THE BRONZE AGE TUMULI OF GARDOLO DI MEZZO 
(TRENTO, ITALY) IN THE ADIGE VALLEY

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ABSTRACT

The site of Gardolo di Mezzo (350m a.s.l.) is situated in the central eastern area of the southern region of the Alps, along the left-hand side of the Adige Valley.

Preventive archaeological surveys, carried out by the Soprintendenza per i Beni Archeologici of the Provincia autonoma of Trento, brought to light an extensive archaeological area. The site has provided traces of a settlement and two tumuli have been found nearby, with a complex stratigraphic sequence in which colluvial layers alternate with anthropic structures. The more ancient levels of one of these platforms have brought to light a subcircular burial mound with a subrectangular enclosure covered by pebbles. The anthropological studies carried out on skeletal remains found inside the structure showed the presence of a buried individual of about 5 years ± 16 months of age. Inside the enclosure there were also 15 pieces of slag and a ceramic jug which can be dated to the Early Bronze Age.

The area was occupied from the Early to the Late Bronze Age but the chronology of the founding of the structures may be further anticipated as more research is carried out. The presence of many fragments of coarse slag and several grinding stones across the entire area suggests intense activities in copper smelting during the various phases of occupation. This fact is probably connected to the exploitation, during the Bronze Age, of the ore sources of the Monte Calisio nearby, a well-known mining area in the Middle Ages.

GEOGRAPHICAL BACKGROUND

The site of Gardolo di Mezzo (350 metres a.s.l.) is located in the central eastern part of the southern region of the Alps, on the left-hand side of the Adige Valley, about 5km north of the town of Trento (fig. 1). The archaeological area is located on a terrace 150m above the present-day valley floor and naturally protected to the north and south by ravines formed by two watercourses.

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The site stretches out over the bottom of a slight morphological depression with a NW-SE orientation, delimited to the east by the western slopes of the Doss de la Luna (415.5 m a.s.l.).

RESEARCH BACKGROUND

Up to August 2003 Gardolo di Mezzo was not known to have any areas of archaeological interest. However, preventive archaeological surveys carried out during digging work for the division of the area into building lots, carried out by the Soprintendenza per i Beni Archeologici of the Provincia autonoma of Trento, brought to light an extensive archaeological area.1

To date five sectors have been investigated (referred to as GARM 1-5) (fig. 2). In four of these the archaeological investigations have already been completed, whereas in the sector known as GARM 2, the excavation of a burial area and a cult place, with two separate tumuli, is still underway (fig. 3).

The GARM 1 and 3 sectors, situated on the western slopes of the Doss de la Luna, have on the other hand provided traces of several settlement layers stretching out over an area of about 3000 sq. m. In this

1. The archaeological investigation is led by Elisabetta Mottes of the Soprintendenza per i Beni Archeologici of Trento and conducted in the field by Michele Bassetti of the Cora Ricerche Archeologiche company of Trento. The scientific study of the rich archive of natural and archaeological data provided by the Gardolo di Mezzo deposit is coordinated, as far as geoarchaeological aspects are concerned, by Michele Bassetti and the archaeological aspects are followed by Elisabetta Mottes. The research team is currently composed of Elena Silvestri (a collaborator with the Soprintendenza per i Beni Archeologici) for the cataloguing and study of archaeological material; Alessandra Mazzucchi (of the Laboratorio di Antropologia e Odontologia Forense of the University of Milan and the Ostearch Lab) for anthropological analyses; Alessandra Spinetti, Alex Fontana and Daniela Marrazzo (of Ostearch Lab) for archaeozoological analyses; Paola Crepaldi and Letizia Nicoloso (of the Istituto di Zootecnia Generale, Faculty of Agriculture, University of Milan) for antique DNA analysis of animal remains; Mauro Rottoli (Laboratorio di Archeobiologia of the Musei Civici of Como) for archaeobotanical analyses; Andreas Hauptmann (Deutsches Bergbau-Museum Bochum) for archaeometallurgical analyses; Pieter M. Grootes (Leibniz Labor für Altersbestimmung und Isotopenforschung of the Christian-Albrechts-Universität of Kiel) for radiocarbon datings. Preliminary archaeological research was integrated with a series of geophysical investigations carried out by the Laboratorio Geotecnico of the Servizio Geologico of the Province of Trento. A digital model of the mounds brought to light has been realized using 3D laser technology, with the collaboration of the staff of the Fondazione Bruno Kessler of Povo (Trento). Figures and photographs have been processed and designed by Michele Bassetti, Veronica Barbetti and Luca Scoz (Cora Ricerche Archeologiche s.n.c., Trento). English translation by Vivienne Frankell.
area the excavations carried out to date by the Soprintendenza per i Beni Archeologici have been concerned with a surface area of just 200 sq. m, along the south easterly edge of the settlement (fig. 2).

