IRUÑA-*VELEIA* (ÁLAVA, SPAIN): AN OVERVIEW OF THE FISH REMAINS FROM THE *DOMUS* OF *POMPEIA VALENTINA*

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ABSTRACT: Many loose ends still remain in connection with the study of Roman fish productions in Iberia. Among these, the halieutical connotations of the so-called "third century crisis" that witnessed the demise of many of the iberian fish factories, have been traditionally pursued with documentary data due to a secular scarcity of fish remains from those moments. The analysis of the second to third century AD fish assemblage at Iruña-*Veleia*, is intriguing in that it suggests that the appearance of fresh fish at the tables of the Roman elite there might have taken place in northern Spain around that time. Whether such phenomenon links with a reduction in the production of both *salsamenta* and high quality fish sauces (*garum*) and a shift to low quality sauces (*hallec* and *muria*) that the faunal data suggest gained momentum at the end of the second century AD, is a matter that will require further analysis once reliable collections from coastal sites from this period become available for study.

KEYWORDS: FISHES, IBERIA, BASQUE COUNTRY, ROMAN AGE, SECOND CENTURY AD, THIRD CENTURY AD, TRADE, FRESH FISH, PROCESSED FISH

RESUMEN: Son muchos los cabos sueltos que perduran en el estudio de las producciones romanas de pescado en Iberia. Entre estas destaca la putativa "crisis del tercer siglo", que supuso la desaparición de un gran número de factorias del litoral peninsular, fenómeno que sólo ha podido ser abordado desde una óptica documental ante la inexistencia de restos óseos de ese momento. La ictiofauna recuperada en un *domus* del complejo de *Iruña-Veleia* abarca un lapso temporal que va desde la segunda mitad del siglo IIcC hasta el IIIdC y sugiere que podría ser en estos momentos cuando comienza a extenderse entre las élites romanas la costumbre de consumir pescado de mar fresco en lugares alejados de la costa. Si tal fenómeno enlaza de algún modo con la reducción en el consumo de *salsamentas* y salsas selectas de pescado (*garum*) y su reemplazo por salsas de inferior calidad, tipo *hallec* o *muria*, como apunta la evidencia faunística ocurrió a finales del siglo IIdC, es cuestión importante que requerirá el análisis ictiofaunas en contextos primarios de yacimientos litorales.

PALABRAS CLAVE: PECES, IBERIA, PAÍS VASCO, ÉPOCA ROMANA, SEGUNDO SIGLO d.C., TERCER SIGLO d.C., COMERCIO, PESCADO FRESCO, PESCADO EN CONSERVA

INTRODUCTION

Despite an archaeological richness that dates back to the Middle Palaeolithic, the Basque country features a comparatively poor record of Roman sites as well as a secular dearth of marine fish remains (Altuna, 1980). Whereas the reasons for the former may lie in the social and political domains, the Basque country having never been a region of prioritary interest for the Romans, the general scarcity of marine fishes is probably fictitious. Indeed, given its location sandwiched between the cantabrian sea and mountains, one would expect marine resources to have been important there at all times. Such hypothesis is gaining strength now that fish remains have started to appear in

significant numbers at excavations where a systematic sieving of the sediments became implemented.

From the standpoint of fish productions, the so-called industrial fishing enterprises that the Romans developed in Iberia during classical antiquity witnessed a collapse at the start of the third century AD (i.e., the so-called "third century crisis") that, among other things wiped out more than half of the factories dotting the shores of the peninsula until that time (Curtis, 1991). This episode, undoubtedly a reflection of a far deeper socio-economic phenomenon, appears to correlate with a faunal replacement of sorts where the role played until those moments by the large and medium-sized scombrids as prioritary items of the fishing enterprises was taken by the small clupeids, mainly sardines and anchovies 5-10cm long (Desse-Berset & Desse, 2000; Morales *et al.* 2007; Roselló & Morales, in press). Given that scombrids could be marketed both as processed meat (i.e., *salsamenta*) and high-quality sauces (eg., *garum*) whereas the small clupeids could only go into the production of low-quality sauces such as *hallec* or *muria*, such "faunal replacement" may signal a shift in the production of comparatively scarce but expensive goods to cheap and abundant ones of profound consequences demanding an evaluation from a holistic perspective, rather than from the more restricted historical or faunal standpoints.

Such putative replacement of fishes remains documented only in an indirect way to this day due to the inexistence of coastal fish assemblages from archaeological sequences bridging the gap between the second and the third centuries AD. The idea therefore remains as a provocative hypothesis, and constitutes one of the reasons that grant relevance to the analysis of the fish assemblage retrieved in a roman *villae* at the site of Iruña-*Veleia*.

