New Data on Spanish Marbles: the Case of Gallaecia (NW Spain)

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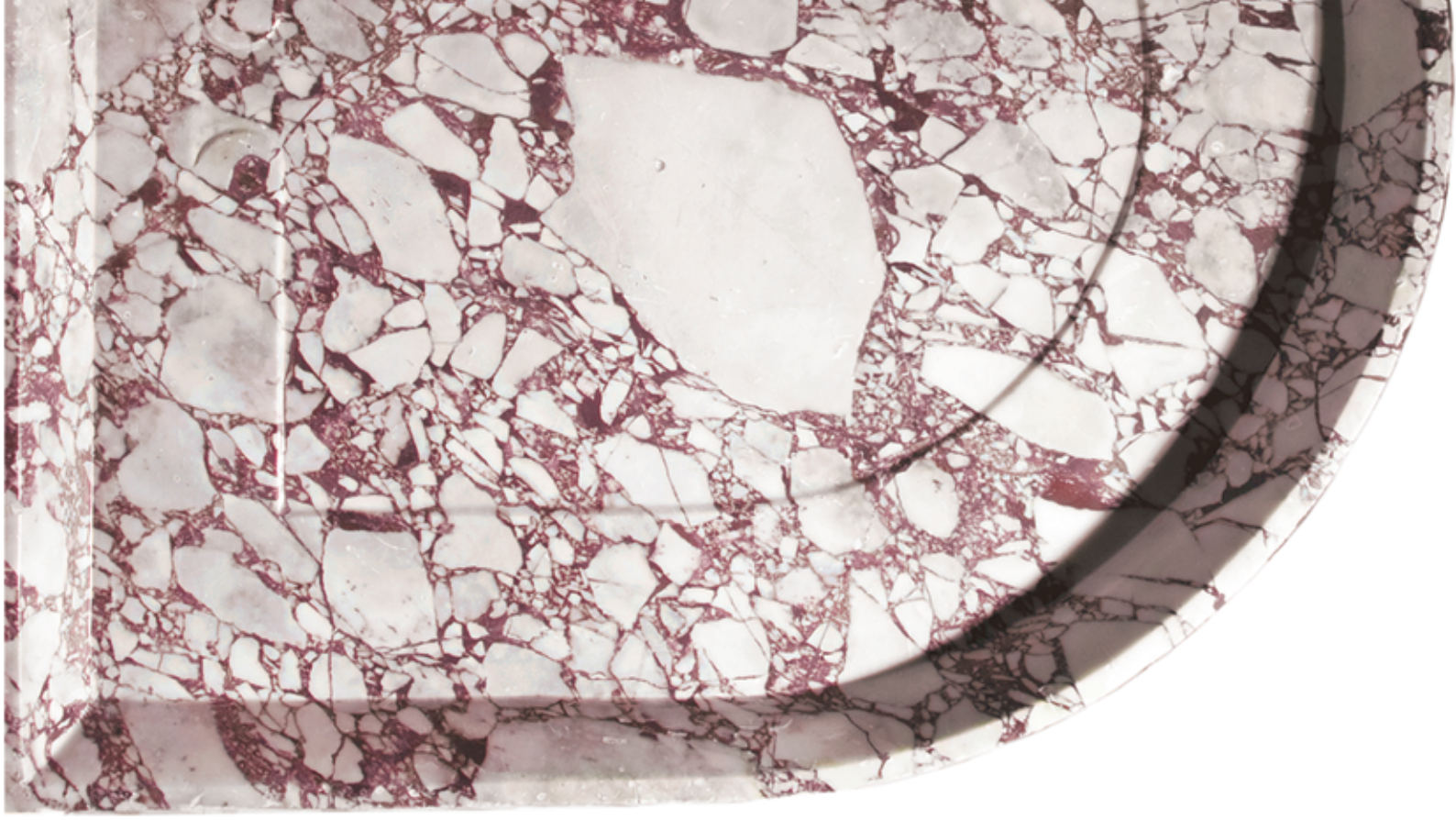

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CONTENT

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NEW DATA ON SPANISH MARBLES: THE CASE OF *GALLAECIA* (NW SPAIN)

Anna Gutiérrez Garcia-M.[1], Hernando Royo Plumed[2] and Silvia González Soutelo[3]
[1] Institut de Recherche sur les ArchéoMATériaux (IRAMAT) - Centre de Recherche en Physique Appliquée à l'Archéologie (CRP2A), Université de Bordeaux Montaigne, Bordeaux, France (anna.gutierrez@u-bordeaux-montaigne.fr)
[2] Institut Català d'Arqueologia Clàssica (ICAC), Tarragona, Spain (hroyo@icac.cat)
[3] GEAAT. Universidad de Vigo (UVigo), Ourense, Spain (silviagonzalez@uvigo.es)

Abstract

This paper presents the first results of an ongoing provenance study of some objects aiming to determine which marbles were employed in an area as far apart from the Mediterranean Sea as Roman *Gallaecia* (in the NW of Spain) from an interdisciplinary perspective. These first results help us to understand the trade routes and other mechanisms of the economy and society that produced or enjoyed these objects.
A multimethod analysis (POM, CL and IRMS for C-O isotopic determination) has been applied and compared to our reference collection including well-known Classical as well as most of the Iberian marbles. The results so far show a picture much more complex than anticipated, where the local marble from the area of O Incio (in the south of Lugo province) and other local varieties from the NW region were also exploited and used by the Romans.

Keywords
ancient marbles, provenance study, Roman Galicia

Roman *Gallaecia* (NW Spain): a little-known territory

During the last decades, the understanding of the use of marble in Roman Spain has leapt forward. The works undertaken by some Spanish research teams working on the NE, the Ebro valley, the south (ancient *Baetica* province and modern Murcia) and some central regions have provided a more complete picture of the use of marbles and decorative stones in Hispania. As a result of this, the data about the volume, use and areas of arrival of foreign marbles, such as, for example, the marble of Carrara[1], has significantly increased. Likewise, these studies have revealed the importance and scope of the use of some high quality Iberian stones that were also used in wider-than-merely-local areas[2].