On the basis of the stratigraphic sequence identified and the archaeological material found, it can be estimated that the settlement was populated for almost the whole of the 2nd millennium B.C. according to calibrated chronology, from the Early to the Late Bronze Age.

This is the most important Bronze Age settlement discovered in Trentino in a “dry” area, considering the exceptional evidence provided in wetland areas by the Ledro and Fiavè Carera lake-dwellings (Rageth 1974; Perini 1984; Perini 1987; Perini 1994; Perini 2001; Marzatico 1990; Marzatico 1997a; Brochier et al. 1991; Brochier et al. 1993).

In the sector known as GARM 5 (fig. 2), to the north of the settlement and cult area, major reclamation work was already carried out in the early phases of the Bronze Age, with the aim of making the Gardolo di Mezzo terrace inhabitable, which suggests that there was a strictly rational organization of the space available in order to plan the whole area.

Fig. 2 – Trento, Gardolo di Mezzo. Excavation’s sectors (Garm 1-5).

Fig. 3 – Trento, Gardolo di Mezzo. View of the Late Bronze Age tumuli 1 and 2.
STRATIGRAPHIC SEQUENCE AND CONSTRUCTION TECHNIQUES FOR THE TUMULI

The geoarchaeological surveys carried out in the five different sectors have made it possible to identify the evolution of the stratigraphic deposits, in the context of which the following main events can be noted:

– the bedrock was covered with sand and gravel deposits linked to glacial melting following the Last Glacial Maximum;
– with climatic improvement during the Holocene, a forest soil, indicating substantial stabilization of the slopes, evolved above the sand and gravel deposits;
– before extensive adaptation of the environment by man, which on the basis of the data currently available started at the beginning of the 2nd millennium B.C. according to calibrated chronology, a phase of hydrogeological instability began, which was to continue up to the Middle Ages. The slopes were furrowed by deep erosion and the morphological depression, which would have been chosen as the cult area, was gradually covered by thick colluvial deposits;
– to the north of the settlement and cult area, extensive reclamation work and management of the slopes were already carried out in the early phases of the Bronze Age, designed to contain the flow of sediment towards the valley;
– after the establishment of the cult area, the progressive colluvial deposits gradually buried the tumuli and led to repeated reconstruction of the floor surfaces and the raising of the structures in order to avoid them being completely obliterated.

In the GARM 2 sector, where the tumuli were found, a cyclical stratigraphic sequence with a depth of around 4.5 metres has been found, in the context of which colluvial layers alternate with anthropic structures (fig. 4).

The renovation of the tumuli involved a series of activities by man over time, which can be summarized as follows:

– ploughing of the colluvial sediments previously deposited in the area surrounding the ancient structure;2
– laying of pebbles on the reworked ground along the band surrounding the platform;

2. As regards the subject of ploughing, an experimental study based on statistical handling of modifications in the fabric of the clasts before and after ploughing has been started. This has already provided important clues for interpretation which are not possible to deal with on this occasion for reasons of space (cf. Bassetti et al. forthcoming).
– establishment of a platform and a perimeter structure made of clasts and sub-rounded blocks taken from the fluvioglacial substratum on site;
– creation of an earth covering, of which limited remaining seams have been found.

In general the deterioration of the earth covering following the depositing of sediments led to percolation of the matrix into the spaces between clasts. In one case two episodes of earth covering with an interval marked by the lighting of fires on the platform were recognized.

THE STRATIGRAPHIC AND CULTURAL EVOLUTION OF TUMULUS 1

The structure known as tumulus 1 is currently the area which has been most carefully investigated. Diachronic superimposition of the numerous phases of reconstruction and renovation gave the structure a different shape, size and orientation over the course of time.