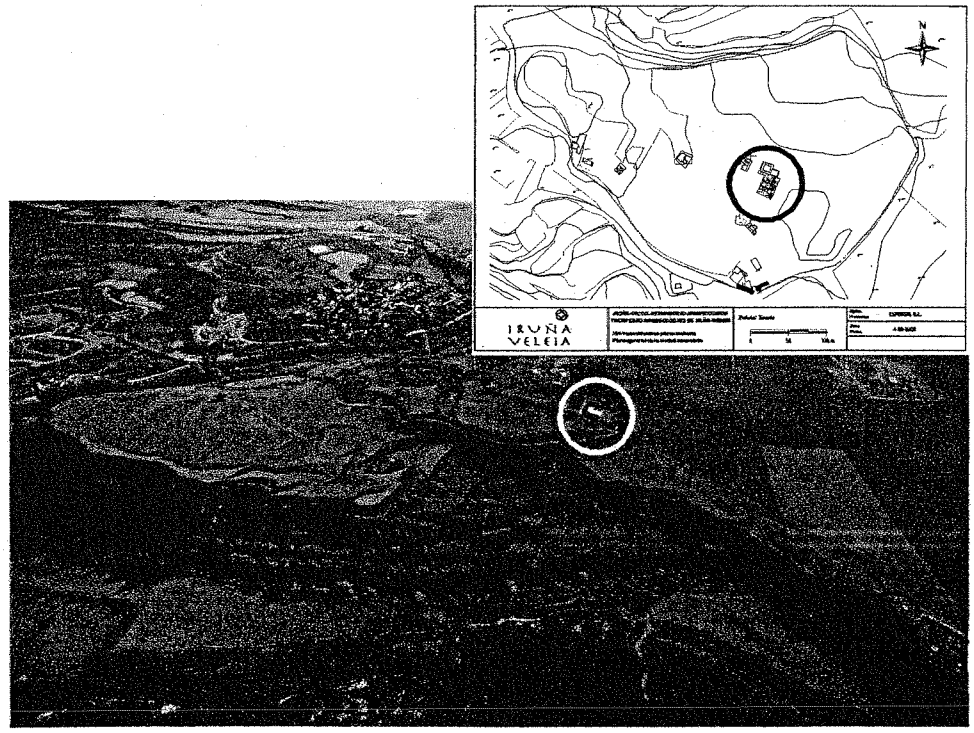

Figure 1- Iruña- Veleia : General perspective and plan of the city

THE SITE OF *VELEIA*

The city of *Veleia* was built by the Romans during the first century AD on a hill surrounded by a meander of the river Zadorra upon what during the Iron Age constituted a huge (i.e., *ca.* 50Ha) *oppidum* of the Carintians (Figure 1). The city, the only one existing in the Basque country during Roman times as such, not only benefited from its strategic location on a very fertile soil but also by its placement near the main Roman road crossing through the Basque country, namely the one leading from the city of Astorga (province of León, Spain) to Bordeaux in France (Figure 7). The city became an important trade center whose extension reached to some 100Ha at the height of its power and included hundreds of *domus* (i.e., urban residences) in addition to a wealth of public buildings such as temples, a forum, a theatre along with several *thermae* (i.e., public baths). It was abandoned at the end of the fifth century AD. It is important to remark that all throughout its existence, the city was keen on reproducing what were the architectonic fashions of the day at the metropolis, adopting the successive italic models of construction and incorporating the decoration styles that came along with them (i.e., atria, perystila, mural paintings, stucco reliefs, mosaic pavements, etc.). One of these developments, a private school or *paedagogium*, was incorporated as a room to only the richest *domus* of the city and it is from the levels accumulated on one such rooms that the remains presented in this paper derive.

The *domus* in question received its name of *Pompeia Valentina* from one of the residence's former masters and constitutes one of the richest residences discovered in *Veleia* to this date. The sediments that have been excavated during the 2005 campaign were deposited on top of the *paedagogium* floor and represented an accumulation of refuse dating from the second half of the second century AD to the third century AD (Figure 2).

