

# THE NEW ATTEMPT TO CONSTRUCT RADIOCARBON CHRONOLOGY OF MAUCALLACTA, PERU

Adam Michczyński<sup>1</sup>, Anna Pazdur<sup>1</sup>, Maciej Sobczyk<sup>2</sup>, Janusz Wołoszyn<sup>2</sup>, Mariusz S. Ziółkowski<sup>2</sup>

<sup>1</sup> Silesian University of Technology, Institute of Physics, Radiocarbon Laboratory, GADAM Centre of Excellence, Krzywoustego 2, 44-100 Gliwice, Poland

<sup>2</sup> The Centre for Precolumbian Studies, University of Warsaw, Krakowskie Przedmieście 26/28, 00-927 Warszawa, Poland

E-mail: Adam.Michczynski@polsl.pl

The Archaeological Project "Condesuyos" has been carried out since 1996 by the Center for Pre-columbian Studies (University of Warsaw, Poland) represented by its Director, Prof. Dr. Hab. Mariusz Ziółkowski, and the Catholic University "Santa María" (Arequipa, Peru) represented by Dr. Luis Augusto Belan Franco, the Director of the University Archaeological Museum. The Project covers archaeological investigation in the vicinity of the snow-covered volcano Coropuna which was frequently mentioned by chroniclers of the 16th and 17th centuries as an oracle, worshiped since pre-Inca times. During the 10 years of the Project over 130 archaeological sites have been discovered. A dozen or so of these are large Inca centers with well-preserved stone architecture, forming a local administrative and economic network in this part of the pre-Columbian empire.

The archaeological site of Maucallacta is located approx. 170 kilometers north-west of the city of Arequipa in the southern highlands of Peru above the contemporary village of San Antonio (Administrative District of Pampacolca, Province of Castilla, Department of Arequipa; 72°37'21" LW, 15°41'07" LS; 3,700 m asl) and overlooks the neighboring valley. The architectural complex of Maucallacta, composed of more than two hundred stone buildings and tombs, an *ushnu* (a rectangular altar sometimes also called "the Inca throne") and three huge ceremonial platforms, made of stones and earth (Fig.1), may be considered the principal administrative, pilgrimage and religious center related to the volcano and the most important Inca site discovered in Kuntisuyu, the Fourth Quarter of the Inca State.

Based on chroniclers' reports we know that human and animal (mainly llamas) sacrifices formed part of the cult of holy mountains called *apus* in the Andes (including the Coropuna volcano). During the 2006 season, a stone pavement with traces of ashes, charcoal (C-14 date Ma-6) and fragments of pottery was discovered at the south-west side of an *ushnu* located at the edge of the largest platform on the site (Fig.2). In Inca times – and possibly later – this was a place for burning offerings. This hypothesis was confirmed by an immense midden discovered at the foot of the façade of the platform, which contained ashes and burnt remains of ceremonial offerings (Fig.3). They also included countless fragments of pottery, animal bones, and tools made of copper and wood. It seems that they were swept from the above (from the stone pavement near the *ushnu*) once the rituals were completed. The dimensions of the midden attest to the scale of those offerings. Its shape resembles that of a quarter of a cone with a base radius of approx. 7 m and is approx. 2.5 m high. The observation of the stratigraphy of that locus (Fig.4) shows that it was created as a result of at least five large offerings (with the first two being the largest ones). The well-defined Inca material found in the layers suggests that all those offerings were probably made during a relatively short period of time (a few years or a few dozen years). However, a series of C-14 dates indicates that the process may have been considerably longer, and the last offerings were made in the colonial period. The exploration of the midden will be continued in the 2007 season.



Fig.1 The general view of Maucallacta site.



Fig.2. View of the altar – *ushnu* – located at the edge of the ceremonial platform.



Fig.3. The refuse dump (midden) discovered at the foot of the ceremonial platform below the *ushnu*.

Sample	Lab nr	<sup>14</sup> C date	Sample material	δ <sup>13</sup> C	Context	Other info
MA-1	Gd-15997	125 ± 65 BP	charcoal	-24.58 per mil	layer NIV2 of the refuse dump	refuse dump located at the foot of the ceremonial platform with <i>ushnu</i>
MA-2	Gd-19007	930 ± 70 BP	charcoal	-25.04 per mil	layer NIV3 of the refuse dump	refuse dump located at the foot of the ceremonial platform with <i>ushnu</i>
MA-3	Gd-12936	265 ± 45	charcoal	-23.85 per mil	layer NIV4 of the refuse dump	refuse dump located at the foot of the ceremonial platform with <i>ushnu</i>
MA-4	Gd-30136	Modern 100.31 ± 1.1 pMC	charcoal	-24.53 per mil	layer NIV5 of the refuse dump	refuse dump located at the foot of the ceremonial platform with <i>ushnu</i>
MA-6	Gd-12926	410 ± 45 BP	charcoal	not measured, assumed value: -24.59 per mil	pieces of charcoal collected from the stone pavement near the <i>ushnu</i>	top of the ceremonial platform with <i>ushnu</i>
MA-5	Gd-12927	380 ± 45 BP	charcoal	-24.54 per mil	charcoal taken from the inside of vessel, which was found at the corner of the vestibule of tomb	the central part of site
MA-7	Gd-19002	400 ± 60 BP	charcoal	-25.72 per mil	sample collected from the stairs near the tomb	the central part of site
MA-8	Gd-12928	474 ± 40 BP	charcoal	not measured, assumed value: -24.59 per mil	sample found in the vestibule of tomb	the central part of site
MA-9	Gd-12933	modern 100.43 ± 0.60 pMC	charcoal	-23.5 per mil	sample found in the vestibule of tomb	the central part of site