Nevertheless, there are still significant gaps regarding some other Iberian territories such as the northwesternmost part (modern Galicia), where no significant work had been done on this subject since the late 70s-80s[3]. Even though the number of objects made in marble found there is somewhat smaller than in other regions of Spain, they are nonetheless very interesting evidence of the economic mechanisms of the society that produced or consumed them. Besides, the lack of in-depth studies in *Gallaecia* has hindered the capacity not only to grasp the overall historical aspects related to the economic structure and social complexity developed in Roman times in this region but also to complete a global picture of marble use in Roman Spain.

The characterization of such materials[4] has been addressed as a first and essential step to establish what marbles were used in this territory, for what purpose,

1 GUTIÉRREZ GARCIA-M., RODÀ 2012.

2 Most of their work has been presented in the Proceedings of several scientific meetings in Spain (BELTRÁN, NOGALES 2009; GARCÍA-ENTERO 2014; GUTIÉRREZ GARCIA-M, ROUILLARD 2018) as well as the last ASMOSIA Conferences (GUTIÉRREZ GARCIA-M. *et al.* 2012; PENSABENE, GASPARINI 2015).

3 When A.M. CANTO's ground-breaking paper on marble quarrying in Roman Spain (CANTO 1978), F. BRAEMER (1986) and M. CISNEROS CUNCHILLOS (1988) briefly mentioned the use of the marble from O Incio in Antiquity.

4 This is part of the wider *Marmora Galicia* project, an on-going collaboration between the GEAAT of the University of Vigo, the Catalan Institute of Classical Archaeology-ICAC, in Spain, and the IRAMAT-CRP2A, in France (within the projects HAR2011-25011 and HAR2015-65319-P funded by the MICINN-FEDER as well as the projects "*Marmora et Lapides Hispaniae*:..." and "Graver dans le marbre… (ROMAE)" projects funded by the LaScArBx, a research programme supported by the ANR (ANR-10-LABX-52).

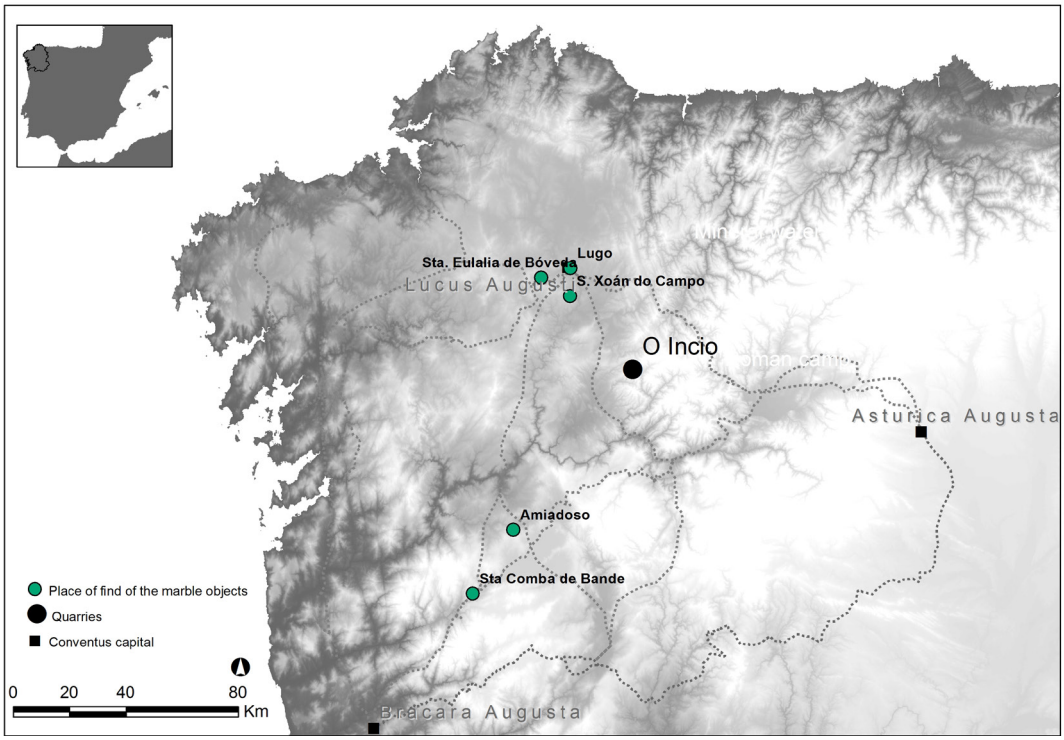

Fig. 1.
Location of O Incio and finding place of the archaeological objects included in this work

where they came from, how they arrived at their place of use and the dating of their exploitation or presence in this region, so far away from the Mediterranean and from the most common marble trade networks.

Aware of the difficulties in answering all these broad questions, we considered it to be essential to develop two main, strongly interrelated, lines of study:

- The location of marble archaeological remains. An in-depth search in the literature and museum catalogues has provided data about 150 Roman and Late Roman marble objects found in modern Galicia[5]. They are architectural elements (capitals, columns, etc.), sculpture and carving fragments, inscriptions, altars and sarcophagi, currently in museums, other heritage institutions or still *in situ*, usually reused in pre-Romanesque and Romanesque churches. In order to check or complete the written information, several field trips in this territory were undertaken to locate and visually inspect as many of them as possible.

- The location of the Roman quarries. The identification of the outcrops providing local marble that could have been exploited in Antiquity is key to obtain a reference core of geological samples required to undertake provenance studies and to explore the possible existence of a marble industry in Roman *Gallaecia*. Indeed, despite granite being the main stone resource exploited in Galicia, the existence of small marble outcrops has been known and some of them, located near the village of O Incio (Fig. 1), have been traditionally considered as being employed since Antiquity. Nevertheless, most of these outcrops have not yet been archaeometrically characterised[6].