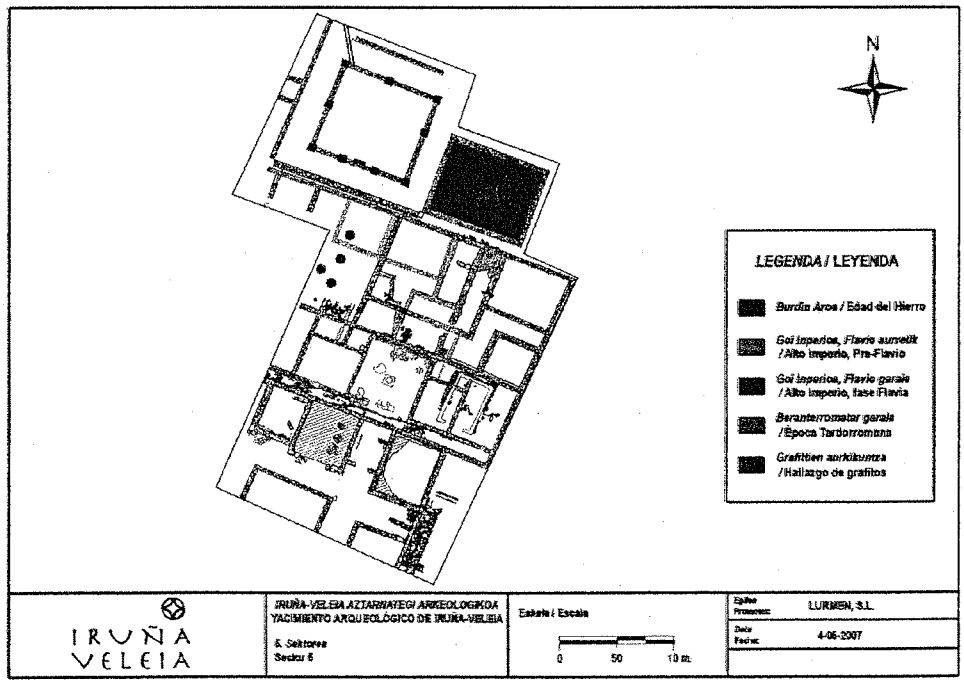

Figure 2 - The *Domus* of *Pompeia Valentina* with an indication of the *paedagogium*

Although the retrieval of the remains was carried out by hand, 13kg of sediments were taken to our laboratory and sieved with meshes of 0,5mm. Many shells of tiny pulmonates and exoskeletons from various kinds of arthropods (mites, insects and ostracods) were retrieved through this fine sieving, yet only six remains of fishes in addition to those shown on Table 1 were detected. These included five pharyngeal teeth fragments from cyprinids indicating, for our purposes the fish collection that we describe below constituted a fairly representative sample of the remains originally deposited in the *paedagogium* level.

In addition to fishes, more than 9,000 animal remains have been retrieved in this area. Although fragmentation had been intense, almost 40% of these coud be identified taxonomically (O.Escribano, pers.com.). Domestic animals constitute the bulk of this assemblage led by pig (50% of all the identified bones). Ovicaprines (19%) and cattle (9%) follow but birds (mostly chickens) constitute a relevant 7,5% of the NISP (i.e.,identified number of remains). Red deer and mollusks reach only to 4% each and the remaining taxa (ie., horse, dog, cat, roe deer, wild boar and lagomorphs) are marginal, the 1,6% of the wildboar perhaps representing an underestimation of the species' real contribution since non-adult specimens might have been inadvertendly included in the domestic pig sample.

RESULTS

Table 1 provides an overview of the fish assemblage. As expected, a fairly large number of the remains (i.e., 30%) could not be identified taxonomically. For the most part these included ribs and fin rays although there were also a substantial number of broken vertebrae and cranial bones. Although most of the wrasses' bones could not be identified to species level, it appears that the *Veleia* sample featured only bones of the Ballan wrasse, *Labrus berggylta*, an atlantic species that ocassionally ventures into the Mediterranean (Whitehead *et al.*, 1984).

The distribution of remains is far from homogeneous as one of the UEs (no.51144) comprises 80% of the NISP (i.e., number of identified specimens). This simply reflects the non-random horizontal distribution of items in the *paedagogium* level, a most usual feature of archaeological deposits. Peculiar for a site located on the meander of a fairly large river, on the other hand is that barely 15% of the remains derived from freshwater fishes, no evidence existing either from ubiquitous amphidromous species such as eels and salmon. This means that most of the fishes were imported into *Veleia* so that one must conclude that choice, not avalability dictated presence. In case this was so, one may likewise infere that trade more than local production was responsible for the richness the assemblage exhibited.

