



Metalle der Macht – Frühes Gold und Silber  
Metals of power – Early gold and silver

6. Mitteldeutscher Archäologentag  
vom 17. bis 19. Oktober 2013 in Halle (Saale)

Herausgeber Harald Meller, Roberto Risch und Ernst Pernicka



Tagungen des  
Landesmuseums für Vorgeschichte Halle  
**Band 11/II | 2014**

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Harald Meller,  
Roberto Risch und  
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# Inhalt/Contents

## Band I

- 11 **Vorwort der Herausgeber/Preface of the editors**

## Sektion Allgemeines/Section General Perspectives

- 21 **Hans Peter Hahn**  
Die Sprache des Glanzes: Wert und Werte als Kontext von Gold
- 33 **Hans-Gert Bachmann**  
Gold: pursued, desired, cursed – Reverence for a precious metal

## Sektion Herkunft und Verarbeitung/Section Procurement and craft

### *Bergbau / Mining*

- 53 **Gregor Borg**  
»Gold is where you find it« – Zeitgenössischer artisanaler Goldbergbau in Afrika als Analogie (prä-)historischer Goldgewinnung
- 71 **Thomas Stöllner**  
Gold in the Caucasus: New research on gold extraction in the Kura-Araxes Culture of the 4<sup>th</sup> millenium BC and early 3<sup>rd</sup> millenium BC
- 111 **Danilo Wolf und René Kunze**  
Gegharkunik – Neue Quellen für altes Gold aus Südkaukasien?
- 141 **Rosemarie Klemm und Dietrich Klemm**  
Früher Goldbergbau in Ägypten und Nubien

### *Archäometrie / Archaeometry*

- 153 **Ernst Pernicka**  
Possibilities and limitations of provenance studies of ancient silver and gold
- 165 **Verena Leusch, Ernst Pernicka, and Barbara Armbruster**  
Chalcolithic gold from Varna – Provenance, circulation, processing, and function
- 183 **Zofia Anna Stos-Gale**  
Silver vessels in the Mycenaen Shaft Graves and their origin in the context of the metal supply in the Bronze Age Aegean
- 209 **Christopher D. Standish, Bruno Dhuime, Chris J. Hawkesworth, and Alistair W. G. Pike**  
New insights into the source of Irish Chalcolithic and Early Bronze Age gold through lead isotope analysis

- 223 Nicole Lockhoff and Ernst Pernicka**  
Archaeometallurgical investigations of Early Bronze Age gold artefacts from central Germany including gold from the Nebra hoard
- 237 Robert Lehmann, Daniel Fellenger, and Carla Vogt**  
Modern metal analysis of Bronze Age gold in Lower Saxony by using laser ablation mass spectrometry (ns-LA-ICP-QMS and fs-LA-ICP-MCMS) and portable X-ray fluorescence (pXRF)
- 247 Ernst Pernicka**  
Zur Frage der Echtheit der Bernstorfer Goldfunde
- 257 Mercedes Murillo-Barroso, Ignacio Montero Ruiz, and Martin Bartelheim**  
Native silver resources in Iberia
- 269 Francisco Contreras-Cortés, Auxilio Moreno-Onorato, and Martin Bartelheim**  
New data on the origin of silver in the Argaric Culture: The site of Peñalosa
- 285 Beatriz Comendador Rey, Jorge Millos, and Paula Álvarez-Iglesias**  
Provenance of the prehistoric silver set of Antas de Ulla, north-western Iberia, using lead stable isotope ratios
- 309 Katja Martin**  
Was bleibt ... Der Metallurg und sein Handwerk im archäologischen Befund

### *Experimentelle Archäologie / Experimental archaeology*

- 323 Barbara Armbruster**  
Ethnoarchäologie und experimentelle Archäologie in der Forschung prähistorischen Goldes
- 335 Eleni Konstantinidi-Syvridi, Nikolas Papadimitriou, Anna Philippa-Touchais, and Akis Goumas**  
Goldworking techniques in Mycenaean Greece (17<sup>th</sup>/16<sup>th</sup>–12<sup>th</sup> century BC): some new observations
- 349 Christian-Heinrich Wunderlich**  
Wie golden war die Himmelscheibe von Nebra?  
Gedanken zur ursprünglichen Farbe der Goldauflagen
- 353 Christian-Heinrich Wunderlich, Nicole Lockhoff und Ernst Pernicka**  
De Cementatione oder: Von der Kunst, das Gold nach Art der Alten zu reinigen

## Band II

### Sektion Kontext und Interpretation / Section Context and interpretation

#### *Osten / East*

- 371 Raiko Krauß, Steve Zäuner, and Ernst Pernicka**  
Statistical and anthropological analysis of the Varna necropolis
- 389 Svend Hansen**  
Gold and silver in the Maikop Culture
- 411 Barbara Helwing**  
Silver in the early societies of Greater Mesopotamia
- 423 Romain Prévàlet**  
Bronze Age Syrian gold jewellery – Technological innovation
- 435 Andreas Reinecke**  
Der Anfang des Goldhandwerks in Südostasien. Zur Verknüpfung archäologischer Befunde und metallanalytischer Ergebnisse

#### *Mittelmeer / Mediterranean sea*

- 451 Stelios Andreou and Michael Vavelidis**  
So rich and yet so poor: Investigating the scarcity of gold artefacts in Bronze Age northern Greece
- 467 Borja Legarra Herrero**  
The role of gold in south Aegean exchange networks (3100–1800 BC)
- 483 Maria Grazia Melis**  
Silver in Neolithic and Eneolithic Sardinia
- 495 Maria Bernabò Brea, Filippo Maria Gambari, and Alessandra Giumlia-Mair**  
Preliminary remarks on the gold cup from Montecchio Emilia, northern Italy
- 505 Teodoro Scarano and Giovanna Maggiulli**  
The golden sun discs from Roca Vecchia, Lecce, Italy: archaeological and cultural context
- 527 Alicia Perea**  
Goldworking processes and ontologies at the inception of metallurgy in the western Mediterranean
- 541 Maria Carme Rovira Hortalà, Ferran Borrell, Mònica Oliva, Maria Saña, Oriol Vicente, and Gabriel Alcalde**  
Early gold remains in the north-east of the Iberian Peninsula
- 547 Maria Carme Rovira Hortalà, Ignacio Montero Ruiz, and Alicia Perea**  
The funerary »treasure« of Montilla, Cordova, Spain
- 557 Vicente Lull, Rafael Micó, Christina Rihuete Herrada, and Roberto Risch,**  
The social value of silver in El Argar
- 577 Selina Delgado-Raack, Vicente Lull, Katja Martin, Rafael Micó, Cristina Rihuete Herrada und Roberto Risch**  
Die Silberschmiede von Tira del Lienzo, Totana, Prov. Murcia, im Kontext der El Argar Metallurgie



- 593 Mauro S. Hernández Pérez, Gabriel García Atiénzar, and Virginia Barciela González**  
The treasures of Villena and Cabezo Redondo, Alicante, Spain

### *Mitteleuropa / Central Europe*

- 611 Harald Meller**  
Die neolithischen und bronzezeitlichen Goldfunde Mitteldeutschlands – Eine Übersicht
- 717 Ralf Schwarz**  
Goldene Schleifen- und Lockenringe – Herrschaftsinsignien in bronzezeitlichen Ranggesellschaften Mitteldeutschlands. Überlegungen zur Gesellschaft der Aunjetitzer Kultur
- 743 Juliane Filipp und Martin Freudenreich**  
Dieskau Revisited I: Nachforschungen zur »Lebensgeschichte« des Goldhortes von Dieskau und zu einem weiteren Grabhügel mit Goldbeigabe bei Osmünde im heutigen Saalekreis, Sachsen-Anhalt
- 753 Martin Freudenreich und Juliane Filipp**  
Dieskau Revisited II. Eine mikroregionale Betrachtung
- 761 Rupert Gebhard, Rüdiger Krause, Astrid Röpke und Vanessa Bähr**  
Das Gold von Bernstorf – Authentizität und Kontext in der mittleren Bronzezeit Europas
- 777 Henning Haßmann, Andreas Niemuth, Mario Pahlow, Bernd Rasink, Stefan Winghart und Friedrich-Wilhelm Wulf**  
Der Goldhort von Gessel
- 789 Franziska Knoll, Harald Meller und Juliane Filipp**  
»Nordisch by nature«. Die jungbronzezeitlichen, goldenen Eidringe Sachsens-Anhalts an der südlichen Peripherie des Nordischen Kreises in ihrem Kontext
- 873 Christian-Heinrich Wunderlich**  
Gemeinsamkeiten und Unterschiede der goldenen Eidringe von Schneidlingen, Könnern, Hundisburg und Klein Oschersleben hinsichtlich ihrer Herstellungs- und Abnutzungsspuren

### *Westen und Norden / West and North*

- 885 Flemming Kaul**  
Bronze Age gold from Denmark
- 903 Stuart Needham and Alison Sheridan**  
Chalcolithic and Early Bronze Age goldwork from Britain: new finds and new perspectives

# The social value of silver in El Argar

Vicente Lull, Rafael Micó, Cristina Rihuete Herrada, and Roberto Risch

## Zusammenfassung

### Der soziale Wert des Silbers in El Argar

Silber wurde in der El Argar-Gesellschaft verwendet, um Reichtum zum Ausdruck zu bringen. Trotz der großen Anzahl an bekannten Silberobjekten zeigt sich der größte Anteil in Form von kleinen Ringen und Spiralen aus einfachen Silberdrähten und Silberstäben. Der Begriff »Prestigeobjekt« ist eindeutig ungeeignet, um diese Objekte zu beschreiben, nach den Motiven für ihre Herstellung muss somit an anderer Stelle gesucht werden. Nach der Diskussion um den Zeitpunkt der Einführung sowie der Herkunft von Silber in El Argar beleuchten wir die ökonomische Bedeutung dieses seltenen Rohstoffes und die Möglichkeit, dass Silber als eine Art Tauschwert diente. Den Spuren des El Argar-Silbers von der Herkunft, über seine Bearbeitung und Distributionsprozesse bis hin zu seiner Verwendung im Bestattungskontext zu folgen, ist der vorgeschlagene Weg, den Begriff des sozialen Wertes am dialektischen Schnittpunkt zwischen Produktion und Konsum zu bestimmen. Es wird die Möglichkeit diskutiert, ob Silber auf dem Höhepunkt der El Argar-Gesellschaft zu einem Referenzmaterial in einer hoch spezialisierten Wirtschaft wurde und möglicherweise in Form von normierten Gewichten sowie innerhalb bestimmter sozialer Normen zirkulierte.

## Understanding social value in archaeology

Referring to all prehistoric gold and silver artefacts as »prestige goods« is an academic shortcut, which legitimates itself mainly by the persistency with which this (pre)conception is advocated in archaeological conferences and publications. A single term is used to evoke a series of notions, such as leadership, power, and recognition of the politically acting individual, that allow us to easily transmit the existence of materially and symbolically recognisable forms of power in a given society or archaeological context. Few other archaeological concepts seem more convincing than the term »prestige«, independently of the theoretical background of the speaker or the audience. It can be found indistinctly in writings with a cultural-historical, processual, post-processual or even Marxist background, because it provokes the feeling that we share the same view about certain rather elaborate artefacts, generally made of rare materials, such as gold or silver.

Paradoxically, when turning to its sociological origin, the concept *prestige* can have no material, objective correlation. It is basically understood as the subjective recognition of certain persons, social positions, groups or objects by others.

## Summary

Silver was one of the main materials used to express wealth in El Argar society. Despite the large amount of known silver objects, most of them are small rings and spirals made out of simple silver wires and rods. The term »prestige object« is definitely inappropriate when referring to these items and the motivations behind their production must be identified elsewhere. After discussing when and from where silver was probably introduced into El Argar, we explore the economic importance of this raw material and the possibility that it served as some form of exchange value. Tracing the El Argar silver from its natural sources, through its manufacture and distribution processes to its funerary use is the proposed pathway to address the notion of social value at the dialectical junction between production and consumption. The possibility is discussed that, at the height of El Argar society, silver became a reference material in a highly specialised economy and might have been circulated according to standard weights and specific social norms.