There is clear evidence of copper slag fragments and grinding stones in every phase, whereas there are very few other archaeological findings.

It should also be specified that the archaeological investigations in the area of tumulus 1 have not yet reached the sterile substratum, so it is likely that the chronology for the founding of the structure may be further anticipated.

The main evolutionary phases of tumulus 1 are as follows.

The most ancient levels currently documented show the presence of a platform oriented NW-SE, which has been investigated over an area 7.3m x 2m, which saw several phases of restructuring (fig. 6).

The archaeological materials show that the area was frequented from Early Bronze Age I up to Early Bronze Age II, according to the chronology drawn up by R.C. de Marinis for the Lake Garda area, which covers the chronological period between 2077 and 1637 B.C. on the basis of dendrochronological dating available for certain lake-dwelling sites (de Marinis 2000 p. 98-126; de Marinis 2002).

The most ancient levels of this platform have brought to light a subcircular burial mound with stone covering which covered a subrectangular enclosure (fig. 5). The anthropological studies carried out on skeletal remains found inside the structure showed the presence of a buried individual, aged around 5 years ± 16 months. The material is fragmentary although there are bone elements belonging to the entire skeleton. Inside the enclosure, along with 15 pieces of slag, a small truncated cone jug with handles and vertical decoration under the rim was also brought to light. It is currently being restored and can be dated to the Early Bronze Age (de Marinis 2002, p. 25-38).

In later phases the platform was extended with a small internal cell containing a bovine skull (fig. 7). In a carefully structured recess to the side of the platform the tomb of an adult canine determined to be of the genus *Vulpes Vulpes* was found, with an incomplete skeleton anatomically unarticulated. Initial interpretation of skeletal remains does not give any indication of the cause of death of the animal (Spinetti 2009; Spinetti et al. forthcoming).

There is evidence of the lighting of fires at the top of the platform in every period.

Furthermore, there is also documentation supporting the presence of charred botanical remains and fauna belonging to species of bovine (*Bos taurus*), sheep and goats (*Ovis aries/Capra hircus*) and pigs (*Sus domesticus*) (Spinetti 2009; Spinetti et al. forthcoming).

Above this evidence a new platform was established, oriented N-S, for which some phases of renovation are documented (fig. 8). This structure is around 80cm high and has been investigated over an area 7.6m x 4.1m. Stones were positioned along the main axes, probably used as signs. The pottery material found in these phases can generally be dated to the early stages of the Middle Bronze Age.

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3. The anthropological analysis was carried out by Alessandra Mazzucchí (Laboratorio di Antropologia e Odontologia Forense of the University of Milan and Oscearch Lab).
Fig. 5 – Trento, Gardolo di Mezzo (sector Garm 2, tumulus 1). Platform with child burial (Early Bronze Age).

Fig. 6 – Trento, Gardolo di Mezzo (sector Garm 2, tumulus 1). Platform covering the child burial (Early Bronze Age). On the right is visible a part of a megalithic structure which was raised on the north eastern side of the tumulus 1 in the Late Bronze Age (cf. fig. 10).

Fig. 7 – Trento, Gardolo di Mezzo (sector Garm 2, tumulus 1). Platform with a small internal cell containing a bovine skull. To the west side of the platform the tomb of an adult canine (Vulpes Vulpes) was found (Early Bronze Age).

Fig. 8 – Trento, Gardolo di Mezzo (sector Garm 2, tumulus 1). Platform oriented N-S dating to the early phase of the Middle Bronze Age.

Fig. 9 – Trento, Gardolo di Mezzo (sector Garm 2, tumulus 1). Elliptical platform dating to Late Bronze Age.

Fig. 10 – Trento, Gardolo di Mezzo (sector Garm 2, tumulus 1). Platform with a megalithic monument on the north eastern side of the structure (Late Bronze Age).
After the deposition of substantial colluvial sediment, an elongated platform was built, oriented NE-SW, which was subjected to several phases of renovation. From an initial elliptical platform with a major axis of 7m and a minor axis of 4.5m (fig. 9), the structure was then progressively extended until the major axis reached 10.9m and the minor axis 8.4m and an estimated height of more than 2m (fig. 10).