Table 1. Detailed information about dated samples

Atmospheric data from Reimer et al (2004); OxCal v3.10 Bronk Ramsey (2005); cub r:5 sd:12 prob usp[chron]

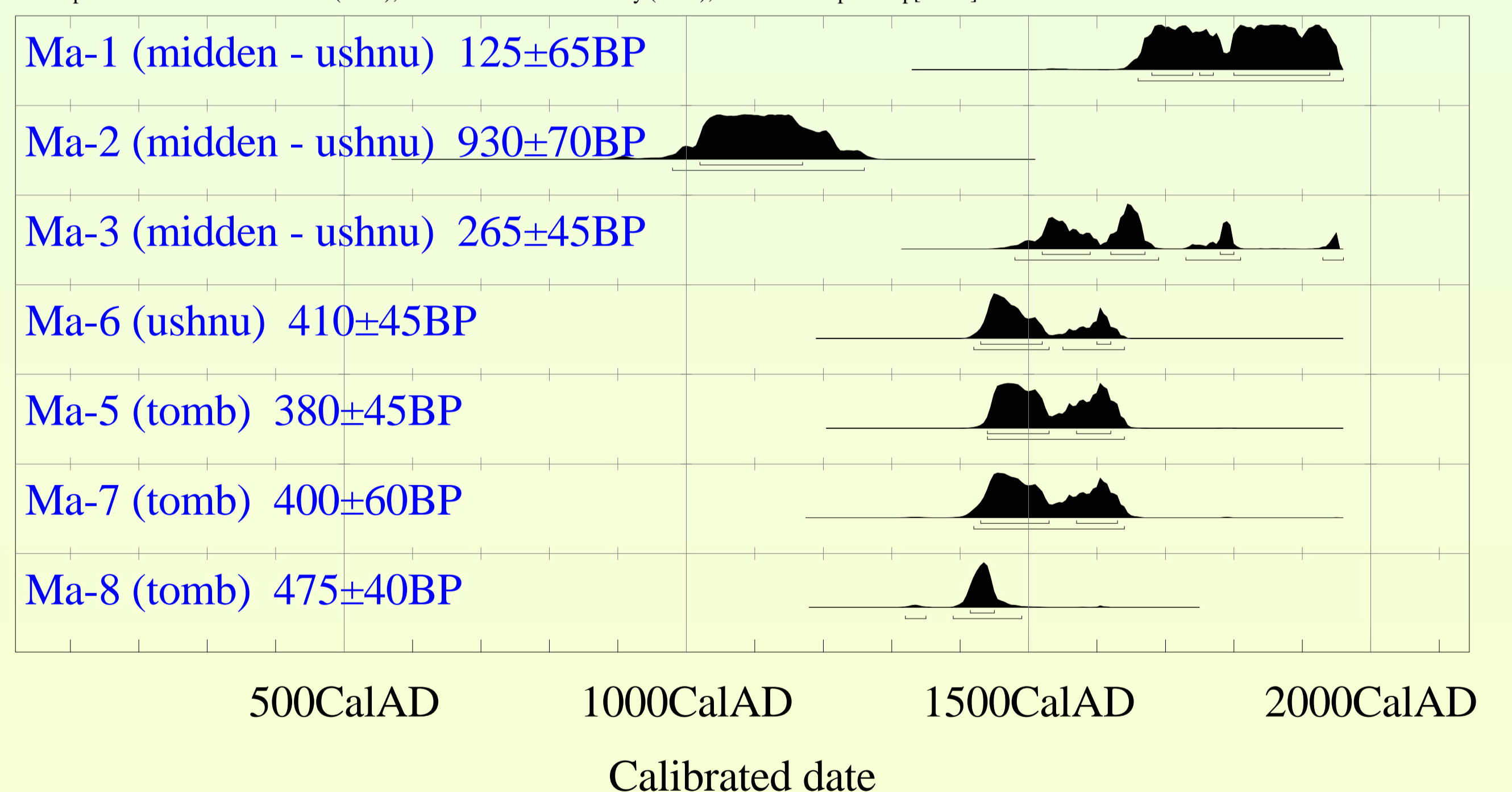


Fig. 5. The results of calibration of individual dates for samples from Maucallacta.