Prestige, as Max Weber (1972, 520 ff.; 2009, 65 ff.; 2009a, 128), defined it is the *aspiration* to power, the striving for social acceptance or leadership of certain personal or collective capacities or attitudes. The concept was basically proposed to address the purely subjective, irrational and non-economic side of power. Prestige, when effective, must be a social category, a collective *feeling* or *pretention*, which ultimately leads to *mass-suggestion* (e. g., nationalism); but can never be the characteristic of an individual or object. Prestige is a judgment about others, more specifically about their social position, capacity or property, but, unlike wealth and power, it cannot be objectively defined. Following Weber, »prestige goods« are defined as a type of »political currency«, produced and controlled by the dominant class in order to symbolise the political and ritual power of certain men or groups, but which can also be exchanged for women, labour force and tribute (Breuer 1998, 52–54). Consequently, these goods are a specific symbolic capital of the dominant class. Only in societies where competition for economic resources and power has been imposed, can something like a notion of »prestige goods« emerge. In specific historical circumstances certain objects are used to identify power, but they have nothing intrinsic that makes them recognisable if we do not

know their production, circulation and use contexts. Unfortunately, the archaeological reasoning usually argues the opposite: artefacts perceived today as *scarce* and *valuable* are defined as »prestige goods«, which is the key to identifying individual power, social inequality, chiefdoms, etc. It is enlightening to correlate this use of prestige with the prize the object in question would yield in our own markets of antiquities, and to observe that both are directly proportional. Ultimately, the notion of *prestige* has become an expression of the ideological monetarisation of the past through archaeology.

We propose a different approach, one which seeks to understand the social value of things, as it emerges from specific economic and social practices. Our premise is that value is defined dialectically in society by the production process, as well as by the social distance to consumption or use of goods. In other words, social value is created at the interplay between production and consumption. Natural conditions, technical possibilities and social relations of production forge the value of things at the stage of their production and distribution (*production value*), while the social and subjective satisfactions or needs confirm their *use value*. The efforts and decisions made to achieve a material or immaterial good are the result of objective economic practices, as well as of subjective ideas and choices<sup>1</sup>. This approach requires searching for analytical criteria, which can be observed from the archaeological record. Aspects such as access to natural resources, the production process and the structure of distribution of the objects are investigated and related to each other in order to define the production value of goods. On the other hand, the approach to use value implies considering their material and technical, as well as their aesthetic and symbolic utility. The analysis of these variables challenges the potential of the large array of available archaeological and archaeometric methods, by integrating them into socio-economically and historically oriented research.

This aim should be of prime concern to archaeology as the analysis of the nature of the social access to the produced value. In other words, the distribution of material and energy costs and benefits within society, is methodologically the only option to address the notion of *surplus value*, understood not necessarily as an increase in production, but as a blatantly unequal individual appropriation of social production. The transformation of social wealth into surplus is the essential economic prerequisite of social exploitation, leading to the rise of socio-economic inequalities, to class differences and, ultimately, to the formation of the State. The appropriation of surplus on a regular basis usually requires, and at the same time fosters, important divisions of work within society, at local, regional, territorial or even global scales. The splitting of the production process not only facilitates the increase of productivity, but it opens up possibilities to control the distribution processes and to manipulate value equivalence between goods and services

to the benefit of the dominant class. When the extraction and accumulation of surplus is organised as an institutional, regulated and more or less predictable process, the distribution of goods and services is no longer negotiated exclusively between households or single communities, but necessarily leads to some form of *exchange value*, which is imposed on the individual communities and individuals. Commonly-agreed value equivalences are now required in order to warrant both the circulation of goods between economically different groups, as well as the channelling of surplus towards the dominant class.

This paper is concerned with the economic and political organisation of El Argar, one of the earliest class societies of western Europe, which seems to have ended up being organised according to state-like mechanisms. This interpretation is based on the investigation of the settlement structures, as well as the funerary remains carried out over several decades (for a summary of the main arguments and evidence, see Lull 1983; Risch 2002; Lull et al. 2005; 2011). The beginning of the excavations at the settlements of La Bastida (Totana, Prov. Murcia) and Tira del Lienzo (Totana, Prov. Murcia) in 2009, is now substantially improving our view of El Argar society (Lull et al. 2011a; 2014; 2014a). The hilltop site of La Bastida, located in a very inaccessible position at the junction of the Tercia and Espuña mountain ranges, was additionally protected by a monumental fortification system with square, solid, tronco-pyramidal towers. Inside this wall, constructed around 2200 cal BC, a 4.5 ha settlement developed over c. 600 years. From 1900 cal BC onwards it was characterised by a dense layout of trapezoidal or apsidal stone buildings on artificial terraces, where a population of around 1000 people lived. Several public buildings have been identified, as well as a large water reservoir, with a capacity of at least 350.000 litres, blocked by a rectilinear dam 21 m long and up to 5 m wide. Dozens of single or double inhumations in *pithoi* or cists have been uncovered beneath the floors of the buildings, showing a wide array of grave goods which confirm the socially and sexually patterned artefactual associations typical of Argaric burial practices. Tira del Lienzo is located 7 km away from La Bastida, in the fertile floodplain of the Guadalentín River, very close to agricultural and livestock resources. It consists of an architectural complex with a total area of 865 m<sup>2</sup>, enclosed by a nearly-rectangular wall, and crowned by a central building of some 100 m<sup>2</sup> (cf. Delgado-Raack et al. in the present volume). The archaeological record suggests that this complex functioned as an administrative centre, probably dependent on La Bastida, which seems to have controlled a vast territory of more than 3000 km<sup>2</sup> and was of paramount importance in the context of a four-level settlement pattern. During the first half of the 2<sup>nd</sup> millennium BC, La Bastida was probably the capital of a state-level polity and one of the most influential Argaric centres, perhaps along with Lorca, Prov. Murcia, and the eponymous site of El Argar, Prov. Almería. Excavation of both sites has allowed us to explore a large number of complete

<sup>1</sup> The theoretical and archaeological implications of this proposal have been discussed elsewhere (Lull 2007, 304 ff.; Risch 2002, 28 ff.; 2011).

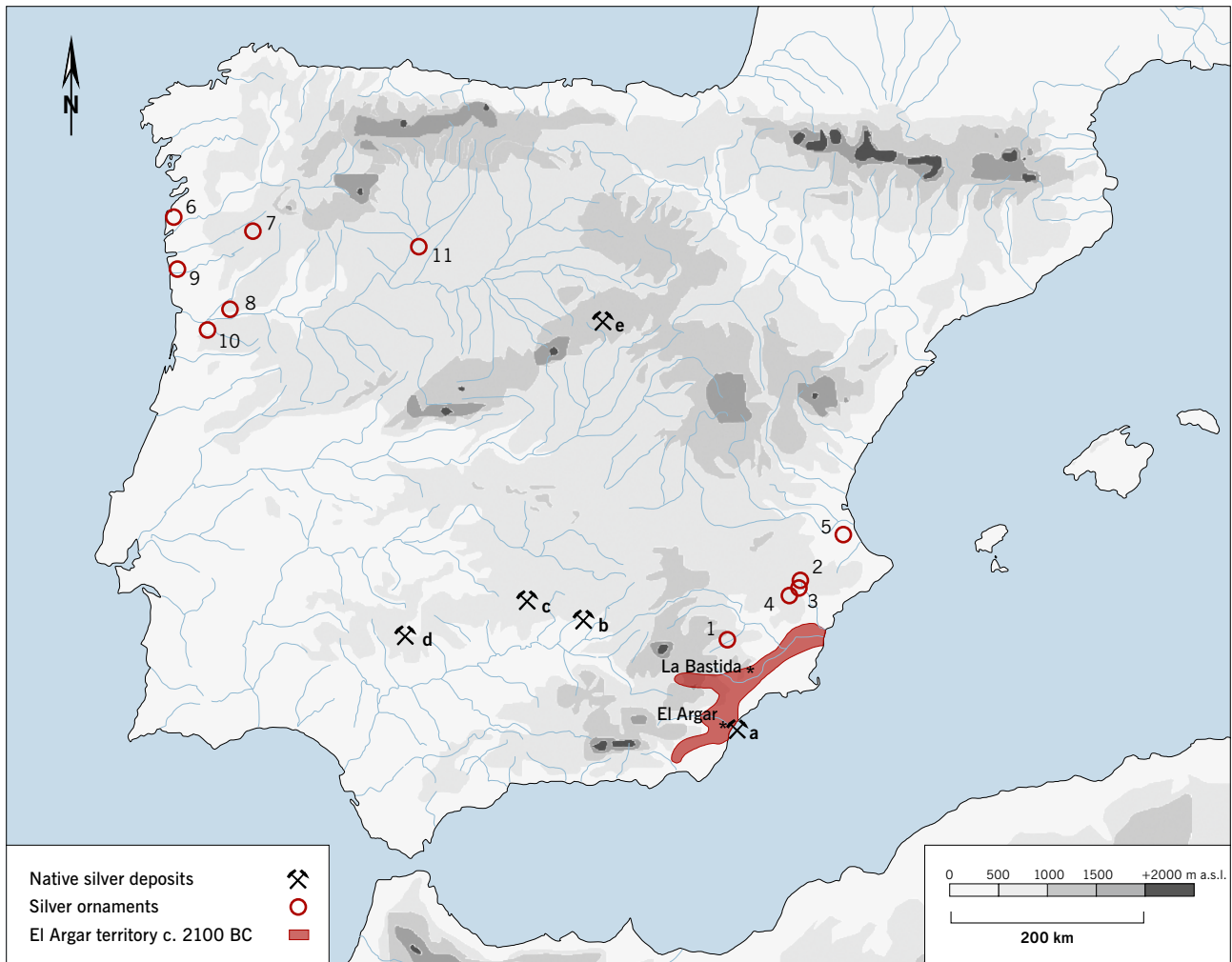


Fig. 1 Distribution of the major native silver ore deposits and the earliest silver objects of the Iberian Peninsula, probably dating between 2200–2000 cal BC: 1 Molinos de Papel; 2 Peñón de la Zorra, west and east cave; 3 Puntal de los Carniceros; 4 Cueva del Alto 1; 5 Cova dels Gats; 6 Atios; 7 Chedeiro; 8 Meninas do Castro 4; 9 Monte da Cerca; 10 Carvalho Mau 1; 11 Santioste, main native silver deposits of the Iberian Peninsula: a Herrerías; b Linares-La Carolina; c El Horcajo; d Guadalcanal; e Hien-delaencina.

Abb. 1 Verbreitung der frühesten Silberobjekte auf der Iberischen Halbinsel, um 2200–2000 cal BC. 1 Molinos de Papel; 2 Peñón de la Zorra, westliche und östliche Höhle; 3 Puntal de los Carniceros; 4 Cueva del Alto 1; 5 Cova dels Gats; 6 Atios; 7 Chedeiro; 8 Meninas do Castro 4; 9 Monte da Cerca; 10 Carvalho Mau 1; 11 Santioste, wichtigste Silberdeponierungen auf der Iberischen Halbinsel: a Herrerías; b Linares-La Carolina; c El Horcajo; d Guadalcanal; e Hien-delaencina.

buildings and households for the first time in the core area of the El Argar territory. They are characterised by a marked difference in size, ranging from 10 m<sup>2</sup> to more than 70 m<sup>2</sup>, as well as in economic function (metallurgy, bone and textile production, grain management and storage, etc.). Each of the buildings explored so far presents a different variety and quantity of auxiliary structures, tools and pottery vessels, confirming the observations made in other central El Argar settlements, such as Gatas (Turre, Prov. Almería) and Fuente Álamo (Cuevas de Almazora, Prov. Almería), which have been excavated at a smaller scale and are less well preserved (Castro et al. 1999; Risch 2002; 2012). Although these hilltop settlements share certain traits, such as a defensive topographical location and the accumulation of vast quantities of grinding tools and cereals, principally barley, they are quite distinctive in terms architectural structures, and means of production. This is an aspect that certainly contrasts with the high standardisation of the funerary rituals and of the pottery and metal production over the whole territory or El

Argar, comprising 33.000 km<sup>2</sup> during its final centuries. These economic differences between settlements and, particularly, between individual buildings implies the existence of a well-organised distribution system, which controlled the supply of goods among the households as well as the appropriation and managing of surplus by the dominant class.

The specific aim of this paper is to explore the importance of silver in this economic system and the possibility that it already served as some form of exchange value. Already the considerable quantity and the type of silver objects found in a specific group of El Argar burials suggests that silver was not a rare or exceptional material, but circulated regularly throughout the territory, at least among a certain group of people. The above-mentioned relation between patterns of production and consumption should allow us to start understanding the economic as well as the symbolic role of silver in the El Argar society.