A comprehensive approach to the study of the marble objects

All aspects of the objects –archaeological, stylistic and archaeometric – have been taken into account in order to achieve a better understanding of the materials and techniques employed to manufacture them, as well as of the agents involved in their production and use.

5 Which corresponds approximately to the northwest part of ancient *Gallaecia*.

6 With the exception of the O Incio marble, the subject of a recent publication (GUTIÉRREZ GARCIA-M. *et al.* 2016), and a few outcrops on the Bierzo region in the framework of the provenance study of marble elements from Astorga, province of León (CISNEROS CUNCHILLOS *et al.* 2010-2011). The location and archaeometric characterization of other quarries is in progress, within the *Marmora Galicia* and the on-going PhD thesis by M.-C. Savin (IRAMAT-CRP2A UMR 5060 CNRS - Université Bordeaux Montaigne).

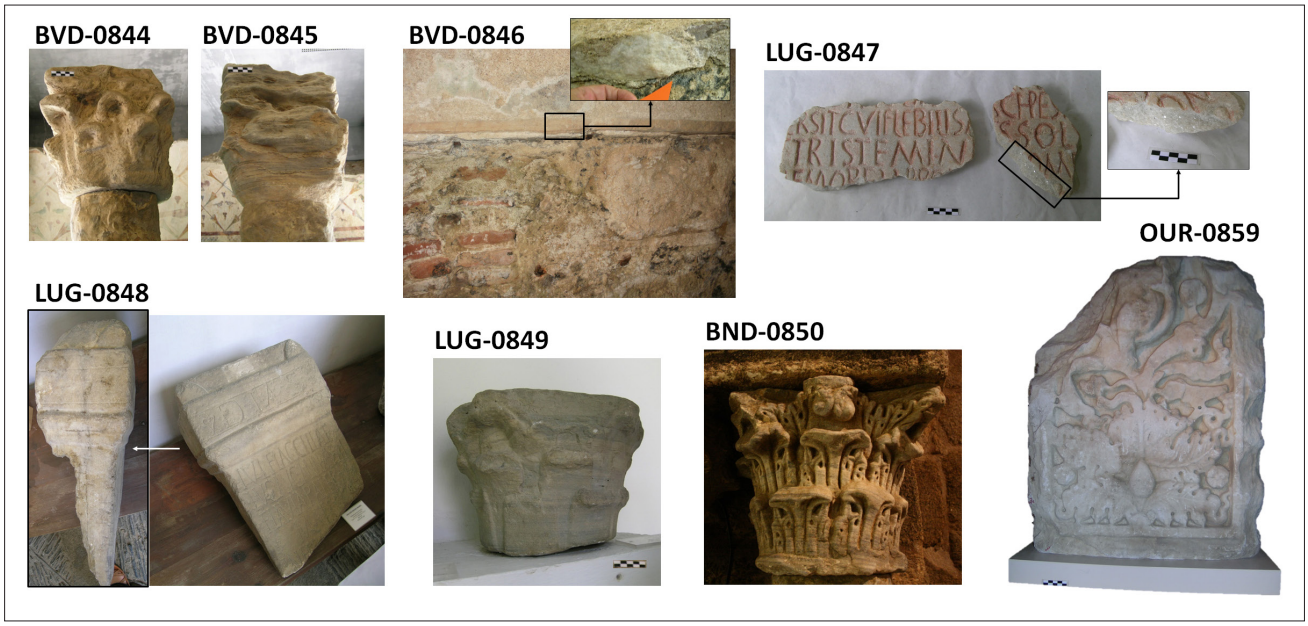

Fig. 2. Studied archaeological objects and detail of the marble of a selection of them

Archaeological data, both from the objects of study when available (original finding context, stratigraphic dating, etc) or from the territory itself (roads or navigable river networks, general socio-economic structure) is key in locating and contextualizing them. Unfortunately, many of those pieces were found out of stratigraphic context or reused in later buildings so, for most of them, the stylistic analysis (and/or epigraphic analysis, in the case of inscriptions) is the only way to estimate an approximate date. Yet, it can also lead to identifying possible workshops, and the correlation between their stylistic features and the use of a particular marble can help to understand whether the artisans were local or if they arrived from somewhere else.

The archaeometric analysis of the objects is essential to source the origin of the marbles used to produce them. It consisted of a multimethod analysis including three main analytical techniques: thin section/petrographic optical microscopy (POM), cathodoluminescence (CL) and stable isotope analysis ($\delta^{13}C$ and $\delta^{18}O$). The polarizing light microscope (NIKON Eclipse50iPOL)[7] was systematically used for studying mineralogy and texture parameters. Particular attention was paid to fabric and grain size, measuring maximum grain size (MGS) and describing grain boundary shape (GBS). Cathodoluminescence analysis (CL) was carried out by using CL8200 Mk5-1 coupled to the previous microscope. The electron energy applied to the thin sections was 15-20 Kv and the beam current was operated at 250-300 μA. The observed luminescence colours, intensity and distribution of each sample were registered onto digital photographs using an automatic digital camera (NIKON Coolpix5400). Oxygen and carbon stable isotopes were determined on calcite samples by isotope ratio mass spectrometry (IRMS) with FINNIGAN Gasbench II equipment[8]. The results were expressed in terms of usual delta notation ($\delta^{13}C$ and $\delta^{18}O$) in ‰ relative to the international reference standard PDB (Pee Dee Belemnite). This multi-method approach is based on a well-established method (LAZZARINI *et al.* 1980; BARBIN *et al.* 1992; LAPUENTE *et al.* 2000; 2014; GORGONI *et al.* 2002; ATTANASIO *et al.* 2006 and others).