RECINTO	20	49	50		50/52	52				55	58	59		61	55/58/61	50152155	
UE	5920	5902	5941	5942	5919	5851	5921	5930	51044	5992	51199	51144	5001	51184	51279	5904	TOTAL
Muraena helena												2					2 (1'9%)
Conger conger				1				1				8			1		11 (10'5%)
Barbus sp.										1	3	8					12 (11'5%)
Cyprinidae indet.													1	1		1	3 (2'9%)
Lithognathus mormyrus												2					2 (1'9%)
Pagellus erythrinus						2	1					16		1			20 (19%)
Pagrus pagrus		2															2 (1'9%)
P. erythrinus/P. pagrus		1															1 (0'9%)
Sparidae indet.												3					3 (2'9%)
Labrus bergylta			1			1										1	3 (2'9%)
L. bergylta/L. merula					2							15					17 (16%)
Labrus sp.											2						2 (1'9%)
Mugil cephalus												1					1 (0'9%)
Chelon labrosus											1						1 (0'9%)
Scomber scombrus												3					3 (2'9%)
Scomber japonicus	1	1			1				1		1	15					20 (19%)
Scomber sp.												1					1 (0'9%)
TOTAL ID	1	4	1	1	3	3	1	1	1	1	7	74	1	2	1	2	104 (100%)
Pisces indet.		1			1							39				4	45
TOTAL	**1**	**5**	**1**	**1**	**4**	**3**	**1**	**1**	**1**	**1**	**7**	**113**	**1**	**2**	**1**	**6**	**149 (100%)**

Table 1- The taxonomical composition of the fish assemblage at Veleia distributed according to stratigraphic units (UE) and squares (RECINTO)

SKELETAL PART	Moray eel	Conger eel	Carpfish	Sea bream	Wrasse	Grey mullet	Mackerel	TOTAL
Skull		1	1					2
Cranial bones	1	7	4	12	15		4	43
Pectoral girdle			4	1	1			6
Vertebrae	1		2	14	6	2	20	45
Fin rays				1				1
Ribs		3	4					7
TOTAL	**2**	**11**	**15**	**28**	**22**	**2**	**24**	**104**

Table 2- The NISPs of the Veleia Fish taxa, distributed according to skeletal categories

The skeletal representation of most taxa hints at the presence of complete specimens (Table 2 & Figure 3). In general, there does seem to exist a somewhat loose correlation between the abundance of a taxon and the degree of ossification of its skeletal portions. Such a correlation may help explain the more equilibrated profiles of the "thoroughly ossified" sea breams (Sparidae) and carpfishes, and also why pharyngeal teeth constituted most of the wrasses' skeletal sample. Additional agents may be involved in the case of the conger eel. Indeed, if ribs from this species were found one would also expect to find vertebrae, and although the reasons for the absence of the later could be strictly stochastic, specific butchery and commercial practices might have been at work as well. In this way, in Spain the only portion of the conger eel that was traditionally marketed inland was the head and trunk (i.e., that portion of the body were the viscerae are located) for the tail portion, where vertebrae represent the bulk of the tissue was considered a low quality product, mainly used to give flavour to the soup (Sáñez-Reguart, 1796). The skewed representation of the conger eel may therefore constitute an indication of the "luxury food" status of the species at *Veleia*, a feature that many other faunal remains apparently shared (see below). Finally, the fact that for the grey mullets (Mugilidae) only vertebrae have been retrieved, in addition to stochastic phenomena (NISP= 2) may likewise reflect the effects of the diagenesis on the bones, due to the significantly lower degree of ossification that the cranial elements, ribs and fin rays of this group feature by comparison with the vertebrae (Morales & Roselló, 1998).

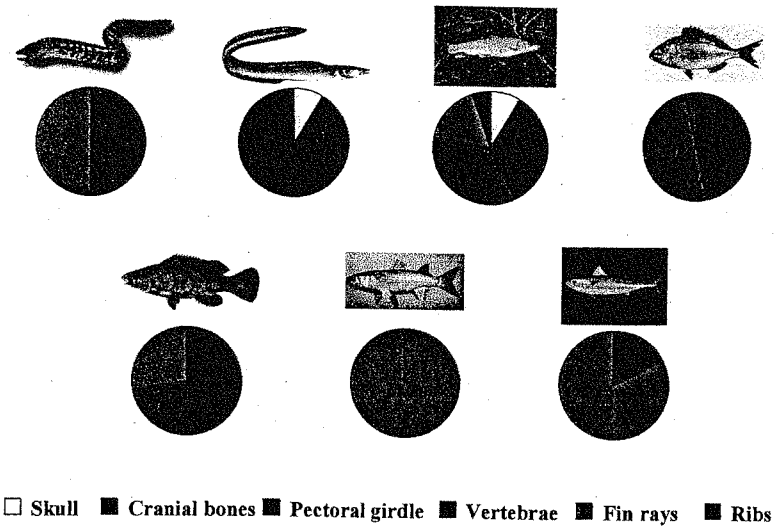

Figure 3 - The skeletal profiles of the different groups at Veleia. Upper row (from left to right): Muraenidae (moray eels), Congridae (conger eels), Cyprinidae (carpfishes) and Sparidae (sea breams). Lower row (from left to right): Labridae (wrasses), Mugilidae (grey mullets) and Scombridae (in this picture, mackerels)