Site name (context and location)	BP (lab. code)	Calibration BC (1 $\sigma$ ranges and prob. areas)	Calibration BC (2 $\sigma$ ranges and prob. areas)	Contextual relation with silver (sampled material)	Reference
Santioste (14 year old female burial; Villafáfila, Prov. Zamora)	3780 $\pm$ 80 (Beta 50709)	[2338–2316] 0.061 [2310–2125] 0.787 [2090–2044] 0.152	[2464–2018] 0.990 [1995–1981] 0.010	Settlement layer below burial (charcoal)	Delibes et al. 1998
Santioste (14 year old female burial; Villafáfila, Prov. Zamora)	3750 $\pm$ 80 (Beta 50710)	[2286–2247] 0.150 [2242–2240] 0.003 [2235–2035] 0.847	[2455–2418] 0.030 [2407–2374] 0.029 [2368–2355] 0.009 [2351–1950] 0.931	Settlement layer below burial (charcoal)	Delibes et al. 1998
Meninas do Crasto 4 (Baião, Distr. Porto, North Portugal)	3800 $\pm$ 50 (CSIC-660)	[2333–2325] 0.028 [2300–2188] 0.747 [2183–2141] 0.225	[2456–2417] 0.045 [2408–2372] 0.049 [2370–2130] 0.863 [2086–2050] 0.043	Palaeosoil under cairn (charcoal)	Jorge 1983
Meninas do Crasto 4 (Baião, Distr. Porto, North Portugal)	3830 $\pm$ 50 (CSIC-661)	[2431–2424] 0.023 [2402–2381] 0.085 [2348–2200] 0.892	[2462–2192] 0.927 [2179–2143] 0.073	Palaeosoil under cairn (charcoal)	Jorge 1983
Outeiro de Gregos 1 (Baião, Distr. Porto, North Portugal)	3620 $\pm$ 50 (CSIC-772)	[2108–2105] 0.015 [2035–1907] 0.985	[2139–1878] 0.992 [1838–1828] 0.007 [1787–1786] 0.001	Level under funerary mound (charcoal)	Jorge et al. 1988
Molinos de Papel-T2 (Caravaca, Prov. Murcia)	3701 $\pm$ 26 (MAM-11828)	[2136–2115] 0.252 [2099–2038] 0.748	[2196–2169] 0.071 [2147–2022] 0.925 [1989–1985] 0.004	Human bone from male individual UE-1065 (left femur)	Unpublished
Herrerías-Mina Iberia (Cuevas, Prov. Almería)	3670 $\pm$ 70 (CSIC-248)	[2140–1951] 1.000	[2282–2248] 0.024 [2232–2217] 0.009 [2215–1882] 0.967	Shaft of a copper halberd (wood)	Almagro Gorbea 1976
El Oficio-T62 (Cuevas, Prov. Almería)	3635 $\pm$ 60 (Oxa-4970)	[2127–2089] 0.198 [2045–1921] 0.802	[2198–2164] 0.031 [2151–1877] 0.956 [1840–1826] 0.008 [1793–1784] 0.005	Human bone	Castro et al. 1993/94

Tab. 1 Earliest absolute dates, directly or indirectly related to burials with silver artefacts.

Tab. 1 Früheste absolute Daten, die sich direkt oder indirekt auf Bestattungen mit Silberartefakten beziehen.

## The first silver of the Iberian Peninsula

Silver production has generally been considered as a distinctive feature of the El Argar archaeological record (Siret/Siret 1887), developing in the south-east of the Iberian Peninsula between c. 2200–1550 cal BC. The vast majority of these silver objects have been found in intramural burials, which form a further characteristic trait of El Argar. This choice of material stands in clear contrast to the other outstanding Early Bronze Age entities of western Europe, where, continuing the Bell Beaker habits, gold, rather than silver ornaments distinguish a small number of graves. This contrast has been used to argue for a close connection with or even for an eastern Mediterranean origin of El Argar, where the

use of silver started earlier and played a central social and economic role<sup>2</sup>.

Today, this idea must be questioned on technological and chronological grounds. Regarding the first issue, there exists a general agreement that the early Iberian silver, in contrast to the situation observed in the Near East and the eastern Mediterranean, was not obtained from argentiferous galena by cupellation<sup>3</sup>. Notably, the very low traces of lead in the silver artefacts analysed so far imply the working of native silver ores. Regarding the second aspect, the first use of silver in the Iberian Peninsula might not even be related to El Argar. According to the available contextual and radiometric information, the earliest silver artefacts can be dated roughly between 2200–2000 cal BC, but none has been

<sup>2</sup> Siret 1913, 45 ff.; 146; 1934, 91; 99; Schubart 1973, 57; Rovira 2004, 27. Siret (1913, 38) argued that Oriental founders already exploited galena in the Copper Age settlement of Almizaraque, located next to the rich silver deposits of Herrerías and Sierra Almagrera. However, no archaeological remains have been found on the site that could back

this hypothesis. The galena minerals and the slags probably derived from the Late Roman burials and occupation of Almizaraque.

<sup>3</sup> Siret/Siret 1888, 59; 293; Arribas et al. 1989, 78; Montero-Ruiz et al. 1995; Simón García 2004, 312; cf. Murillo-Barroso et al. and Contreras-Cortés et al. in the present volume.

<sup>4</sup> It must be mentioned that in certain cases (e.g., the west cave of Peñón de la Zorra, Villena, Prov. Alicante), a slightly earlier dating, corresponding to the late Copper Age, cannot be excluded on typological criteria alone. As most of the silver findings come from old excavations, the contextual information is also limited.

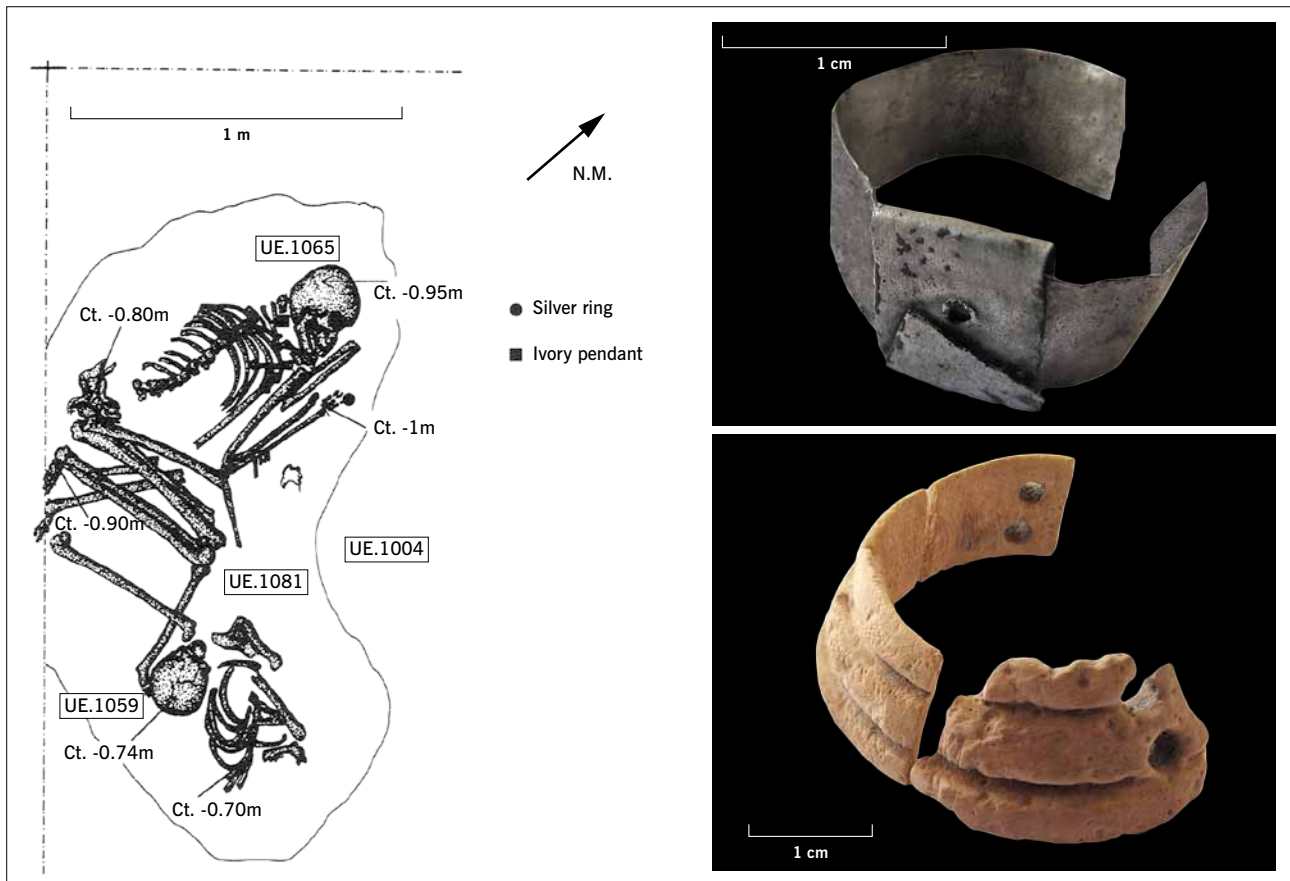


Fig. 2 Burial 2 of Molinos de Papel, Caravaca, Prov. Murcia, and the grave goods associated with the male inhumation (UE-1065).

Abb. 2 Grab 2 von Molinos de Papel, Caravaca, Prov. Murcia, sowie die Beigaben der männlichen Körperbestattung (UE-1065).

derived from El Argar contexts (Fig. 1; Tab. 1)<sup>4</sup>. Instead, two distribution areas seem to be emerging, the first in the north-western part of Iberia, and a second one in the south-east, in valleys situated immediately to the north of the initial El Argar territory. In both regions, silver ornaments, usually thin rings or spirals, were placed mainly in individual or collective funerary contexts (cf. Comendador Rey et al in the present volume). It should also be noted that so far no important native silver deposits have been identified in either region.

In order to substantiate this chronological pattern, the recently excavated settlement of Molinos de Papel (Caravaca, Prov. Murcia) is of particular interest (Pujante 2006). Inside one of the huts and under destruction layers with late Bell Beaker decorated pottery, a pit burial containing two individuals was discovered. The anthropological study of the human remains has confirmed that the first individual to be placed in the pit was a woman, which was followed by a male at a later moment<sup>5</sup>. A silver ring was found next to the hand of the more recent inhumation. It consists of a thin silver ribbon, around which a second silver strip with a central

perforation was folded (Fig. 2). A semi-circular, prismatic ivory ornament, with two perforations at both ends, was found at the neck of this male individual. The female does not seem to have been accompanied by any grave goods. About 10 m away, a second pit was excavated, which also contained both a male and a female burial. In this case, the only grave goods were a Palmela type arrowhead and a V-perforated button, both artefact types being common in late Bell Beaker burial contexts. The male individual wearing the silver ring dates around 2136–2038 cal BC (cf. Tab. 1).

Although Molinos de Papel provides the first <sup>14</sup>C date directly associated with an early silver find of the Iberian Peninsula, it supports the indirect dating evidences from the north-west<sup>6</sup> suggesting that silver ornaments started to be produced after 2200 cal. BC (cf. Tab. 1). If this pattern is confirmed by future <sup>14</sup>C results in both regions, it would imply that silver became an exceptional, new material at the transition from the Copper to the Bronze Age. The combination of a silver ring with a so far unique bone ornament, probably made out of North African or Near Eastern ivory, in the male burial of Molinos de Papel also points towards

5 We wish to thank María Inés Fregeiro and Camila Oliart for the anthropological study of the burials of Molinos de Papel. We would also like to thank Ana Pujante, responsible of the excavation of Molinos de Papel, for her collaboration in the interdisciplinary inves-

tigation of the burials of Molinos de Papel.

6 Note that the charcoal samples from Santioeste, Meninas do Crasto and Outeiro de Gregos offer dates with a potentially large terminus post quem in relation to the deposition of silver objects. Then, despite of the fact

that their probability ranges often start during the 25<sup>th</sup> century BC, it is safer to place the first appearance of silver objects in north-west Iberia at the end of the 3<sup>rd</sup> millennium BC.