The studied artefacts

A first group of archaeological objects archaeometrically analysed was selected so as to be as comprehensive as possible in spite of its reduced size. The eight sampled objects present marbles that can be separated into two main groups according to their main diagnostic traits. Five of them are fine-grained marbles with a very particular appearance due to the almost parallel, white and grey centimetric to millimetric banding that has traditionally been considered a distinguishing feature of the local O Incio marble. The other three objects are made with singularly coarse white, homogeneous marbles whose possible origin was more difficult to anticipate and, therefore, a foreign provenance seemed also possible. The precise identification of these materials could make it possible to

7 At the Institut Català d'Arqueologia Clàssica - ICAC, (Tarragona, Spain).

8 At the Istituto di Geologia Ambientale et Geoingegneria - IGAG/CNR (Monterotondo (Roma), Italy).

confirm or dismiss the previous assumptions on marble use in *Gallaecia*. Moreover, these artefacts are representative of the array of types of marble objects (epigraphic inscriptions, architectural and decorative elements) as well as the geographical distribution in the territory (Figs. 1 and 2, Table 1).

Unfortunately, none of them had been discovered in its original location or in stratigraphic context. They were re-used in Late Antiquity or post-Roman times and are currently preserved in museum collections or as part of archaeological structures and pre-Romanesque or Romanesque buildings. Additionally, in most cases it is extremely difficult to date them on the basis of their stylistic features.

The sampled objects are:

a) From Santa Eulalia de Bóveda (Lugo province)[9]:

- Two capitals made with a white and light grey, fine-grained marble with very thin (mostly millimetric and occasionally centimetric) subparallel bands. One of them[10] presents also ferroan veins obliquely arranged to the banding while the other does not[11]. Both capitals are strongly weathered and the marble presents a powdery and disaggregated state[12] that hinders the evaluation of its translucency. According to DOMINGO MAGAÑA (2011, 91), they are Corinthian capitals with acanthus foliage covering most of the kalathos with helix and scrolls on top and a neck piece, which is common in the Late Roman productions of NW Hispania.
- A very simple moulding, which marks the beginning of the painted vault. It consists of several white marble listels that were probably made from recutting previous elements. A sample was taken from a homogeneously coarse-grained white marble that, despite the humid conditions of the chamber and unlike the capitals, had kept a quite compact quality[13].
- One of the two fragments from a large funerary inscription found during restoration works in the 50s-60s and currently preserved at the Museo Provincial de Lugo[14] (fragment on the right in Fig. 2). This slab is made in a white, very coarse-grained marble with a light grey/bluish tinge, occasional grey veins where larger crystals are visible. This marble presents a low translucency. Its chronological framework is still under debate: HOYO (2005, 882) proposes a 3rd century AD date but MONTENEGRO RÚA (2010, 157) dates it back to the first half of the 2nd century AD.

b) Also from the collection of the Museo Provincial de Lugo:

- An inscribed altar dedicated to Iulia Flaccilla by her mother Flavia Paterna[15]. It is made with a white, coarse-grained marble which, despite the dust patina, shows a subtle light grey shade, occasional, irregular, dark grey veins and low translucency. It was probably reused at the Late Roman wall of Lugo, as it was found next to it. Unfortunately, only its upper part has been preserved, but here the epigraphic analysis allows an Early Imperial dating.
- A capital made with a white/grey banded, very fine-grained marble[16]. It is a non-compact, non-translucent marble whose most distinctive trait is the very fine (millimetric), parallel grey bands. It was found out of context, next to San Xoán do Campo church (Lugo) and, as in Santa Eulalia de Boveda's capitals, most of the carved decoration has been lost. Nevertheless, it is of Corinthian style with slightly marked leaves, neck piece and caulicole, which suggests a 3th - 4th century AD date (DOMINGO MAGAÑA 2011: 234).

c) From Santa Comba de Bande (Ourense province)[17], one of the four capitals from the church apse[18]. It is made of a white/grey banded, fine-grained marble. Again, it is a most singular marble due to the fine (millimetric), parallel bands

9 They come from the building beneath the current church, whose function is still unknown. The capitals were preserved on the top of the 3 columns that were identified surrounding the paved, shallow pool in the center of a room accessed by a portico and a narthex. Three building phases have been distinguished (ABAD CASAL 1978, 917-921; FONTAINE 1992, 101; BLANCO-ROTEA *et al.* 2009), but its chronology is still the object of much debate (MONTENEGRO *et al.* 2008).

10 Sample BVD-0844.

11 Sample BVD-0845.

12 Due to the highly humid conditions of the chamber where they were preserved.

13 Sample BVD-0846.

14 IRLu 88a = HEp 11, 2001, 346 = HEp 12, 2002, 342. There is some discussion among the scholars about whether the two fragments are part of the same inscription, but since the two fragments present exactly the same type of marble and analogous lettering, only one sample (LUG-0847) was taken.

15 CIL II 2586 = IRLu 30 = IRG II, 35. Sample LUG-0848.

16 Sample LUG-0849.

17 It is a small Visigothic or pre-Romanesque church considered a 7th century AD building by some scholars while others believe it was built in the 9th-10th century (with the possible existence of a previous church or mausoleum on the site together with a nearby Roman road, *mansio* and military camp) (RODRÍGUEZ COLMENERO 1993, 403). For a summary of this site's complexity, see SÁNCHEZ PARDO 2015, 100.

