Société d'Anthropologie de Paris 150 ans en 2009 INTERNATIONAL CONGRESS 26-30 January 2009, Paris

An Early Metal Age multiple burial from South Tyrol, Italy: A taphonomic and anthropological approach



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Introduction

Copper and Early Bronze Age burials were discovered in 2007 at Ora/Auer (Bolzano/Bozen), to the East of the middle Adige/Etsch Valley, South Tyrol, north-eastern Italy. At the foot of a high cliff, on the top of a *talus*, a natural rock niche contained a multiple inhumation with two well-preserved male individuals (one *adultus* [Individual A], the other *maturus* [Individual B]), and one immature individual (late-term foetus/newborn [Individual C]) (Fig.1). Grave goods included a Copper Age flint bifacial arrowhead, which was recovered from the top of the infilling, and a few bone artefacts. Samples for AMS 14C dating have been collected from the skeletons. A further burial layer dating to the Copper Age was identified in the area at the base of the *talus*, which was also used during the Early Bronze Age as a burial place. Here, of particular note was a pot-burial containing a foetus or premature infant; aged c. 30 to 32 weeks (8 months *in utero*) (Fig.2).

Fig.1_The Copper Age multiple burial (view from the South-East).

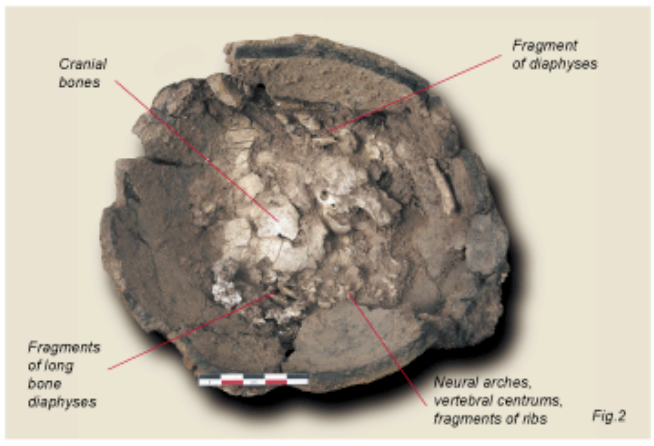


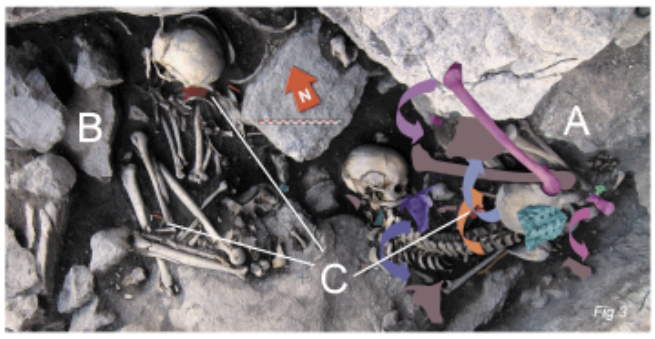
Fig.2_Pot-burial containing a premature infant.

Anthropological remarks

Copper Age multiple burials. It is notable that both adults exhibit dolichocephalic cranial morphology (long and relatively narrow), in contrast to the brachycephalic form (round-headed) normally seen in North Italian/Alpine populations of this period. Equally noteworthy are the estimated statures (165-170 cm), which are taller than average for males of this period. They are, however, comparable to some male statures recorded in Copper Age and Early Bronze Age burial contexts, for example, Riparo Valtenesi (Brescia) and Valserà di Gazzo Veronese (Verona), respectively. Platymeria, medium/low pilastric index of the femur, and platycnemia of the tibia are archaic osteological characteristics, which, together with other morphometric indices recorded from the bones of these individuals, emphasize the antiquity of the material and are frequently observed in Neolithic, Copper Age, and Bronze Age skeletal populations from Northern Italy and beyond the Alps. Occupational stress-markers are concentrated bilaterally at shoulder-joints and on upper and lower limbs. It can be suggested that the two individuals carried weights upon their shoulders, and raised their arms, making turning shoulder movements and swift arm shifts, forwards and backwards; as well as flexion/extension and adduction/abduction movements of arms and hands, as if they had scraped animal leathers, for example. In their lower limbs, biomechanical stress-markers indicate prolonged and extensive use of the legs: they were walkers and climbers, walking sturdily and running on hard and uneven ground. Similarities between morphological features, pathologies and markers of occupational stress in both adults most likely reflect skeletal responses to shared activity regimes and environment, rather than close kinship. Both individuals do, however, exhibit lambdoid ossicles and suprameatal spines and depressions, believed to be epigenetic variables, which lend tentative support to the kin hypothesis. In the immature individual it is not possible to recognize morphological features which might indicate kinship, but, depositionally, the primary position of Individual C would have been at the base of the skull of Individual B, or at least close to it, possibly suggesting some sort of kin/affective relationship between the adult(s) and the neonate.