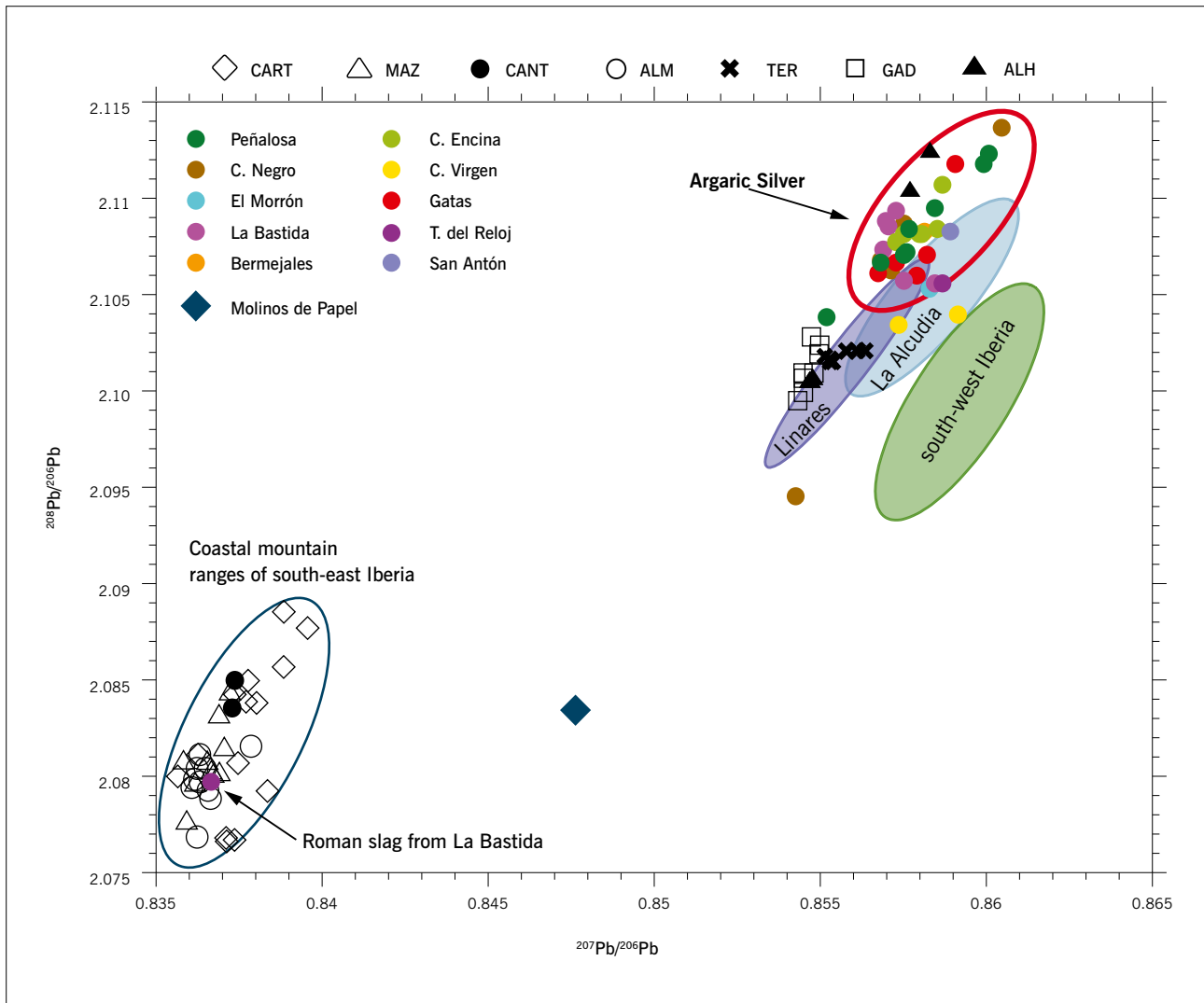


Fig. 3 Lead isotopic analysis of El Argar silver objects (coloured spots) and of galena and native silver ores from southern Iberia. CART: Sierra de Cartagena, MAZ: Mazarrón, CANT: Sierra del Cantar, ALM: S. Almenara and Herrerías, TER: Sierra de la Tercia, GAD: Sierra de Gador, ALH: Sierra de Alhambilla.

Abb. 3 Bleiisotopenanalysen von El Argar Silberobjekten (bunte Punkte) und von Bleierz sowie gediegenem Silber aus dem Süden der Iberischen Halbinsel. CART Sierra de Cartagena; MAZ Mazarrón; CANT Sierra del Cantar; ALM Sierra Almenara und Herrerías; TER Sierra de la Tercia; GAD Sierra de Gador; ALH Sierra de Alhambilla.

the socially distinguished character of silver already at this early moment.

Surprisingly, none of the El Argar funerary or settlement structures which can be placed stratigraphically into this early moment at sites such as Fuente Álamo, Gatas or La Bastida have provided silver ornaments. Moreover, among the nearly 190 valid radiocarbon dates related to Argaric burials, silver items only start appearing after c. 2000 cal BC. The earliest dates come from two stone cists from Herrerías and El Oficio (both in Cuevas del Almanzora, Prov. Almería), each of them containing a male inhumation. It has also been noted that at the beginning, when few individuals were afforded an intramural burial in the Argaric settlements and children were excluded, only silver and gold, but no copper ornaments, accompanied the dead. Only at a later moment, probably during the 19<sup>th</sup> century BC, copper rings, spirals and armrings are associated with a greater number of adult and child burials.

In sum, the available chronological archaeological information suggest that the use of silver as personal adornments and their placement in funerary contexts emerged simultaneously in different parts of the Iberian Peninsula after 2200 cal BC. The objects appear, in a context of communities still rooted in a Copper Age materiality, but where a social group appears to be striving for a dominant position. New types of ornaments, made of silver, would have expressed symbolically this social distancing. Around 2000 BC the Argaric society seems to have adopted this symbolic as well as material value from neighbouring societies, rather than from the eastern Mediterranean. While silver remained a rare metal in the rest of the Iberian Peninsula for the remaining Early Bronze Age, in El Argar it became an indispensable part of a highly normative funerary ritual that served to establish and legitimate the social positions of the living.

Fig. 4 Native silver from El Horcajo, Prov. Ciudad Real, collected before 1925.

Abb. 4 Gediegen Silber von El Horcajo, Prov. Ciudad Real, gesammelt vor 1925.



### Provenance of the Argaric silver

In the 1980s, at the beginning of modern investigations at the Argaric settlement and necropolis of Gatas, for the first time a specific research strategy was designed in order to confirm if the abundant local ores had actually been exploited in the Bronze Age, as everybody since the Siret

brothers assumed at that time (Chapman et al. 1987). In the case of silver in particular, there existed little doubt that its source had to be the rich native silver deposits of Herrerías (Fig. 1a), which Siret's company was still mining at the end of the 19<sup>th</sup> century, in the Vera basin. In September 1988 a geological survey was organised and the main galena and copper outcrops were sampled in the coastal mountain

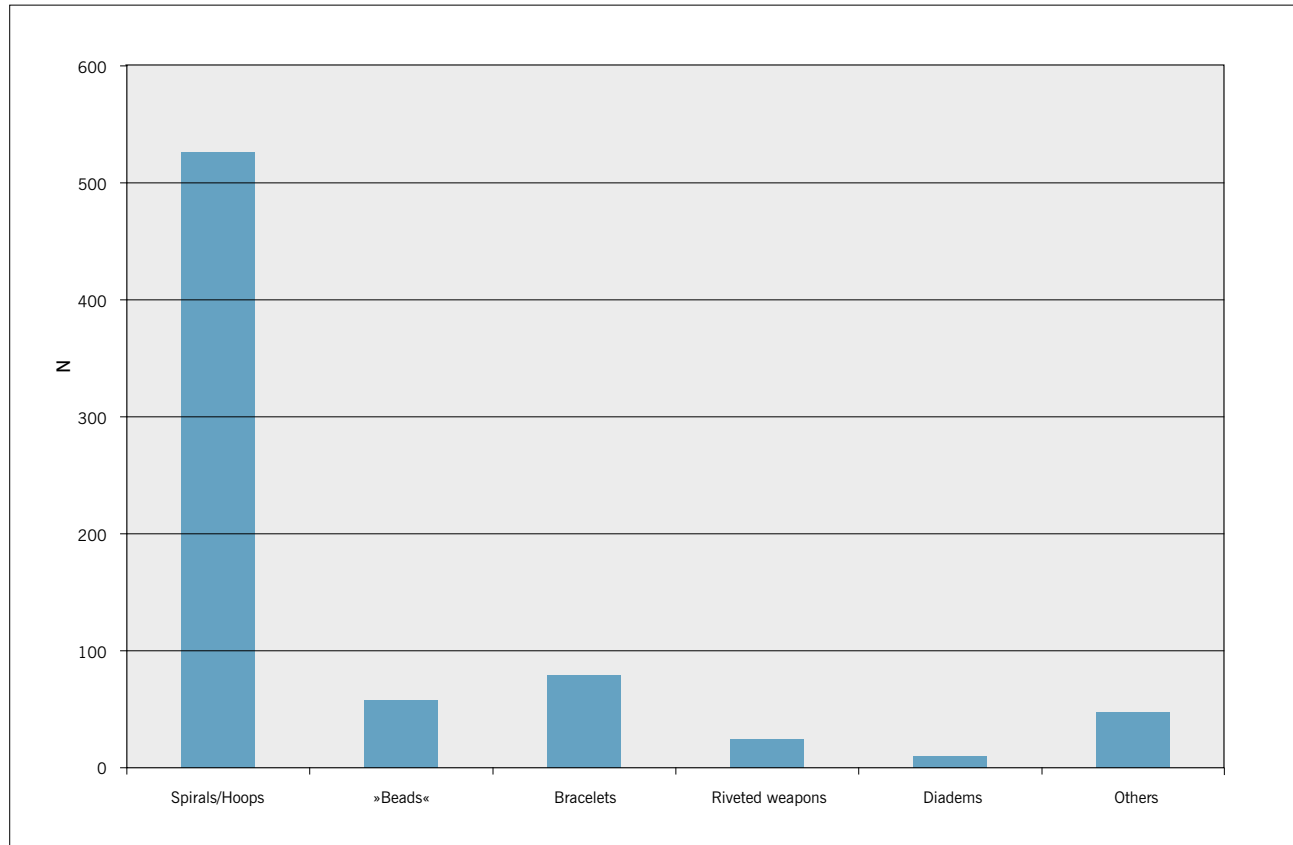


Fig. 5 Silver artefacts, found mainly in El Argar burials.

Abb. 5 Silberartefakte, gefunden hauptsächlich in El Argar-Bestattungen.



ranges around Gatas, extending 120 km between the Cabo de Gata, in the south-west, and Mazarrón in the north-east<sup>7</sup>. Additionally, a total of 137 artefacts from Gatas, Fuente Álamo, El Argar, La Bastida and other prehistoric sites were sampled at the Museums of Almería and Murcia. Surprisingly, and contrary to common opinion, the first lead isotope signatures of the local ores did not match with the signatures of most of the artefacts, including four silver and one electrum spiral from Gatas, La Bastida and San Antón (Orihuela, Alicante; see Fig. 14 for the spatial distribution of the El Argar sites mentioned in the text). This led to the hypothesis that the mining areas of the Argaric ores lay in the region of Linares in the province of Jaén, for which only a few lead isotopic data were available at that time; or in the pyritic belt of south-west Iberia or even in Sardinia<sup>8</sup>.

By questioning the use of local ores, a completely new perspective on the organisation of metallurgy in El Argar emerged, particularly concerning the exploitation and circulation of raw materials. At the same time, the extensive excavations at Gatas and Fuente Álamo did not provide any archaeological evidence of the smelting of metal in these settlements placed close to potential copper deposits (Castro et al. 1999; Schubart et al. 2001). The technological study

of thousands of macro-lithic artefacts confirmed that metal forging, polishing and sharpening activities were carried out at particular areas inside the settlements, while all the well-stratified moulds and crucibles, which would indicate smelting or melting, came from post-Argaric contexts (Castro et al. 1999; Risch 2002). The possibility of a large-scale circulation of metals throughout the Argaric territory received crucial support from new excavations of the University of Granada at the site of Peñalosa (Baños de la Encina, Prov. Jaén), located close to the Linares-La Carolina outcrops, which, according to the first set of lead isotopic compositions, looked like the closest possible source of the Gatas and Fuente Álamo metals. This small hilltop settlement has provided evidence of the complete working sequence, and tools for metalworking have been found in almost all of the buildings (Contreras 2000; Moreno et al. 2003; Moreno/Contreras 2010). Surveys in the surrounding area have shown that Peñalosa belonged to a group of Argaric strongholds south of the Sierra Morena that specialised in the mining and treatment of copper ores (Contreras et al. 2005; Arboledas et al. 2006). Although pieces of galena have been found in the settlement, no evidence for its smelting exists<sup>9</sup>.