18 Sample BND-0850.

Sample	Artefact	Museum Inv. Num.	Site of find	Date	Main macroscopic traits of the marble
BVD-0844	Capital (NE)	-	Sta. Eulalia de Boveda church	Late Roman?	White/light grey banded, fine-grained, ferruginous veins
BVD-0845	Capital (SE)	-	Sta. Eulalia de Boveda church	Late Roman?	White/grey banded, fine-grained
BVD-0846	Moulding	-	Sta. Eulalia de Boveda church	Late Roman?	White, coarse-grained
LUG-0847	Inscription (slab)	EPI-73	Sta. Eulalia de Boveda church	2nd - 3th cent. AD	White, very coarse-grained, occasional grey veins
LUG-0848	Inscribed altar	EPI-45	Roman wall of Lugo ?	2nd - 3rd cent. AD	Greyish white, coarse-grained
LUG-0849	Capital	961	S. Xoán do Campo	3rd - 4th cent. AD	White/grey banded, fine-grained
BND-0850	Capital (SW)	-	Sta. Comba de Bande church	4th - 6th cent. AD	White/grey banded, fine-grained
OUR-0859	Ornamental plaque	CE002761	S. Adrián de Amiadoso church	4th cent. AD (1stphase)	White/grey banded, fine-grained

Table 1. List of samples, archaeological artefact, finding site, possible date and main macroscopic features after visual inspection of the object

Sample	Main Min.	Acc. Min.	Texture	Fabric	MGS (mm)	GBS	Stress	CL (Main Min.)	$\delta^{13}C$ (‰)	$\delta^{18}O$ (‰)	PROVENANCE
BVD-0844	Cal	Qtz,(Kfs),(Mc),(Op)	HEBL	Lineated-	2.0	Sutured	Twins, UE	HOM / MED [GB, AM: Qtz, Kfs]	-	-	Unknown (Local)
BVD-0845	Cal	Qtz, Kfs, Mc, (Op)	HEBL	Lineated	1.5	Sutured, (Curved)	Twins, UE	HET / MED-(STR) [GB, AM: Qtz, Kfs]	1.6	-9.2	Unknown (Local)
BVD-0846	Cal	Qtz, Mc	HEBL	Isotropic*	3.9	Sutured	Twins	HOM / STR [GB, AM: Qtz, Mc]	2.1	-10.0	Unknown (Local)
LUG-0847	Cal	Qtz, (Kfs), Mc	HEBL	Lineated -	6.5	Sutured, (Embayed)	Twins, UE	HOM / STR [GB, AM: Qtz, Mc]	1.9	-11.2	Unknown (Local)
LUG-0848	Cal	Qtz,(Kfs),(Mc),(Op)	GRBL*	Isotropic*	2.7	Sutured	Twins, UE	HOM / STR [GB, AM: Qtz, Mc]	2.0	-8.9	Unknown (Local)
LUG-0849	Cal, (Dol)	(Qtz), (Mc)	HEBL	Lineated, Banded	0.6	Sutured	No	HET / FNT-(MED) [SM: Dol]	1.1	-10.6	O Incio-2
BND-0850	Cal	(Qtz)	GRBL*	Isotropic* Mosaic-	0.8	Sutured, (Curved)	No	HET / FNT-(MED)	0.4	-13.2	O Incio-2
OUR-0859	Cal	(Qtz)	HEBL	Lineated-	1.3	Sutured	Twins	HOM / MED [GB, AM: Qtz]	0.3	-15.2	Unknown (Local)

Table 2. Mineralogical-petrographical and cathodoluminescence features and isotopic signature of the archaeological samples and provenance. Main Mineral (Cal: calcite. Dol: dolomite). Accessory Mineral (Qtz: quartz. Kfs: potassium feldspar. Mc: mica. Op: opaque minerals). Texture (GRBL: granoblastic. HEBL: Heteroblastic). Stress (UE: undulose extinction). CL (HOM: homogeneous. HET: heterogeneous. FNT: faint intensity and dark orange hue. MED: medium intensity and orange hue. STR: strong intensity and light orange hue). []: CL irregularities (GB: grain boundary. SM: subordinate mineral. AM: accessory mineral). (): subordinate or occasionally. -: faintly. *: Possible anomalous texture or fabric due to an unrepresentative small sample chip

although in this case the white ones are slightly thicker than in the previous capitals and the marble is slightly translucent. Again, its dating is under discussion, as either being Late Roman (NÚÑEZ 1978: 91) or the 6th century AD product of a local workshop (DOMINGO MAGAÑA 2011: 93, 232).

d) From San Adrián de Amiadoso (Allariz, Ourense province)[19], an ornamental plaque with high quality reliefs that stands out for its artistic relevance[20]. It is carved in a white/light grey banded, fine-grained marble. It is a well-crystallized, slightly translucent marble with a "lamination" appearance due to the alternation of thick (centimetric) white bands and finer (millimetric) light grey ones. This

19 It is a small chapel where some pre-Romanesque remains are still visible (SÁNCHEZ PARDO 2015, 98-99) and where several reused objects were found since 1945 (FARIÑA BUSTO 1997, 313).