Taphonomic analysis

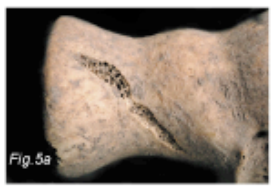
The triple burial is primary. The adult skeletons were placed in contracted postures whilst still fleshed and articulated: Individual A lying on his left side, orientated East-West, and Individual B on his right side, orientated North-South. The remains of immature Individual C were located near the base of the skull of Individual B and within the abdominal area of Individual A. The three bodies were deposited and buried in a single event (Fig.6). The rock walls of the niche had probably been modified to obtain an area suitable for their deposition. The bodies were, however, accessible to animals. Activities of mammalian scavengers are documented by tooth mark modifications on the bones, by the displacement of some of the bones and by the lack of some anatomical parts. Such animals will consume soft tissues and the softer parts of bones, mainly epiphyseal ends of long bones (Marella 2003: 86). According to the degree of consumption of the different body regions, it can be hypothesized that animal activity occurred from the first to the fifth month after deposition, that is around the first/second stages of canid-assisted disarticulation reported by Haglund *et al.* (1989; 1997; see also Marella 2003: 86, 288; Smith 2006: 681). Small-sized animals, such as rats and nesting animals, appear to have disarranged some of the bones of Individual A (e.g., sacral bone, right scapula); alternatively, it may be argued that animals of larger size had dug at the burial more or less superficially, without having reached the body (Fig.3). Small animals had also gnawed the epiphyses of Individual C, so much that the femora were reduced to just two short pieces of diaphyses. Larger animals, possibly red fox (*Vulpes vulpes*) or badger (*Meles meles*), disarranged the most part of Individual B (Fig. 4). Digging activity at the rib cage and at the abdominal area, dragging of the left arm, which is lacking radius and ulna, and is disarticulated from the shoulder (with left scapula missing and the clavicle verticalized), as well as fragmentation of the bones pertaining to the left buttock can be observed. The distal epiphysis of the left humerus displays two grooves probably caused by a mammalian scavenger's canine, the tooth gouging the trochlea of the distal epiphysis. Furthermore, digging activity in the pelvic region and the removal of the left innominate can be observed; only a fragment of pubic symphysis remaining *in loco*. The right innominate is missing the pubis and a portion of the ischiopubic ramus (its remaining part is rough and damaged by gnawing). The left leg was also displaced and disarticulated. The tibia is severely damaged at its proximal end, and a small circular puncture, produced by a tooth tip, can be observed on the inferior posterior end of the medial malleolus. The left femur was completely removed. The right femur is lacking the greater trochanter and the most part of the neck; the femoral head exhibits a deep ellipsoidal modification below the *fovea capitis* as well as a deep long groove alongside its inferior medial-posterior edge; these are both tooth marks (Fig. 5). The dragging direction was from North to South, that is moving towards the only rock which could have been a support for a scavenger. The characteristics of the disarrangement of the bones suggests the activity of either a carnivore or an omnivore.



The coloured arrows show the displacement of the bones from their likely original position (bones highlighted with various colours) to the final position recorded during the excavation (in brown).

Fig.3_Individual A. The body was originally deposited in a crouched position, lying on its left side. Subsequently, the weight of both the body itself and the covering sediment displaced the cervical and thoracic area of the spine to such an extent that the right shoulder rested close to the head. The decomposition of soft tissues and creation of voids, together with the effects of gravity, determined the first displacement of the bones downwards from their original positions. This resulted in the loosening and disconnection of articulations, as seen in the evident movement of the right femur and the disarticulation of the hip joint. At the same time, we can observe close-fitting articulation of the vertebral column as well as a general survival of anatomical integrity in the majority of the skeleton. Activity of small-sized animals, probably rodents, is likely to be responsible for the displacement of small bones (phalanges), the sacrum and the right scapula, with subsequent disarticulation. This was, probably, a 're-shuffling', that is, an action subsequent to the decomposition of the body. Individual C. The displacement of the bones of the immature individual within the burial was due to small mammals or invertebrates (see picture: red coloured bones), which had also an erosive action on them.

Fig.4_Individual B. The original position of the individual is clear, in spite of disarticulation, loss of correct anatomical positions and missing elements. The evidence of animal activity, which is clearly indicated by the presence of tooth-mark modifications, is unusual and noteworthy. This certainly occurred when the body was in the earlier stages of decomposition. Notice the extensive digging activity, as well as fragmentation, dragging and scattering of bones (see Fig. 5).



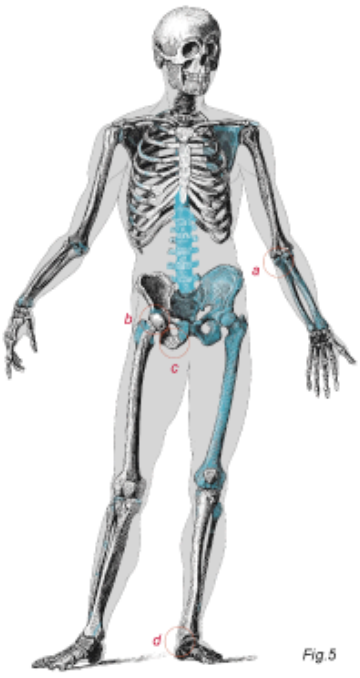


Fig.5_Individual B. The drawing shows the bone surface modifications due to animals (the orange circle show the position of the tooth marks; the missing or fractured anatomical parts are highlighted in blue). Scavenger activity can be observed in all anatomical areas, with the exception of the skull and the mandible.
a. Humerus
b. Femur
c. Ischiopubic ramus
d. Malleolus

Fig.6_Reconstruction of the burial (Thomas Conci, with software MakeHuman® and Adobe Photoshop® CS).

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