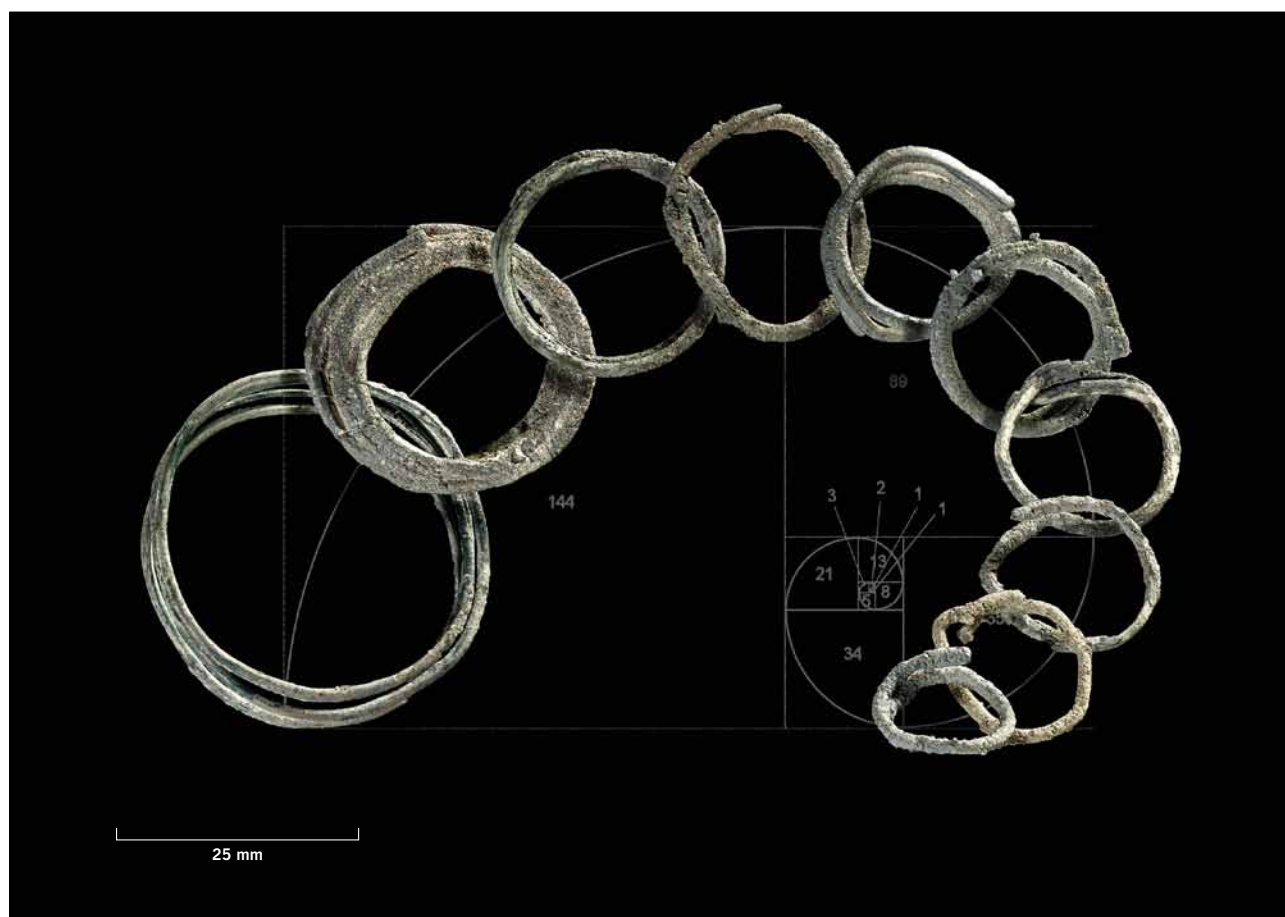


Fig. 6 Silver spirals from La Bastida, Prov. Murcia.

Abb. 6 Silberspiralen aus La Bastida, Prov. Murcia.

<sup>7</sup> We would like to recognise here that it was particularly to the initiative of Robert Chapman that Zofia Stoss-Gale and Noel Gale

were engaged and lead isotope analyses carried out in the Gatas Project.

<sup>8</sup> Buikstra et al. 1991, 217; Stos-Gale et al. 1995; 1999; Stos-Gale 2001.

<sup>9</sup> Cf. Contreras-Cortés et al. in the present volume.



Fig. 7a–b Halberd from burial 18 at Fuente Álamo, Prov. Almería. It was found and recorded by the Siret brothers as still retaining six silver rivets (b).

Abb. 7a–b a Stabdolch aus Grab 18 aus Fuente Álamo, Prov. Almería. Gefunden wurde es durch die Gebrüder Siret, die noch sechs Silbernieten dokumentieren konnten (b).

Within the framework of the La Bastida project similar survey and sampling strategies as in Gatas have been carried out since 2009 in the mountain ranges of Murcia (Delgado-Raack et al. in press; Escanilla/Delgado-Raack in press). At the same time, a large number of the silver objects recovered from this site, as well as native silver samples from Herrerías, Almería, were analysed<sup>10</sup>. When these preliminary results are compared, it becomes clear that all known galena deposits of the coastal ranges, from Cartagana to Sierra de Almagrera, and the kongsbergite from Herrerías, form a well-defined isotopic field with practically no differences among each other (Fig. 3). A very different signature is provided by the galena ores of Los Picarios, in the Tercia mountain, only a few hundred meters west of the La Bastida settlement. These results resemble at least some of the galena ores from Sierra de Gador, south-west Almería (Montero-Ruiz/Murrillo 2010). However, none of these isotopic fields comes close to the silver artefact data from Gatas and La Bastida,

which form their own, distinctive pattern (cf. Fig. 3). Only the Roman slag found in La Bastida derives from galena which was probably extracted from the deposits around Mazarrón. Instead, the analysed objects coming from settlements of the eastern as well as of the western Argaric regions, such as Cerro de la Encina, Cabezo Negro, Terrera del Reloj, Cerro de la Virgen, and Peñalosa, share the same isotopic field (Bartelheim et al. 2012). Apart from one result from Cuesta del Negro the only silver object that is clearly different from this *core* Argaric lead isotopic field, is the ring from the late Bell Beaker site of Molinos de Papel. As mentioned above, this ring is older and of a different type than the silver ornaments found in El Argar burials. Its lead isotope signature now also points to a different origin than the El Argar silver. Unfortunately, this composition cannot be related to any of the Iberian ore deposits characterised so far. Whilst Hiendelaencina (Prov. Guadalajara) in central Spain (Fig. 1e) would be a possibility, given that the Bell Beaker

<sup>10</sup> The chemical and lead isotope analyses of the La Bastida project are carried out at the Curt-Engelhorn-Zentrum für Archäometrie in

Mannheim, in collaboration with Ernst Pernicka. All the archaeometric analysis will be presented shortly in a dedicated publication.



Fig. 8 Diadem of El Argar female burial (no. 454).

Abb. 8 Diadem einer El Argar-Frauenbestattung (Nr. 454).

tradition also continues in this region beyond 2200 cal BC, hardly any isotopic data is available from this deposit (cf. Murillo-Barroso in the present volume).

In any case, the growing number of lead isotopic results confirms that the Argaric metals and particularly native silver were not extracted at ore deposits located in the core regions of Almería and Murcia, as other recent studies have also admitted (Montero-Ruiz/Murrillo 2010; Bartelheim et al. 2012; Murillo 2013). Most of the Argaric silver, irrespective of chronological and geographical differences between the produced artefacts, must have been extracted in one or several similar geological formations. Most probably, these deposits were located in the Linares-La Carolina and/or El Horcajo mining districts, in the Sierra Morena, not far away from the settlement of Peñalosa (cf. Fig. 1b–c; 4)<sup>11</sup>. A metal supply from this region would also explain why precisely in the late 20<sup>th</sup> century BC, when silver begins to appear in funerary context, a sudden expansion of the El Argar territory is observed away from the coastal valleys of the south-east into interior regions, until reaching the southern part of La Mancha, and after crossing Sierra Morena (Lull et al. 2011, Fig. 3).

It might not be accidental that two practically identical Argaric swords have been found in different settlements of this mining region. Whilst the first appeared in a cist grave together with two knives or daggers on the hilltop site of San Sebastián (Puertollano, Prov. Ciudad Real) (Siret 1913, 383 Fig. 151), some 50 km from El Horcajo, the second comes from a destruction layer at Peñalosa (cf. Contreras-Cortés et al. in the present volume). Both swords are around 60 cm long, with an approximate weight of c. 600g each and they display an exceptional hilt guard formed of 6 silver rivets, arranged in an upper row of four large rivets with two smaller rivets placed below, at both ends of the hilt guard. This type of sword is a characteristic weapon associated to the late Argar burials of the dominant class (Lull/Estévez 1986). The presence of silver rivets is a particularly exceptional trait of some halberds, daggers and swords of El Argar and Early Bronze Age Iberia in general (Fig. 7). The presence of such outstanding weapons in the region of Linares and El Horcajo might express an effective as well as symbolic control of the dominant Argaric class over these mining districts. If most of the El Argar silver, from Alicante in the east to Granada in the west was extracted from a limited number of

<sup>11</sup> Unfortunately, only the isotopic fields of the galena ores are well-defined in this area, but no native silver samples have been analysed so far.

<sup>12</sup> According to data retrieved by Brandherm (2003).

<sup>13</sup> Moreno 2000, Fig. 9.4.

native silver deposits from the Linares and/or El Horcajo area, a well organised and executed logistics of metal extraction, circulation and supply must have been established given the importance of silver throughout south-east Iberia.

### The Argaric silver production

Although hundreds of silver items have been recorded mainly from the El Argar intramural burials, the vast majority of them consist of small rings, spirals and bracelets (Fig. 5). In view of the small size of the grave goods recovered in Gatas and La Bastida through systematic wet sieving of the burials' sediments, there is no doubt that an important number of objects must have been overlooked in earlier excavations where sieving was not carried out or was not undertaken systematically. The technological and morphological traits observed among this major group of objects suggest that most if not all of them were produced from silver rods of different thickness and length (Fig. 6). Considering the provenance of the raw material, it can be assumed that these bars and wires were produced as a specific type of ingots and circulated throughout the El Argar territory. By hammering, polishing and cutting these blanks could be transformed into a variety of ornaments, ranging from tiny rings of bent wire to larger spirals and bracelets with several turns and open ends.

The previously-mentioned silver rivets, which are present on 24 El Argar weapons, mainly daggers, were also made out of rods which were hammered into the wooden handles and through the blades. In the case of daggers, they tend to have rather standard sizes, measuring between 0.8–1.1 cm length and 0.3–0.4 cm thickness<sup>12</sup>. Considerably longer (2.6–2.7 cm), but not thicker are the six rivets of the halberd from burial no. 18 of Fuente Álamo (Fig. 7). Only the rivets of the two swords from Puertollano and Peñalosa required greater thickness for the hafting of the long blade.

Metal bars were also transformed into thin sheet, which forms the primary material for the manufacture of a second class of Argaric silver artefacts. The forging specialist must have been highly skilled, as some of the known artefacts were hammered down to only 0.11 mm thickness, and measured over 20 cm in length. The production of diadems would have required silver sheets of up to 9 cm in width. This ornament represents one of the most outstanding, and at the same distinctive, artefacts of El Argar, only found in some of the wealthiest female burials (Fig. 8). Silver sheet was also worked into beads and rings, as well as used to cover wooden handles of copper awls, a typical tool found in female burials of the middle and upper funerary categories defined by Lull/Estévez (1986). The best preserved example comes from the exceptional female grave no. 2 at Gatas (Siret/Siret 1887, Tab. 59). A recent re-examination of the awl at the *Musées Royal d'Art et d'Histoire* in Brussels showed that this 22.2 cm long and 1.1 cm wide silver sheet was carefully attached to the wooden handle with five tiny silver rivets (Fig. 9).