20 It is currently on display at the Museo Arqueolóxico Provincial de Ourense. Sample OUR-0859.

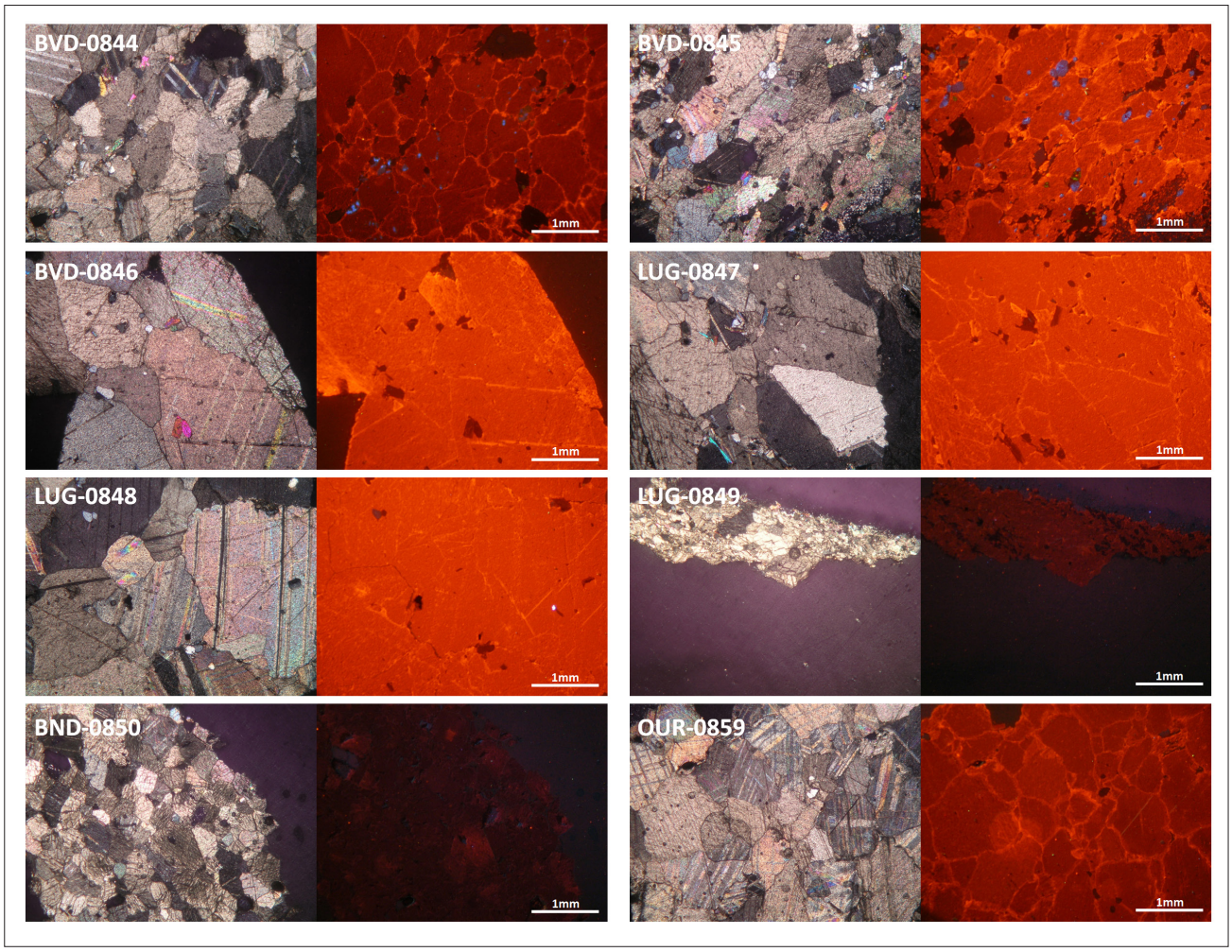

Fig. 3. Cross-polarized light and cathodoluminescence photomicrographs

piece of art is the result of the work of at least two different periods: Roman or Late Roman and then pre-Romanesque or Romanesque[21]. The two earliest faces show a large acanthus leaf with scrolls and a krater showing scrolls with leaves and a human mask.

Results and discussion

The results of the mineralogical-petrographic analysis, cathodoluminescence traits and $\delta^{18}O$ and $\delta^{13}C$ (PDB) values are presented in Table 2. The microscopic appearance under cross-polarized light and the response to the cathodoluminescence analysis of each sample are shown in Figure 3 and their position in the C-O stable isotope diagram in Figure 4.

It is important to point out the difficulty involved in the characterization of marble microstructure when it is not possible to choose the orientation of the thin section and when the sample is extremely small in size, usually the case when chips taken from archaeological objects. This inconvenience has recently been highlighted concerning banded marbles, such as those of Estremoz Anticline (LAPUENTE *et al.*, in this volume), and it also applies to the Galician O Incio marble. Three lithotypes have been identified in the O Incio, a white marble with few orangish veins (O Incio-1), a white and grey marble showing the banding traditionally considered the distinguishing mark of O Incio marble (O Incio-2) and a light and dark grey banded one (O Incio-3)[22] (Fig. 5). The results of their study have been included in our reference

21 This plaque has been the object of several studies (VIDAL ALVAREZ 2005; VALLE PÉREZ 2012) and a recent interdisciplinary discussion in which a 4th century date for its earliest phase has been proposed (GONZÁLEZ SOUTELO *et al.* 2016).