In terms of size, Figure 4 evidences that most of the fishes at *Veleia* ranged between 25-50 cm SL (standard length) yet such "homogeneity" hides stark differences in weight and bio-cultural implications. In this way, mackerels with a SL of 35cm weight some 600g but those only 15cm longer reach up to 1,7kg (http://www.fishbase.org/search.php). Since most of the mackerels at *Veleia* lied between 45-50cm they represented large specimens by all standards (1-1,7kg) that are in many cases close to the present day recorded maxima of 52-54cm SL of both the Atlantic (*Scomber scombrus*) and the Spanish mackerel (*S. japonicus*). Such large fishes very rarely swim close to the shore. On the other hand, grey mullets in the 35-45cm SL range (estimated weights between 600-1400g) would still be far away from the maxima of both the flathead (*Mugil cephalus*; 120cm/12kg) and the thicklip mullet (*Chelon labrosus*; 75cm/5kg). Of medium sizes at *Veleia* were also the wrasses whose 25-40cm SL range indicates the presence of specimens between 270-1000g (http://www.fishbase.org/search.php). Pandora (*Pagellus erythrinus*) exhibited an almost identical SL range and since it, as the ballan wrasse can reach up to 60 cm (3,2kg), one may state that the 600-2,400g specimens at *Veleia* represented medium-sized fishes. Far less reliable were the size estimations in the case of the carpfishes and the anguiliforms. The moray eel (*Muraena helena*) represented a fairly large animal with an estimated SL of around 1 meter (2-3kg?) yet still well below the present day maximum recorded for this species (150cm & 8 kg). As for the conger eel (*Conger conger*), all its remains derived from animals around 10 kg, above one and a half meters SL (9.5 kg at 150cm SL; personal data). All these would qualify as "medium-sized" specimens given that conger eels can reach up to 300cm (+100 kg) and that specimens 200cm long (26kg) are not uncommon today in the spanish markets (pers. data). Medium sized conger eels are most often taken in fairly shallow waters thus the *Veleia* specimens could be taken to represent the catches of an inshore fishery. In fact, except

for the mackerels, most of the *Veleia* specimens could have been fished with hook and line from the shore (Sáñez-Reguart, 1796).

An ecological breakdown of the marine fishes evidences a slight dominance of non-migratory, essentially demersal taxa although the later term is used here to refer to fishes that are neither strictly benthonic nor epipelagic (Figure 5). Still, both the later, represented by the mackerels, and the benthonic wrasses and "eels" constituted a fair share of the total indicating that different catching methods were deployed in the capture of this particular assemblage. As stated, fishing tackle must have included hook and line at least in the case of the conger eel and perhaps also the wrasses though nets could have been used for capturing the more gregarious mackerels, grey mullets and sea breams. Leisters and traps of various kinds, including baskets can not be ruled out in the capturing of the moray eels. Fishing most likely involved vessels of one kind or another, at least in the case of the mackerels.