The only artefacts which probably required not only hammering and polishing but an initial casting process were annular bracelets, which also tend to be heavier than the objects made from simple rods or wires (Fig. 10). Equip-



Fig. 9 a Awl with wooden handle and silver ribbon from the Gatas female burial no. 2; b Detail of the uppermost silver nail used to attach the ribbon to the handle.

Abb. 9 a Pfiem mit Holzgriff und Silberband aus dem Frauengrab Nr. 2 von Gatas; b Detail der einzigen erhaltenen Silberniete, die das Band mit dem Griff befestigte.

alent casting moulds have occasionally been recorded at El Argar settlements, such as Peñalosa<sup>13</sup> and La Bastida, though with no silver residues so far. Although they represent a minor artefact group, these annular bracelets should be distinguished from the large open spirals with one or more



Fig. 10 Annular bracelet (left) and spirals (right) from El Argar.

Abb. 10 Geschlossener Armring (links) und Spiralen (rechts) aus El Argar.



Fig. 11 Bead collar from La Bastida, excavated by Luis Siret. Beads of shell (4), bone (2), limestone (1), transparent muscovite, possibly damourite (1), »greenstone« (4), copper spiral (4) and silver spiral (1).

Abb. 11 Perlenhalskette aus La Bastida, von Luis Siret ausgegraben. Muschelperlen (4), Knochen (2), Kalkstein (1), durchsichtiges Muskovit, möglicherweise Damourit (1), »greenstone« (4), Kupferspirale (4) und Silberspirale (1).

turns, given that they originate from technologically different production processes. Accordingly, also their use and social access might have been different.

Considering the variety of Argaric silverwork it becomes clear that silversmiths mastered different casting and forging techniques. The central building of the small, fortified complex of Tira del Lienzo, located only a few kilometres away from the urban centre of La Bastida but over 250 km from the mining districts of Linares or La Alcudia, has provided the first evidence of an Argaric silver workshop (cf. Delgado-Raack et al. in the present volume). The forging and polishing tools recorded in this building could have been used to produce silver rings and spirals as well as silver sheets of considerable size, as required for the manufacture of diadems or dishes covered with silver.

### Production and value

In comparison with the elaborate sheet metals and casted ornaments, the rings and spirals made out of wire or simple rods suggest a much more expedient technology, which required little more than having access to silver blanks. The small size and weight of some of the twisted silver wires recovered through systematic wet sieving from burial as well as domestic contexts at La Bastida, rules out the hypothesis that visibility and ostentation were relevant criteria for their social or individual use. Occasionally, one or a few such small silver but also copper hoops appear among items for necklaces composed of several elaborate bone, shell and stone beads (Fig. 11)<sup>14</sup>. On the contrary, silver elements never formed complete necklaces of their own and should therefore not be considered as »beads«. Instead, isolated hoops, often weighting less than 1 g have been found associated with buried individuals, both children as well as adults. Occasionally, spirals have also been found around finger bones of the buried person, suggesting that they could be worn as rings, too (e.g., El Argar tombs no. 2, 9 and 320; Siret/Siret 1887). More frequently, they are found around the head and in some cases fragments of linen cloth were preserved attached to them. This suggests that bent wires of generally small to very small size had been attached to clothes, ribbons or thread worn by the buried persons and only occasionally added to a necklace, where they represented an intrusive element. The bead necklace is an elaborate personal ornament, clearly recognisable to other persons, while the visibility and aspect of silver (or copper) hoops and spirals seems to have been very limited. If it is not shape and size what mattered, the value of these artefacts must have lain in their essence that is their sheer materiality. This renders weight as the critical variable and explains why minute hoops of only 0.07 g have been recovered, for example, from a domestic context in building H8 of La Bastida, interpreted as a barley store (Fig. 12). The mean weight of the bent silver objects in La Bastida is only 1.77 g (SD=2.31 g), but the range of weights spans from 0.07–6.37 g.

In order to test the possibility that the production and use of silver hoops and spirals followed a regular pattern of weights, Argaric silver and copper artefacts have been recorded in several European museums over the course of recent years, as this information is usually not provided in publications. The materials from the excavations of Gatas and La Bastida have been added to this data base, which is still limited (n=57) in comparison with the amount of known silver artefacts. Consequently, the following exercise should be understood as a first attempt to identify metrical correlations and regularities in frequency distributions of weights. As Figure 6 already suggests, the diameter of the hoops and spirals shows a rather continuous distribution between 11–60 mm ( $X=26.2$ ;  $SD=11$  mm). Instead, a firm correlation is observable between the weight and the maximum diameter ( $R^2=0.83$ ;  $p<0.001$ ), and between the weight and the number of turns of the rings and spirals ( $R^2=0.58$ ;  $p<0.001$ ). No significant relation exists between weight and the thickness of the rods ( $R^2=0.083$ ;  $p=0.20$ ), which tends to vary between 1.0–4.0 mm ( $X=2.0$  mm;  $SD=0.5$  mm). This implies that the increase in weight of objects was achieved by increasing the width and number of turns of the spirals, but not by using thicker rods. This pattern is coherent with the idea that rods were produced in a rather standardised way, as a sort of ingot, which later could be cut into pieces of variable length.

Given their plain appearance and higher frequency of occurrence, the possibility of weight standards is easier to identify among small rings and spirals than among larger objects (Fig. 13). Although errors due to erosion or oxidation and the use of different weighting scales at the museums limit the accuracy of the measurements of such small size objects, such error margins are probably not larger than those involved in prehistoric weighing procedures. A first approach shows that the available sample does not adhere to a standard, unimodal distribution pattern. Below 10 g, recurrent values are observed around 0.20–0.30 g, 0.60–0.70 g, 1.25–1.50 g, 2.30–2.50 g and 3.30–3.40 g, which might suggest the existence of some type of weighing scales. If these »peaks« could be confirmed by analysing a larger sample set, an underlying metric system, ruled by multiples of 0.3 g may be suggested.

In sum, silver objects made out of rods or wires, which form around 80–90 % of the silver objects found in Argaric funerary contexts and practically 100 % of the settlement finds, did not require elaborate production techniques apart from some bending, twisting and final cutting, and had no use value beyond their materiality. Rather than the elaborateness, shape, colour or glimmer of silver, it was its quantity that was the relevant criterion to differentiate between bent wires. This renders them a genuine economic item. Such artefacts, which can only be measured or weighed, might serve as a reference for other objects that have a *real* use value. A working hypothesis can be proposed that silver in El Argar may have become a sort of *exchange value*, that allowed the establishment of equivalences between other products and services.

14 Only 18 of the over 1650 well-documented burials include bead necklaces with rarely more than one silver hoop.



Fig. 12 Silver hoops from La Bastida, Prov. Murcia, ranging from 0.07–1.33 g.

Abb. 12 Silberringe aus La Bastida, Prov. Murcia, mit einem Gewicht zwischen 0,07–1,33 g.

### Circulation of silver throughout the El Argar territory

The use of weighing scales and exchange values implies their general acceptance and wide circulation. If silver was used in this way in the later phase of El Argar it should be expected that rings, hoops and spirals did not only serve to establish value equivalences between products within the major hilltop settlements and their surrounding territories

but also at a supra-regional scale. Moreover, in a society divided into economic and political classes, systems of weight and value equivalences represent an excellent mechanism in the hands of the dominant class, in order to transform social wealth into surplus in a very subtle way. Hence, the distribution and use of these silver-value equivalences should have a similar importance in all political centres and regions ruled by the dominant class of El Argar. Contrary, if

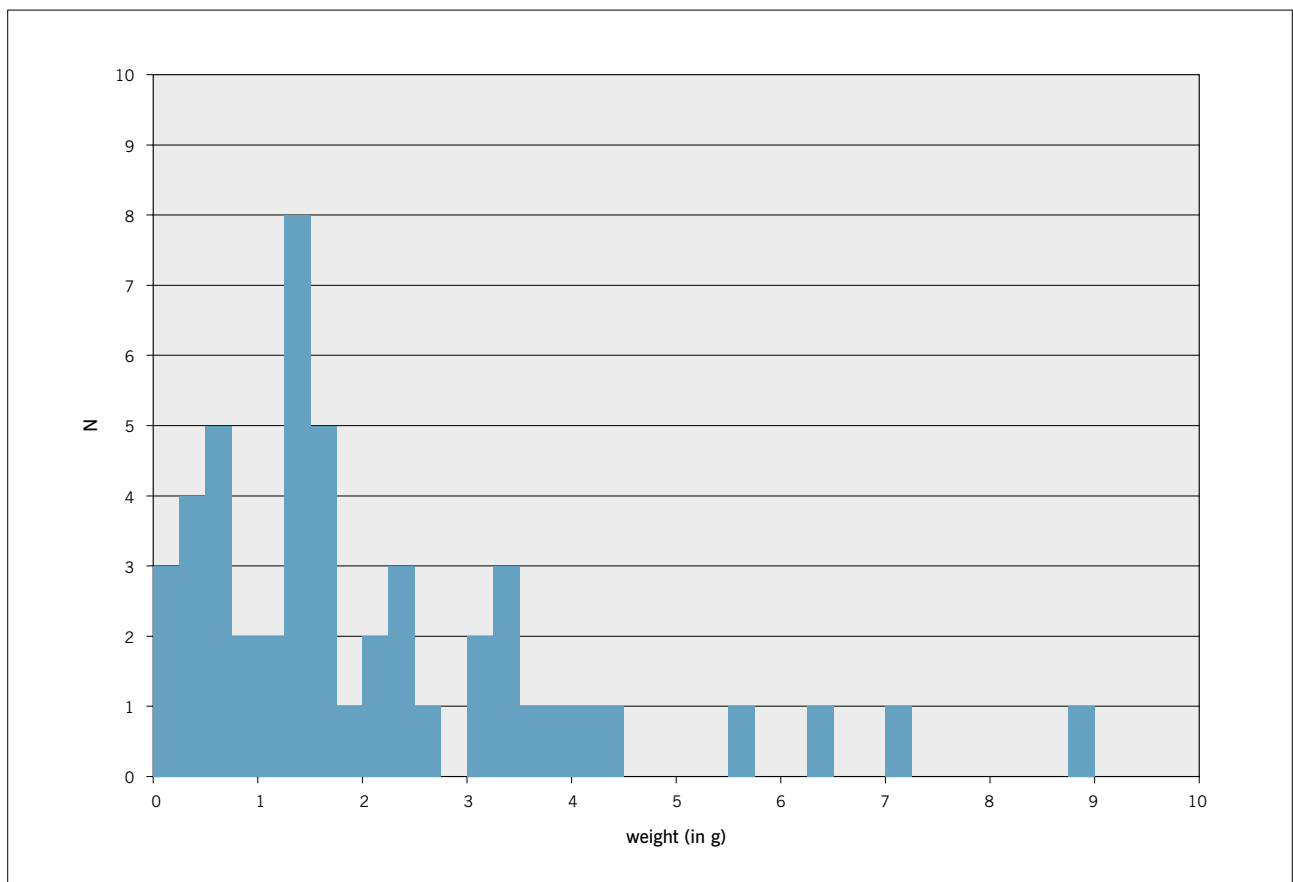


Fig. 13 Frequency distribution of the weight of silver hoops and spirals of up to 10 g.

Abb. 13 Häufigkeitsverteilung vom Gewicht der Silberringe und Spiralen unter 10 g.