22 See GUTIÉRREZ GARCIA-M. *et al.* 2016 for a detailed description of each lithotype and the O Incio quarries.

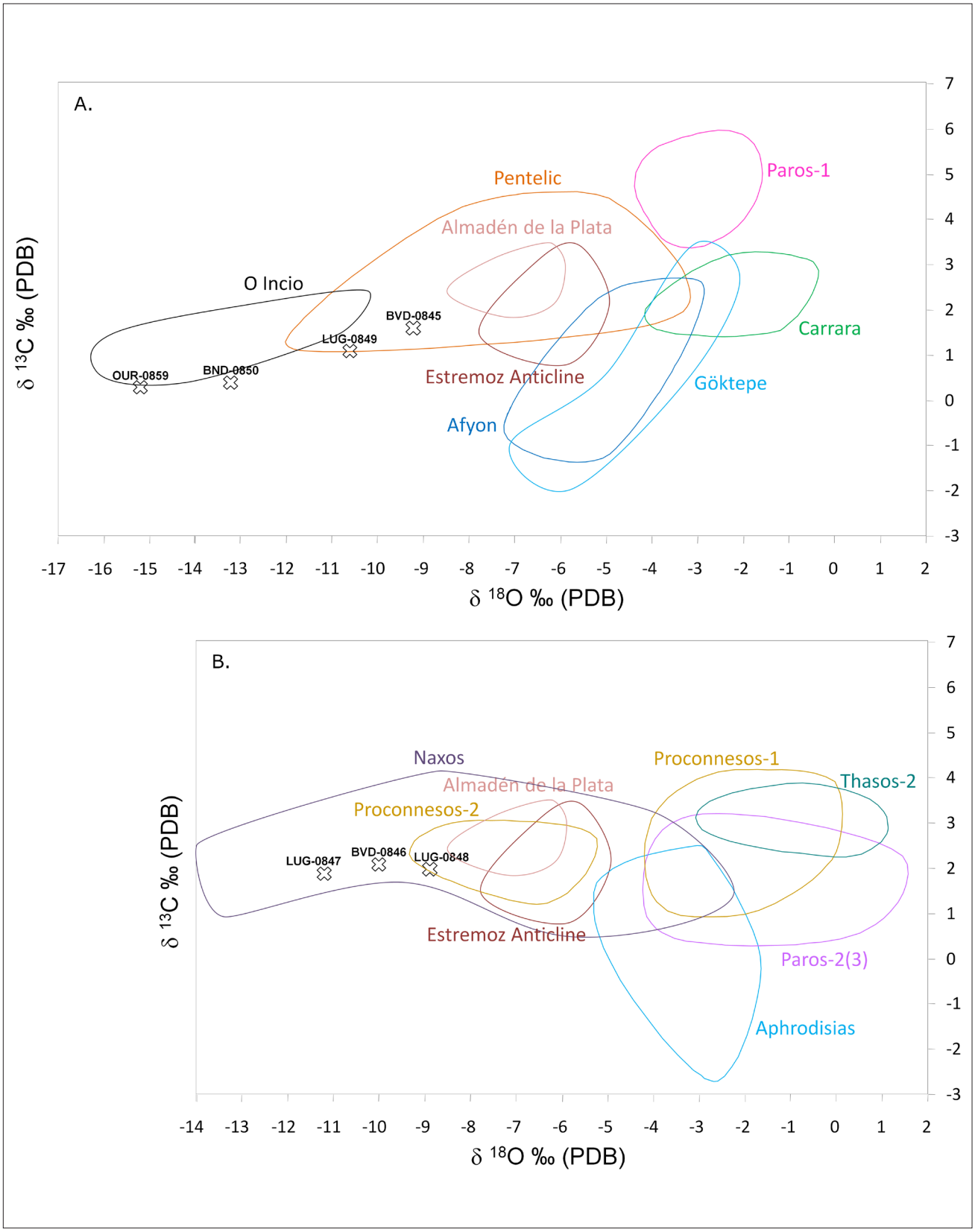

Fig. 4. Stable isotope diagram showing the signature data of the marble samples and the fields of Classical and Iberian marbles with similar grain sizes (GORGONI *et al.* 2002; LAPUENTE *et al.* 2014, in this volume; ATTANASIO *et al.* 2015). A: fine-grained (average MGS < 2 mm), showing also the values of O Incio marble (GUTIÉRREZ GARCIA-M. *et al.* 2016). B: medium to coarse-grained marbles (average MGS > 2 mm). As the knowledge of gray and banded marbles used in Antiquity is still incomplete and, therefore, their isotopic fields are not available, those of the white marbles are used as reference

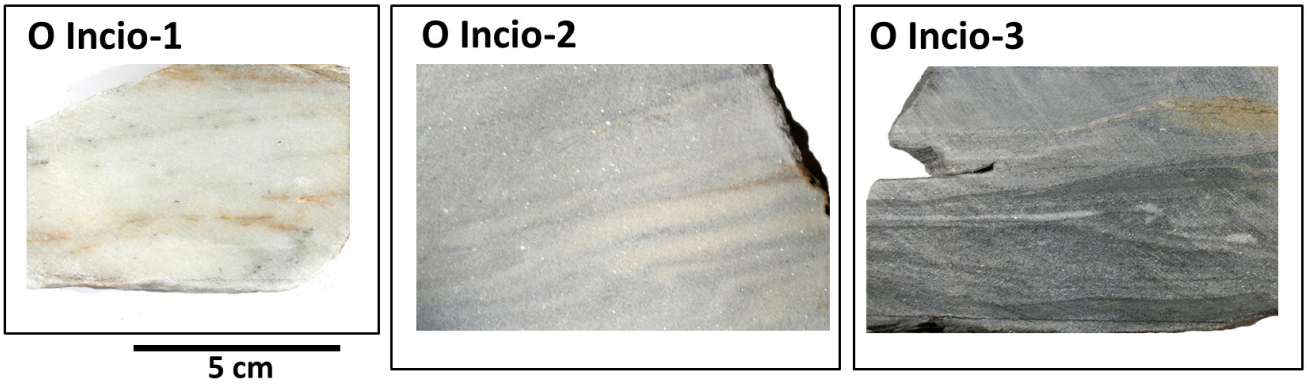

Fig. 5. Macroscopic appearance of the three O Incio marble varieties

collection to enable comparison with the archaeological samples under study.

All eight pieces are calcitic marbles and only in one case, LUG-0849, subordinate dolomite has been identified (always in relation with the darkest grey bands). This same sample shows a heteroblastic texture with lineated and banded fabric. Its MGS is 0.6 mm and the GBS are sutured, with accessory quartz and mica flakes. It presents a heterogeneous, faint-medium intensity with reddish orange calcitic luminescence (with the occasional dark red typical of the dolomite related with the darkest bands). BND-0850 shows these same CL traits – except for the dolomitic dark red – and together with LUG-0849, they have an isotopic signature significantly close to the values given by the O Incio quarry samples. BND-0850 also presents a fine MGS (0.8 mm) and mainly sutured GBS although some curved grain boundaries are also visible. The granoblastic texture and mosaic fabric of this sample can be presumed to be unrepresentative as is the result from the different orientation of the chip since all the other petrographic and CL traits are, as for LUG-0849, very similar to those of the typical fine-grained, white and grey banded O Incio-2 lithotype (GUTIÉRREZ GARCIA-M. *et al.* 2016). This identification is reinforced by their isotopic values, since despite not falling within the O Incio field, they are significantly near and their macroscopic, petrographic and CL features do not match at all those of any other known marble.