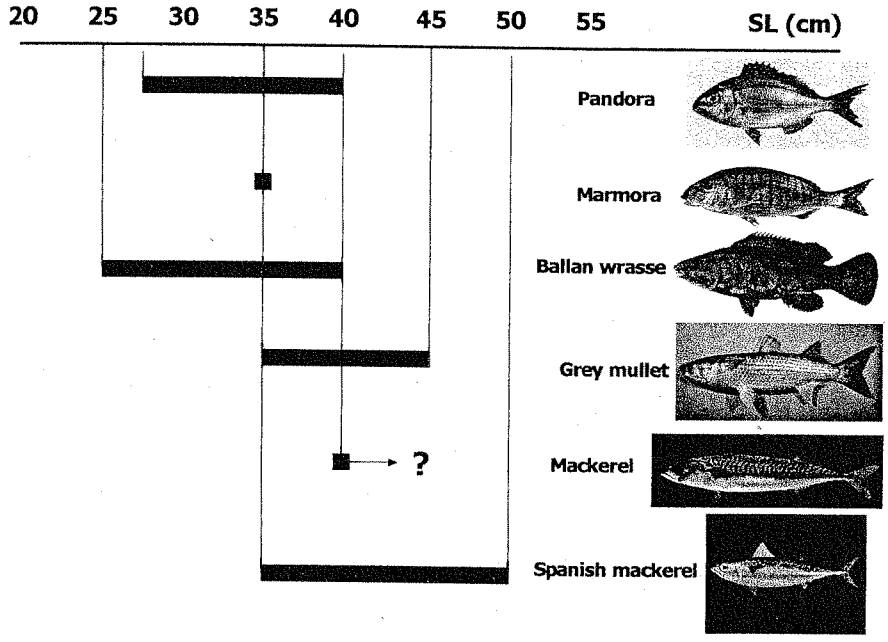

Figure 4 - The distribution of sizes of selected groups

DISCUSSION

Several lines of evidence indicate that a majority of the leftovers that accumulated in the *Paedagogium* level represented what Ervynck *et al.*(2003) have defined as level 4 (i.e.,"luxury") food, namely "*....consumption, beyond the level of affluence, of goods that are special, limited in supply, difficult to procure or very expensive due to other reasons...*" (Ibid.:203). At *Veleia* the list of luxury foods included (Oscar Escribano, verb.com.):

1) Oysters (*Ostrea edulis*), a Roman culinary delicacy (Günther 1897; Reese 2002), that together amounted to 98% of the mollusc assemblage (NISP=490).

2) The remaining molluscs, all of them marine and all of highly esteemed meat according to the classical sources (Reese, 2002). These included scallops (*Pecten sp.*), murex shells (Muricidae) and cockles (*Cerastroderma edule*)
3) Pig, which not only represented 50% of the NISP, but was mostly represented by sucklings.
4) Lambs, that constituted a large, though still unspecified fraction of the ovicaprine sample
5) Chickens, which in addition to constitute a comparatively large fraction of the NISP (7.5%), featured abundant cutmarks indicating the consumption of their meat
6) Red deer and wild boar, which together represented a substantial 6% of the NISP

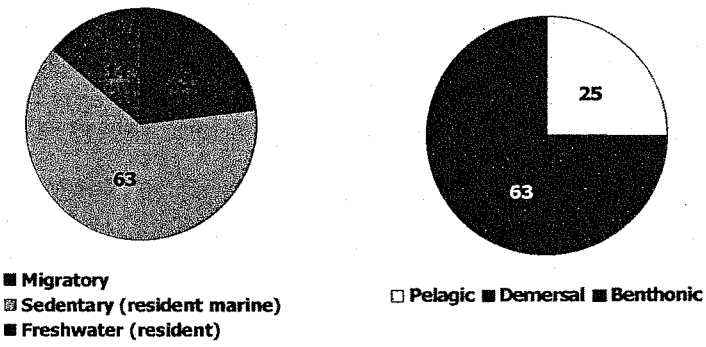

Figure 5 - The Veleia marine fishes distributed according to ecological groups

In other words, the combination of marine foodstuffs, birds and wild game reached to 20% of the NISP, whereas adults of the main domestic stocks represented less than 10% of that NISP. Clearly, this is not what one would normally expect to find in the garbage dump of a typical Roman agrarian community (MacKinnon, 2004). It appears that, just as was the case for the fishes, it was choice rather than availabitity the force dictating the composition of the faunal assemblage in the *paedagogium* level.

Since *Veleia* lies some 75-80km from the nearest shore the marine component of the animal diet, though restricted in number (i.e.,5% of the NISP) constituted the paradigm of luxury foods for it met all four criteria of "*..goods that are special, limited in supply, difficult to procure or very expensive due to other reasons*" (Ervynck *et al.*, 2003: 203).

The first issue that one must address in the case of the marine products is how did they reach the site, whether fresh or processed. The finding in the *Paedagogium* level of a Beltrán IIA/IIB amphora (Figure 6) is relevant for it reveals the presence of a classical fish vessel whose production reached until the middle of the third century AD

(D.Bernal, verb.com.). Only clupeiform fishes at Masada (Cotton *et al.*, 1996; Lernau *et al.*, 1996) and horse mackerels (*Trachurus trachurus*) at Saint-Gervais (Desse-Berset & Desse 2000) have been thus far reported inside these amphorae although the "*unspecified Baetica*" filled with spanish mackerels that Delussu & Wilkens (2000) studied from the shipwreck at Elba apparently corresponded to a Beltrán IIB amphora (D. Bernal, verb.com.). At *Veleia*, the possibility that the mackerels constituted *salsamenta* (i.e.,salted fishes) gains strength by considering the homogeneous and large sizes of the fishes, and by the coincidence of these sizes with those of mackerels reported in amphorae from other Mediterranean sites (Delussu & Wilkens 2000; Desse-Berset & Desse 2000). The absence of small fishes, on the other hand would rule out the possibility that medium or low quality fish sauces were present at *Veleia* reinforcing the high quality nature that many of the foods consumed at the *Domus* shared.