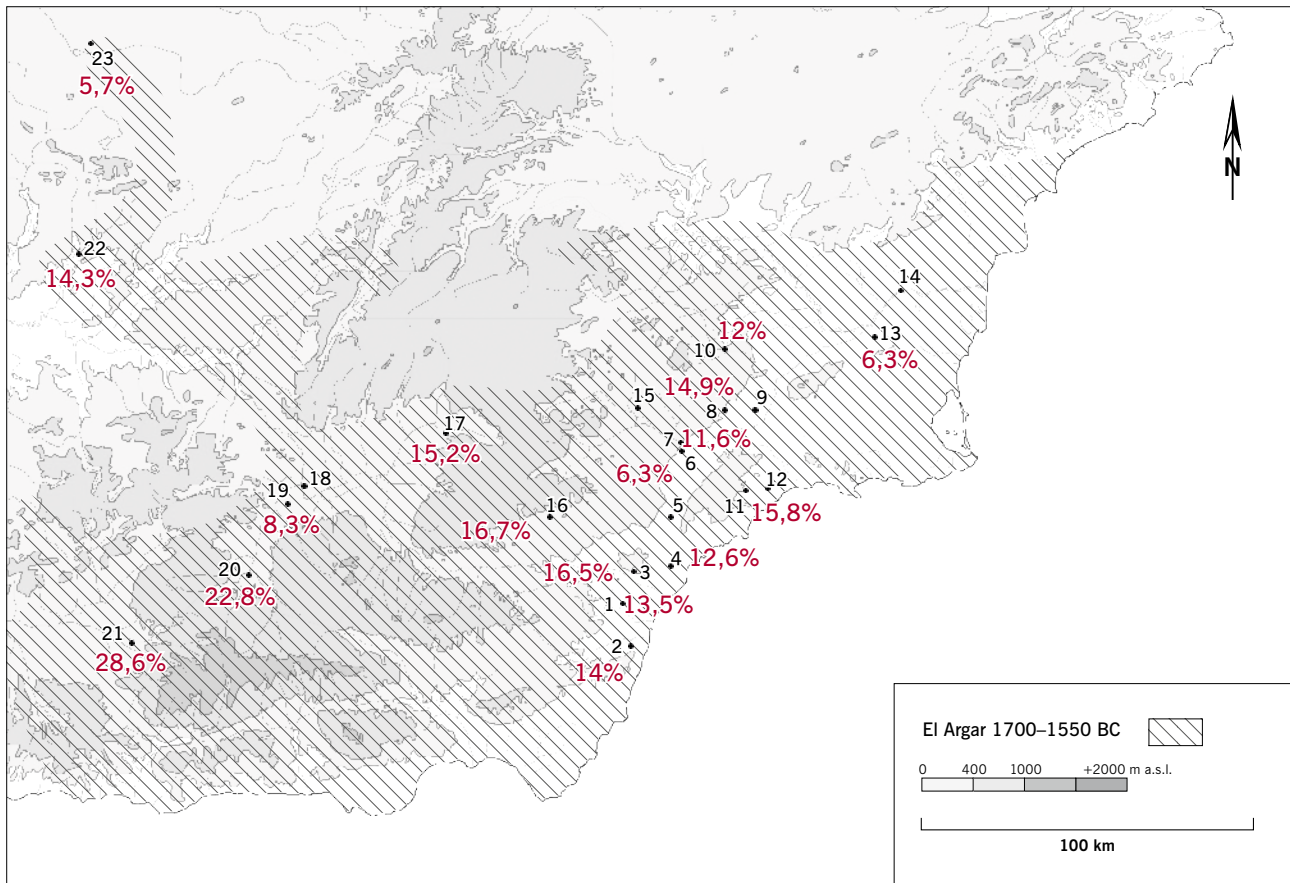


Fig. 14 The late El Argar territory (hatched area), main settlements mentioned in the text (1–23) and the percentage of silver-bearing burials in late El Argar settlements (marked in red). 1 El Argar; 2 Gatas; 3 Fuente Álamo; 4 El Oficio; 5 Almendricos; 6 Los Cipreses; 7 Lorca; 8 La Bastida; 9 Tira del Lienzo; 10 La Almoloya; 11 Zapata; 12 Ifre; 13 Puntarrón Chico; 14 San Antón; 15 Cerro de las Viñas; 16 El Picacho; 17 Cerro de la Virgen; 18 Terrera del Reloj; 19 Cerro del Culantrillo; 20 Cuesta del Negro; 21 Cerro de la Encina; 22 Peñalosa; 23 Cerro de la Encantada.

Abb. 14 Das späte El Argar Territorium (schraffiert), die im Text erwähnten Siedlungen (1–23) sowie der prozentuale Anteil an Bestattungen mit Silberobjekten in den späten El Argar-Siedlungen (rot markiert). 1 El Argar; 2 Gatas; 3 Fuente Álamo; 4 El Oficio; 5 Almendricos; 6 Los Cipreses; 7 Lorca; 8 La Bastida; 9 Tira del Lienzo; 10 La Almoloya; 11 Zapata; 12 Ifre; 13 Puntarrón Chico; 14 San Antón; 15 Cerro de las Viñas; 16 El Picacho; 17 Cerro de la Virgen; 18 Terrera del Reloj; 19 Cerro del Culantrillo; 20 Cuesta del Negro; 21 Cerro de la Encina; 22 Peñalosa; 23 Cerro de la Encantada.

silver had a purely ornamental function for the elites, its circulation and hence its frequency across the territory would be dictated on one hand by the increasing costs of distribution in relation to distance from the source, as compared to the cost of alternative high value products (e.g., ivory, gold, copper, etc.). On the other hand, its presence as a means to display one's own position would depend on the economic power of the political centres and their dominant class. Wealthier or more powerful regions and groups would accumulate larger quantities of silver than poorer ones.

Unfortunately, archaeology always faces difficulties when comparing absolute quantities, most of all, due the markedly uneven excavations and research efforts devoted to certain regions and sites as compared to others. The extensive work of the Siret brothers at the end of the 19<sup>th</sup> century in nearly a dozen Argaric settlements of the coastal area of Almería and Murcia still distorts any quantitative approach. For this reason we propose to focus on the relative proportions and more particularly on the percentage of burials with silver objects. Obviously, a more precise approach considering total weights of individual objects found in each settlement would be desirable; hence our analysis has to be considered as a first approach to test the argument presented here. As

silver only became widely used after c. 1900 and, particularly, after 1750 cal BC, only settlements with a late El Argar phase should be considered, as it was this period when the El Argar economic and political organisations reached their full development.

Considering all the late El Argar intramural cemeteries with a significant number of excavated intact burials, the resulting silver distribution pattern conforms to the first of the above argued scenarios (Fig. 14). On most hilltop settlements from the mining districts in Sierra Morena (Prov. Jaén) to the coastal plains of Almería and Murcia, the percentage of tombs containing silver grave goods is surprisingly similar, and fluctuates between only 12–16.7%. Only in smaller hilltop settlements such as Puntarrón Chico (Prov. Murcia), in lowland sites such as Los Cipreses (Prov. Murcia), which probably represents a subsidiary settlement of Lorca, or in frontier locations such as Cerro de la Encantada, silver seems to have been less accessible or less widely used. There also exist some small, fortified sites, which apparently allowed central places to control their territories and borders, where no silver at all has been found. This is the case, for example, at Ifre, Tira del Lienzo or Cerro de la Viñas, all located in Murcia. However, intramural burial evidence is ex-



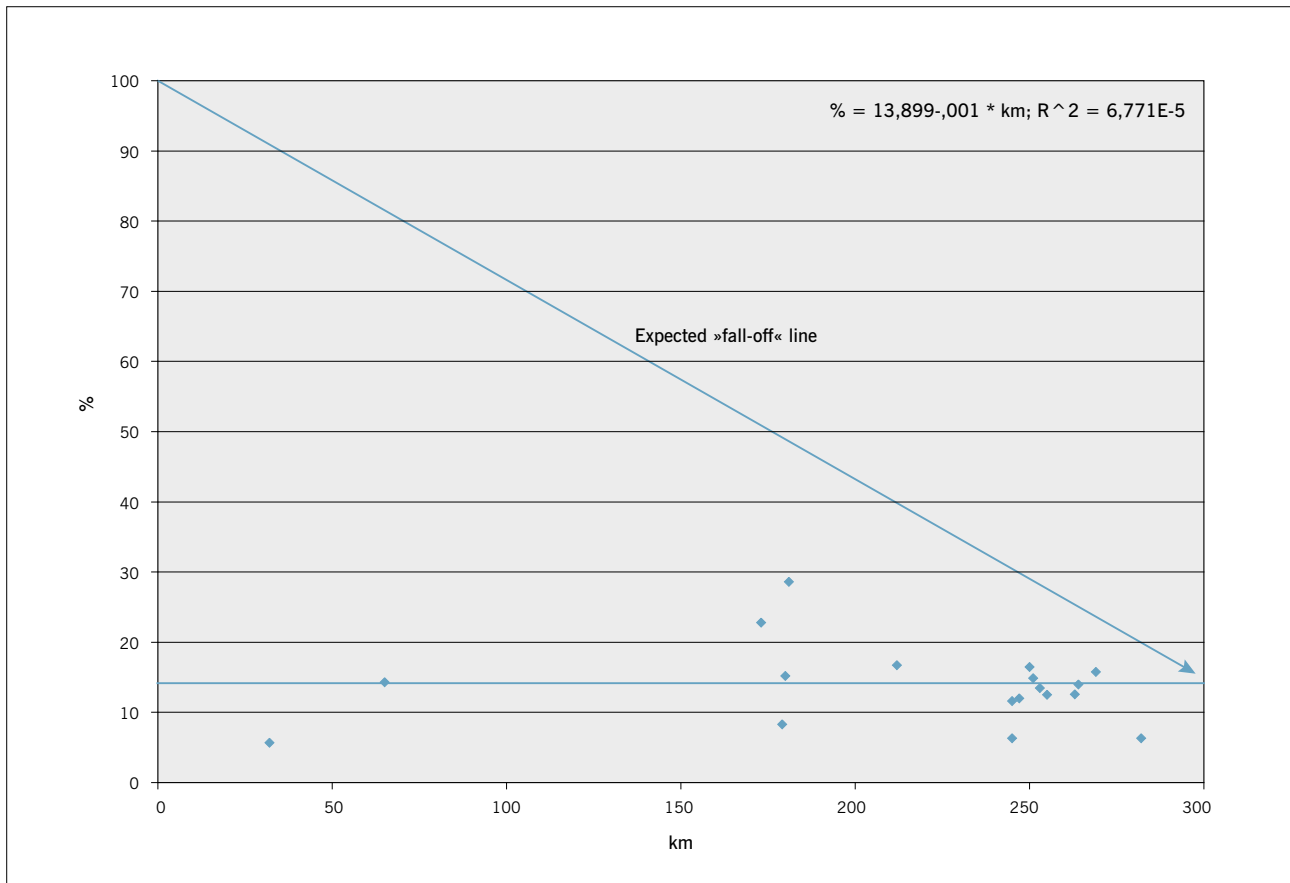


Fig. 15 Relation between silver-bearing tombs in late El Argar settlements and linear distance from the Linares-El Horcajo-mining districts. The calculated regression line is compared to the »fall-off« pattern expected in economic situations, such as the Neolithic and Chalcolithic of the western Mediterranean, where distance has a direct effect on the distribution of products.

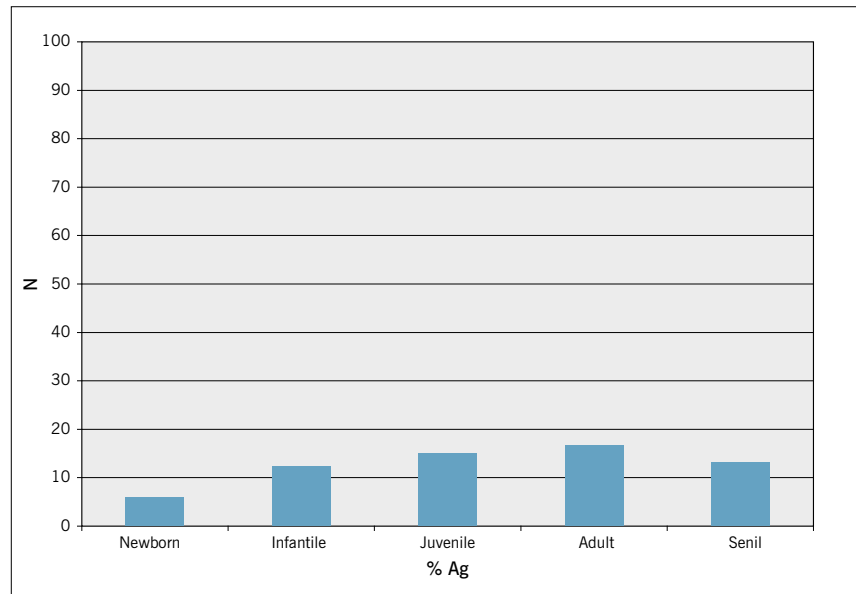
Abb. 15 Verhältnis zwischen Gräbern mit Silberobjekten der späten El Argar-Siedlungen und der linearen Distanz zu den Linares-El Horcajo-Bergbaugebieten. Die berechnete Regressionsgerade ist mit dem »fall-off«-Muster der wirtschaftlichen Situation vergleichbar, wie sie für das Neolithikum und die Kupferzeit im westlichen Mittelmeergebiet bekannt ist, wo die Entfernung einen direkten Einfluss auf die Verteilung der Produkte hatte.

tremely rare in this type of hilltop position, possibly because the sites did not have the same residential and social character as most edifices of the larger centres. At the upper end of the frequency distribution, two important settlements of the province of Granada are noticed (cf. Fig. 14). Around one quarter of the burials of Cerro de la Encina and Cuesta del Negro contained silver objects. The fact that both sites were excavated systematically according to modern standards may play a role here. At least in the case of La Bastida recent excavations confirm that 14.9 % of the burials contain silver, while this is only the case in 7.1 % of the tombs explored during the 19<sup>th</sup> and 20<sup>th</sup> centuries. Also the possibility that mostly settlement areas related to the dominant class have been excavated will affect the proportion of wealthier tombs. In Fuente Álamo, where different slopes have been excavated, the distribution of silver varies significantly from one quarter to the other (Schubart 2012). Such internal differences might also explain the somehow lower presence of silver observed at La Bastida, where, contrary to Cerro de la Encina, Cuesta del Negro or Fuente Álamo, mainly the lower slopes of the settled hill have been investigated. During the final occupation phase, this area was occupied principally by specialised workshops and storage rooms, where burials of the ruling class are not to be expected.