OUR-0859 is a fine grained marble with a MGS of 1.3 mm. Its texture is a slightly lineated fabric, clearly heteroblastic with sutured GBS. It presents some quartz as accessory mineral. Most of its petrographic features and its medium intensity luminescence resemble those presented by the reference samples of the O Incio quarries. Moreover, its isotopic values also point in this direction. Nevertheless, it does not match them entirely, as this sample shows a slightly stressed texture and a homogeneous CL. Therefore, a local provenance for this sample is confirmed although, despite its undeniable similarities with the fine-grained O Incio marble, its exact provenance has not been yet identified[23].

The two samples from Sta. Eulalia de Boveda's capitals (BVD-0844 and BVD-0845) also present a heteroblastic texture and lineated or faintly lineated fabric, but they have slightly higher MGS (not to exceed 2.0 mm), a characteristic stressed texture and a wider range of accessory minerals, among which the presence of tiny feldspar stands out. Additionally, BDV-0845 shows a particular negative $\delta^{18}O$ value. Their visual appearance, so close to the fine-grained, banded O Incio marble, and their petrographic and CL features rule out all Classical and Iberian marbles. Therefore, a local origin seems the most plausible hypothesis. Nevertheless, these samples also show features difficult to match with the reference samples currently available, which are in fact closer to the very coarse-grained marbles also included in this paper.

The very coarse-grained samples (BVD-0846, LUG-0847 and LUG-0848) are white, homogeneous marbles with thin, isolated grey bands that hint at a possible structural orientation that has been confirmed under the microscope. They show a relative variability in some of their characteristics, but this can be a consequence of the small sample chip which limits their representativeness. This is especially manifest in coarse-grained samples. Therefore, the occasional absence of some accessory minerals, the difference in MGS or the variation of their texture and fabric are acceptable and the differences in the microtexture and fabric can be attributed to a different orientation of the sample chip. LUG-0847 is the most representative sample of the three due to its larger size and adequate orientation. It presents

23 For a more detailed description of this plaque's traits and a discussion of its provenance, see GONZÁLEZ SOUTELO *et al.* 2016, 111-114.

a relatively heteroblastic texture, slightly lineated fabric, occasional stressed crystals and an extremely high MGS, comparable only to that of the marbles from Trigaches (southern Portugal) and Naxos (Greece). The presence of feldspars in LUG-0847 and also LUG-0848 would seem to link them to Santa Eulalia de Boveda's marbles (BVD-0844 and BVD-0845) but they are much rarer and smaller. Yet the particularly strong (in calcitic light orange), homogeneous CL shown by these three samples is very different from the one shown by the BVD samples and, most interestingly, it is not compatible either with the coarse-grained Iberian marbles such as Trigaches or with the other Portuguese, smaller coarse-grain marbles from the Estremoz Anticline. Finally, although it is the only isotopically coincident (Fig. 3B), their strong CL also discards the well-known Naxos marble as possible provenance while their very negative isotopic O values point towards a Galician origin. Therefore, its attribution remains undetermined pending improvement of the the reference database with other local marbles from the NW of Spain.

Conclusions

Even in this initial stage and with such small assemblage, two very important contributions emerge from this study. First of all, the use of O Incio marble in Roman times is analytically corroborated in two capitals, thus confirming for the first time the already mentioned previous assumptions. But at the same time, the results show a more complex picture than what was anticipated of the marble industry in *Gallaecia*, as other presumably local marbles were also exploited and used during Roman times. Not only were the ornamental plaque of Amiadoso and the two capitals from Santa Eulalia de Bóveda also made with fine-grained marbles of very likely local origin, but the use in Antiquity of very-coarse grained marbles whose source is presumably somewhere in the NW of the Iberian Peninsula has also been detected, for the first time.

The variability of the petrographic and CL reference traits of the Galician fine-grained banded marbles is compensated for with quite distinctive negative $\delta^{18}O$ isotopic values. These isotopic values set them apart from most of the white and white/grey Mediterranean marbles known so far, as well as from the only fine-grained Iberian marbles known so far, outcropping in Estremoz Anticline (southern Portugal), which can also appear as dark grey banded materials[24]. The coarse-grained, white marble objects studied in this work share these low $\delta^{18}O$ isotopic values, while presenting petrographic and CL features that distinguish them from the Classical ones.

Although these other marbles are still to be sourced and archaeometrically characterized, the quarrying of local marbles emerges as a key aspect. These local marbles were mostly used for architectural elements (capitals, carved plaques and mouldings) but also for inscriptions. Only the fine-grained varieties allowed a highly skilled working while the inscribed elements so far analysed were carved on the coarse-grained white marble. Concerning the chronology, local marble was exploited since the 3rd century AD without doubt and maybe from a century earlier, as suggested by the two inscriptions. The O Incio marble in particular seems to have been in use basically from at least the Late Roman period onwards, but it reached places as far as 100 km from the quarry. Thus we can assume that a region-wide distribution network existed, either at the time or later on, with the distribution of old elements to be reused in early medieval churches. Indeed, it is difficult to precise a chronological framework for their distribution. Besides the strong weathering of many of the out-of-context pieces, reuse became part of the building practices in Late Roman and Visigothic times – including the transport of elements from relatively distant places – sometimes even with symbolic connotations (UTRERO AGUDO, SASTRE DE DIEGO 2012).

This first provenance study provided the essential basis upon which to pursue further research. Some of it is already in progress and focuses on locating and characterizing other marble outcrops in this territory. Only in this way will it be possible to identify the unresolved provenances and to advance on the characterisation of the local marbles, thus confirming or completing what these first results enable us to glimpse about the exploitation and use of marble in Roman *Gallaecia*.

24 Although the published isotopic diagram (see fig. 4) reflects only the white lithotypes (LAPUENTE *et al.* 2000, 2014), according to the results presented by P. LAPUENTE *et al.* in this same volume, the isotopic values of the white/grey lithotypes do not significantly vary. Our most sincere gratitude goes to her for sharing this information and other considerations with us.

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