1940 to 2012 and has yielded one of the most important Late Upper Paleolithic Epigravettian skeletal series in the world (the "Necropolis"), consisting of ten primary burials (two of which are double inhumations) and six clusters of secondary depositions (Fig. 2). Available dates suggest two phases of funerary use dating to c. 10,000 and 10,700 BP uncal. We make new inferences about funerary behavior, especially related to the secondary deposits of bones. Where those disturbed burials or intentional deposits?

MATERIALS AND METHODS: we performed a complete 3D scanning of the skeletal elements in secondary deposition, and a detailed osteological analysis to determine the composition of the clusters, and whether bones articulated or were contralateral. In addition, we analyzed the original field pictures and excavation diaries to place each bone into the map (Fig. 3).

RESULTS:

Figure 4: plan of the necropolis

The moving aside a burial to make space for a new inhumation is apparent in the succession of burials X-XXI, for V-A-R, the legs and feet were left in place. Similarly to V-A-R and VI-A-R, there is a funerary connection between an adult and a 4-5 years old child.

The osteological analysis indicated that two individuals (AC 3 and AC 4) were intentionally distributed in three clusters (I, III, IV). Two of these clusters (I and IV) include crania and infracranial elements, and are in close connection with burial AC II. The third cluster (III) contains the rest of the infracranial elements of AC 3 and 4, and is at AC II feet. Two skeletal elements belonging to cluster XIII also ended up in cluster IV. The reconstruction of the events is displayed in Fig. 7.

CONCLUSIONS: Funerary behavior at Arene Candide

Our study suggests that disturbances of burials at Arene Candide were not casual. The groups that performed funerary rites apparently went to specific burials to displace them and then picked up and arranged their remains, especially crania, around the new deposition. Based on the skeletal abnormalities present in both AC 2 and 3, the reason for this behavior may be relatedness or the shared pathological condition (Fig. 8).

Results also suggest that AC 2, 3, 4, 5, and 6 should be roughly contemporary and date to around 9,900-10,100 BP uncal. The rest of the dated burials and secondary depositions belong to an earlier phase dated to between 10,600-10,800 BP uncal. BP, and show a similar pattern of primary burials, often disturbed by new inhumations and clusters of secondary depositions.

The new findings further attest to remarkably long-lasting Upper Paleolithic cultural traditions at Arene Candide, but currently suggests that burial activity was condensed to relatively short periods of time, separated by hiatuses of a few centuries.

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FIGURE 1: the Arene Candide «necropolis» showing the numbering of the burials and clusters of bones in secondary deposition.

FIGURE 2: the Arene Candide «necropolis» showing the numbering of the burials and clusters of bones in secondary deposition.

FIGURE 3: the necropolis showing the numbering of the burials and clusters of bones in secondary deposition.

FIGURE 4: plan of the necropolis

FIGURE 5: two phases of the excavation showing the cranium of AC XII within a stone niche, and the later discovery that the niche was part of the cover of burial AC XV.

FIGURE 6: the crania and bones of AC 3 and 4 arranged in clusters IV and I around the burial of AC 2 (II).

FIGURE 7: Funerary dynamics at Arene Candide. A) before the deposition of AC 2, with a probably double burial composed by AC 3 and 4; B) moving of all bones of AC 2 and 3 towards the other clusters, forming cluster III; C) deposition of AC 2; D) some elements of AC 3 and 4, including crania, are picked and stacked around AC 2; E) some elements from cluster XIII are unintentionally picked and moved to cluster IV; f) the situation at the time of discovery.

FIGURE 8: the remains of AC 2 and 3, which were put in connection through funerary behavior (Fig. 7), share skeletal abnormalities such as bowing of limbs and problems of unification. AC 2 displays the bilateral absence of the lesser trochanter of the femur, while AC 3 has been diagnosed with congenital rickets.

FIGURE 9: In 2011, we have unearthed a human left talus in an area several meters east of the «necropolis» (indicated with a star). Surprisingly, it belongs to AC 13 (clusters XIII and XIV), and potentially indicates that further funerary behaviors were performed in the unexplored layers at Arene Candide.