In any case, the number of sites is sufficiently large to approach the general principles governing the circulation of silver in El Argar through the relation between the proportion of silver in each necropolis and the distance to its most probable source, which according to lead isotope analyses would have been situated in the Linares-El Horcajo mining districts (see above). In the middle Neolithic to Chalcolithic periods (approximately between 4500–2200 cal BC) of the western Mediterranean the spatial distribution of stone axes, variscite beads and other items adjust to a highly significant regression with a steep fall-off line, indicating that distance was the main hurdle for the development of circulation networks (Risch 1995, 136–153; 2011). Instead, the practically flat regression line provided by the distribution of Argaric silver ( $R^2=0.002$ ) confirms that transport costs, but also territorial borders, economic differences between hilltop settlements or other possible distorting factors were generally irrelevant in relation to the circulation and use of silver (Fig. 15). This distribution pattern is markedly different to the limited mobility of other Argaric raw materials and products, such as stone tools or pottery, which generally do not circulate beyond regional limits (Risch 2002; Delgado-Raack 2008). Instead, this flat distribution pattern implies that the exchange value of silver was similar over the whole territory,

Fig. 16 Proportion of single burials with access to silver grave goods according to age.

Abb. 16 Anteil der Einzelbestattungen mit Silberbeigaben nach Alter.



as one would expect in an economic system imposed and warranted by a centralised or shared political system<sup>15</sup>.

### The consumption of silver

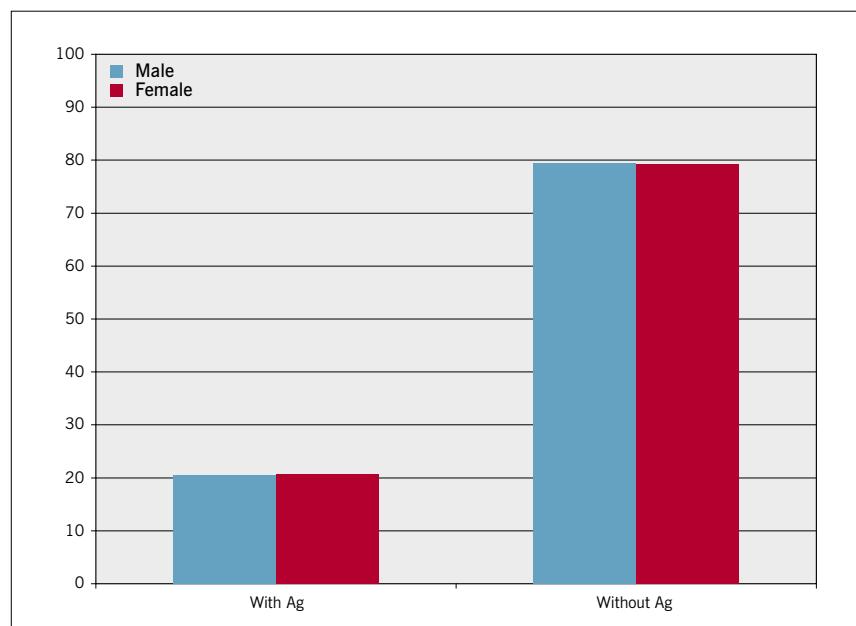
Given the rareness of silver items in domestic contexts, questions concerning the social access and use of silver can only be addressed through the funerary record. At the moment, nearly 1680 more or less carefully excavated burials are known for the whole Argaric territory, though anthropological determinations of sex and age are only at hand for part of the sample<sup>16</sup>. According to this information all age groups

had similar access to silver grave goods (Fig. 16). Moreover, the range of values between 12.4 % and 16.6 % is similar to the proportion of silver bearing tombs in the hilltop settlements in general. Even 5.9 % of tombs for newborns contain silver hoops or spirals. This even access to silver by a minority of persons, but of practically any age, strongly supports the existence of a hereditary class structure during the late phase of El Argar, as has already been suggested on the basis of the general grave good associations according to age (Lull et al. 2005).

Silver grave goods were not associated with a specific sex group either (Fig. 17). Around 20 % of all identified male and female burials include the same type of silver rings, hoops,

Fig. 17 Proportion of single burials with and without access to silver grave goods according to sex.

Abb. 17 Anteil der Einzelbestattungen mit und ohne Silbergrabbeigaben nach Geschlecht.



<sup>15</sup> This conclusion would also hold true if the source of the native silver is finally placed at a different location, as this would have practically no effect on the regression line itself.

<sup>16</sup> While age determinations are available in 851 single burials, the sex of the individuals has been determined in 160 cases. Tombs

containing two or more interments are not considered in this case given the focus on individual consumption of social value.

spirals and bracelets<sup>17</sup>. Apart from diadems and awls made of silver or decorated with silver sheet, all other silver items were worn by the buried individuals in similar proportions and apparently also in similar positions around the head, as part of necklaces or as bracelets. Silver clearly transcended age and sex groups, but not class. Although items made of silver wire are occasionally found in burials of the intermediate class, which might represent the members with full social rights and formed around 50 % of the El Argar society (Lull/Estévez 1986; Lull et al. 2005), their number, weight and frequency is significantly higher in the tombs of the c. 10 % wealthiest burials, corresponding to the dominant class. Hence, simply made silver hoops and spirals were an expression of the economic power of this class, as opposed to the rare diadems and annular bracelets which also served as signs of ostentation. If our interpretation of silver as a generally dominating exchange value is correct, its restricted access in the funerary sphere would imply that the dominant classes also controlled a supra-regional exchange system.

## Conclusions

Tracing of the El Argar silver from its natural sources, through its manufacture, distribution to its funerary consumption has allowed an attempt to understand the social value of this material at the dialectical junction between production and consumption. Silver was probably adopted from neighbouring societies of the Iberian Peninsula around 2000 cal BC, and consequently had no relevance at all for the formation of El Argar around 2200 cal BC in the coastal plains of Almería and Murcia, where local native silver deposits apparently remained unnoticed. However, silver soon acquired a completely different significance. Instead of representing only a raw material used for the production of elaborate and rare objects of ostentation for an emerging dominant class, a highly controlled production of rods and wires was initiated, which were circulated in large numbers throughout the El Argar territory, while they remained rare in the rest of the Iberian Peninsula. Whilst over 700 silver items are known from this area of approximately 33.000 km<sup>2</sup>, only a few dozen artefacts from the rest of the Iberian Peninsula can be dated to the later phase of the Early Bronze Age. This production required a regular supply of native silver, apparently from one or a few outcrops located at the north-western margins of the Argaric territory, an area which was only colonised around 1900 cal BC. Such a demographic, economic and political initiative, which can now be confirmed on the basis of the settlement and mining evidence from Peñalosa and the Rambla del Rumblar in Sierra Morena, seems to be related to the new role assigned to silver in the El Argar economy precisely after this date.

The large number, particularly of small silver hoops and spirals, their simple manufacture and steady distribution among the Argaric centres raises the question as to whether

these objects were used as an exchange value. The possibility of a supra-regional weighing system requires further empirical and analytical support. At least the marked economic specialisation observed between different quarters and buildings in settlements such as La Bastida or Fuente Álamo, but probably also between different regions of the El Argar territory, would suggest that a system of value equivalences between certain products – and probably also services – existed.

The introduction of a system of weight and value equivalences by a central institution is probably one of the most effective means of economic control in the history of humankind. Such strategies blur the accumulation of surplus in the hands of a few, but require that exclusively this minority determines the scales and controls the means on which the system is based. The distribution of silver among the known El Argar necropolises shows that only between 12–20 % of the population had access to this material, mainly in the form of twisted rods and wires. In this funerary disposition no differences are observed in terms of age or between males and females. Moreover, a certain number of the silver-bearing burials are distinguished from the rest by their particularly abundant and exceptional grave goods. In some cases it can also be noticed that these burials lay in topographically and architecturally distinct locations inside the settlements. Taken together, the material and spatial relationships confirm rather than question that access to silver lay in the hands of the dominant class. The production, distribution and consumption of silver raise a whole series of questions about the dynamics of the El Argar economy, which need to be explored in the future.

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<sup>17</sup> This slightly higher proportion as compared to the distribution of silver among settlements and age groups is probably caused

by the considerable smaller number of tombs, where sex has been determined anthropologically.

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## Source of figures

- 1 S. Gili and the authors.
- 2 Drawing after A. Pujante (2006, 151, Fig. 7); photographs by C. Velasco, ©ASOME-UAB
- 3 authors, including data from Stos-Gale et al. 1999; Montero-Ruiz/Murrillo 2010; Bartelheim et al. 2012.
- 4 Sample from the mineral collection of the Museu de Ciències Naturals de Barcelona; photograph by J. A. Soldevilla, ©ASOME-UAB
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- 6 Photographs by J. A. Soldevilla, ©ASOME-UAB
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- 8 Ashmolean Museum, Oxford: Pr.156; photograph by J. A. Soldevilla, ©ASOME-UAB
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- 14 S. Gili and the authors
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# Bislang erschienene Bände in der Reihe »Tagungsbände des Landesmuseums für Vorgeschichte Halle«

Die Reihe der Tagungsbände des Landesmuseums wurde 2008 ins Leben gerufen. Anlass dazu war die Konferenz »Luthers Lebenswelten«, die im Jahr 2007 in Halle ausgerichtet wurde. Bereits der zweite Tagungsband widmete sich mit dem Thema »Schlachtfeldarchäologie« dem Mitteldeutschen Archäologentag, der seit 2008 jährlich von Landesamt für Denkmalpflege und Archäologie Sachsen-Anhalt veranstaltet und zeitnah publiziert wird. Dem großen Anteil inter-

nationaler Autorinnen und Autoren entsprechend, erscheinen viele Beiträge dieser Reihe in englischer Sprache mit deutscher Zusammenfassung.

Mit dem bislang zuletzt erschienenen Tagungsband konnten die Vorträge und Posterpräsentationen des 5. Mitteldeutschen Archäologentags »Rot – Die Archäologie bekennt Farbe« in zahlreichen Artikeln renommierter Forscher verschiedenster Fachdisziplinen vorgelegt werden.

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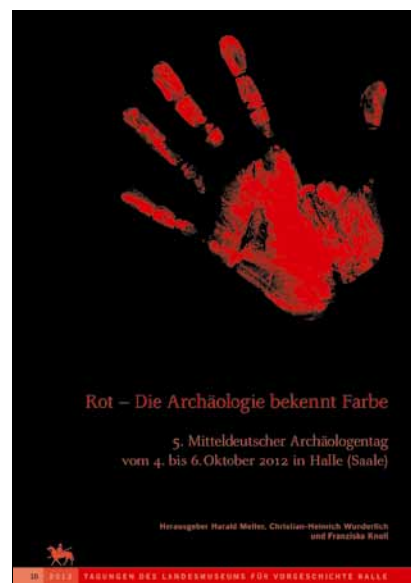
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