The presence of oysters hints that a transport of fresh goods took place from the shore. Oysters were consumed fresh during Roman times and do not last for long when taken out of the water. Thus, although nowadays and under optimal conditions oysters remain alive for up to 12 days, in a recent experiment Castaños & Escribano (in prep.; verb.com.) reveal that in a "traditional setup", and even during winter 5-6 days may mark their critical threshold of survival. Given the estimated 7.5km per hour that a Roman chariot averaged on a road at the time according to these authors, a non-stop journey to *Veleia* from the nearest shore would have required a mere 11-12 hours (i.e., one and a half days allowing for a nightime stop).

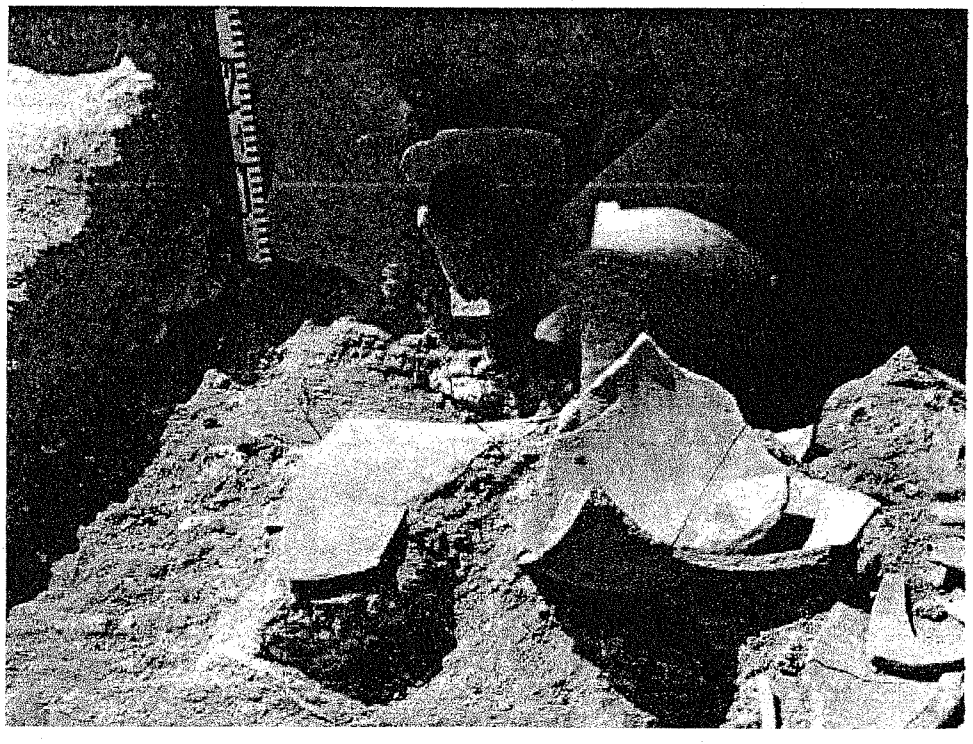

Figure 6 - The Beltran IIA/IIB amphora found in the *paedagogium* floor

There exist remains of two major Roman roads leading from the coast to the neighborhood of *Veleia* of which the most direct one leads from Flaviobriga (i.e., Castro-Urdiales) in Santander to Deobriga (i.e., Briviesca) in Burgos (Figure 7). The most direct route to the sea, however lied straight ahead from *Veleia* through the Paso de la Oca to Altube. Although this route now lies below the motorway from Vitoria to

Bilbao, scattered sites along it such as the Castro de las Peñas de Oro, testify to its importance as the main connection of the basque hinterland with the cantabrian coast during classical antiquity. No trip along any of these roads would have lasted for more than two days, and the presence of oysters at several other sites close to *Veleia* suggests that trade of fresh marine products inland must have been a common feat during Roman times (Castaños & Escribano; in prep.).