Fig.4. Profile of excavated part of the refuse dump (midden)

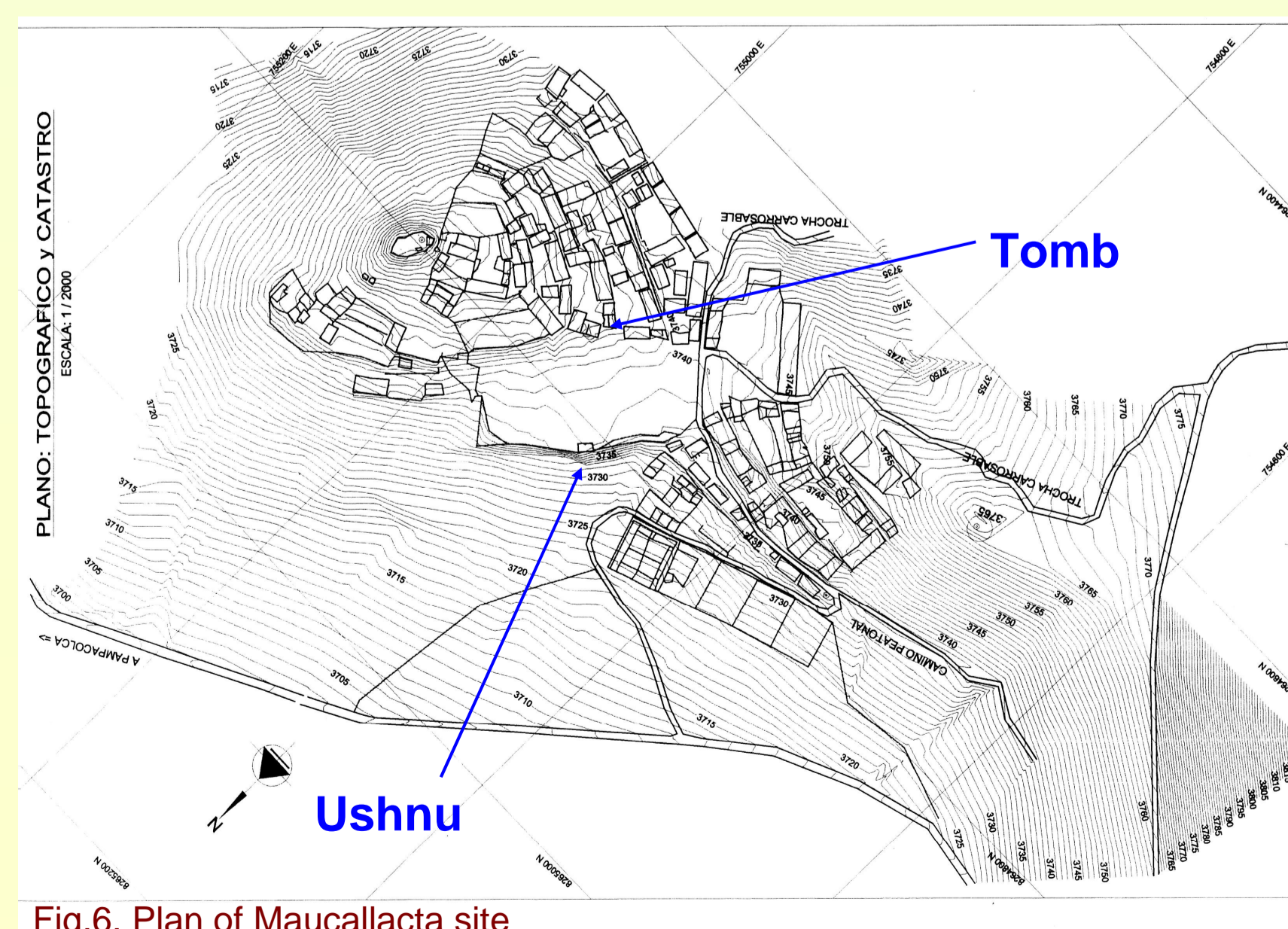


Fig.6. Plan of Maucallacta site



Fig.7. View of the tomb where the samples were taken from.

REFERENCES:  
 Bronk Ramsey C. 1995. Radiocarbon Calibration and Analysis of Stratigraphy: The OxCal Program, Radiocarbon 37(2): 425-430  
 Bronk Ramsey C. 2001. Development of the Radiocarbon Program OxCal, Radiocarbon, 43 (2A): 355-363  
 Michczyński A; Olko J; Pazdur A; Ziółkowski M. 2000. The first attempt to establish the chronology of Maucallacta site (Peru). Poster presentation, 17th International Radiocarbon Conference.  
 Reimer PJ; Baillie MGL; Bard E; Bayliss A; Beck JW; Bertrand CJH; Blackwell Paul; Buck CE; Burr GS; Cutler KB; Damon PE; Edwards RL; Fairbanks RG; Friedrich M; Guilderson TP; Hogg AG; Hughen KA.; Kromer B; McCormac G; Manning S; Ramsey CB; Reimer RW; Remmele S; Southon JR; Stuiver M; Talamo S; Taylor FW; van der Plicht J; Weyhenmeyer CE. 2004. IntCal04 Terrestrial Radiocarbon Age Calibration, 0–26 Cal Kyr BP. Radiocarbon 46(3): 1029-1058.