During one of the phases of renovation, a megalithic monument was raised on the north eastern side of the structure (fig. 6, 8, 10). The archaeological material found allows these phases of renovation to be attributed to the final phases of the Middle Bronze Age and to the Late Bronze Age.

It would also seem possible to attribute the structure known as tumulus 2 to the same chronological horizon. This was only partially excavated in 2007 and was found to be exceptionally well preserved (fig. 3). Only the top of the tumulus has not been conserved as it was levelled off in Late Antiquity/Early Middle Ages in order to create an agricultural area.

During the course of the Late Bronze Age, a rectangular pit, which has been investigated to a depth of 5m but not yet completely excavated, was dug between the two tumuli, subsequently filled with pebbles (fig. 3).

**CONCLUSIONS**

Considering that excavations of the cult area are still underway, that two thirds of the surface area has yet to be investigated, that the study of archaeological material and specialist analyses are at a preliminary stage and that we are awaiting the radiocarbon dating underway at Leibniz Labor of Kiel (Germany), we will nevertheless make some preliminary considerations:

– the tumuli discovered at Gardolo di Mezzo document the presence of this type of structure in the southern area of the Alps for the first time;
– the evolution of the tumuli at Gardolo di Mezzo was heavily conditioned by the geomorphological context of the site. The tumuli were constructed within a slight valley depression which has been subject to the constant depositing of colluvial materials which determined the gradual burial of the structures and consequently their repeated reconstruction over the years;
– the stratigraphic and cultural data show that there was a cult area which was frequented for around 800 years. Its main role was probably as a burial site, remaining active throughout the centuries, the place of cult gradually being transformed into a “place of recollection” perhaps dedicated to the cult of ancestors;
– the tumuli at Gardolo di Mezzo were connected with the settlement situated close by;
– the presence of abundant coarse slags in the area of the settlement, the tumuli and the neighbouring areas suggests intense activities for copper smelting in the various phases of settlement.

These data are particularly significant given that until the discovery of the Gardolo di Mezzo site, evidence of metalworking activities in Trentino was concentrated in two distinct geographical and chronological contexts: on the floor of the Adige valley during the end of the Copper Age/beginning of the Bronze Age and on mountain areas above an altitude of 1000m, in particular in eastern Trentino, during the Late and Final Bronze Age (Preuschen 1973; Šebesta 1992; Perini 1989; Perini 1992; Cierny 2008; Marzatico 1997b; Cierny et al. 1995; Cierny et al. 1998; Artioli et al. 2003; Bellintani et al. 2010), leaving a substantial chronological gap, during which there was no known evidence regarding copper smelting.

4. In Northern Italy, as far as the Bronze Age is concerned, tumuli containing single burials are known almost exclusively from the upland plains of the Friuli region and find analogies with those found in Istria and Dalmatia (Cassola Guida, Corazza 2003; Nicolis 2004, p. 117-118; de Marinis 2005, p. 63-64; Canci et al. 2005; Borgna, Corazza 2007; Borgna, Cassola Guida 2007). In Trentino the tumulus found at Calferi di Stenico in the Giudicarie Valley is known, which has been dated to the final stages of the Middle Bronze Age (Fiavè 6 by R. Perini) and contains six tombs probably belonging to a single family group, which has only been partly investigated at the end of the 1970s (Perini et al. 1991; Perini 2001, p. 324-326; Nicolis 2001, p. 358; Nicolis 2004, p. 139).
It is therefore possible to surmise that one of the reasons behind the choice of human groups to settle on the Gardolo di Mezzo terrace during the Bronze Age was the exploitation of the ore sources found on the Monte Calisio tableland, a well-known mining area in the Middle Ages (Brigo, Tizzoni 1997). The geographical location of the site, in a strategic position on the eastern slopes of the Adige Valley, a major communications route which represented a natural thoroughfare and cultural link between Central Europe and the Italian peninsula throughout prehistory and protohistory, should also be underlined (Mottes et al. 2002; Marzatico 2002; Bellintani 2002; Bellintani forthcoming; Artursson, Nicolis 2007; Borrello et al. 2009).

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