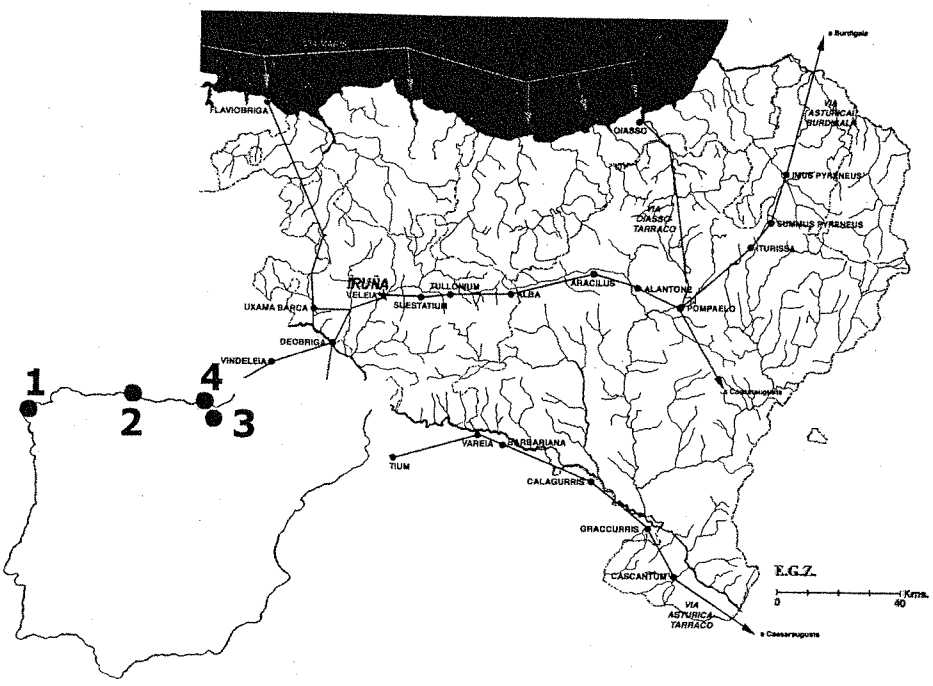

Figure 7 - Selected coastal sites from northern Spain (1: Castro da Achadiza (province of La Coruña); 2: Fish factory at Gijón (province of Asturias); 3: Iruña-Veleia; 4: Cueva de Amalda (province of Guipúzcoa) and map with the main Roman roads around Iruña-Veleia

The putative presence of fresh oysters at *Veleia* helps us frame the discussion on the non-fatty meat (i.e., "white") fishes. Were these also transported to the site fresh or processed? Although "white" fishes can be processed in various ways -mostly salted- none of the species recorded at *Veleia* are mentioned by the documentary sources as having ever been processed, in Iberia or elsewhere (Curtis, 1991). The exception are the very small specimens of the sea breams, grey mullets and wrasses that ocassionally went into the production of sauces such as *hallec* or *muria* (Desse-Berset & Desse, 2000).

Additional lines of evidence favouring the idea that the marine "white fishes" at *Veleia* represented fresh goods include:

1 – Size. The infered 25-40cm SL of most specimens corresponded to animals whose weights did not reach to 1kg. Such weights not only are well below those what were normally processed as *salsamenta* but would have likewise represented a labour-intensive, low-reward job in terms of costs had the fishes been processed.

2- Presence of complete specimens of the medium-sized species (i.e., sea breams and wrasses). Had the fishes been processed as *salsamenta* one wonders why were their skulls and vertebrae not removed, as these represented a substantial, non-edible fraction of the total weight for any animal below 1kg. On the other hand, had the animals been marketed fresh, the be-heading and removal of the spine would have added an unnecessary time that would have raised both the cost of the product and the risk of the meat spoiling before reaching destination.

3- The skeletal profile of the conger (i.e., only the head and anteriormost part of the trunk. As stated, this profile conforms best with a transport of fresh animals in the manner that has been traditional for inland markets throughout Iberia until refrigeration techniques became implemented (Sañez-Reguart, 1796).

TAXON	ACHADIZA	GIJÓN	CUEVA AMALDA
Salmo cf. *salar*	1		1
Conger conger	1		
Merluccius merluccius	20		1
Pollachius pollachius	1	2	
Phycis phycis		1	
Trisopterus luscus	86		
Serranidae indet.	1		
Trachurus trachurus	1		
Dentex gibbosus		1	
Pagellus acarne	6		
Pagellus erythrinus	80	4	18
Pagrus pagrus	15		
Sparus aurata	156		
Labrus bergylta	4	1	
Symphodus melops	3		
Scomber scombrus		1	
TOTAL	**379**	**10**	**20**

Table 3 - The taxonomical composition of coastal sites in northern Iberia from the 1st century BC (Achadiza) to the fourth century AD (Amalda). See Figure 3 for the location of the sites.

4- The composition of the "white fish" assemblage from the standpoint of the cantabrian fish record during Roman times. Table 3 summarizes the data from the very few cantabrian fish assemblages that span the period running from the first century BC (Iron Age hillfort of Achadiza, province of La Coruña) to the fourth century AD (Amalda cave, province of Guipúzcoa)(Ferré *et al.*, 1996; Morales & Roselló, 1989). These two sites, the former lying on the shore the later a mere 4km away from it, represent indigenous contexts (i.e., subsistence fishing) yet evidence coincidences with the fishes retrieved from the third century AD Roman fish factory at Gijón (Roselló & Cañas, 1994), namely:

a) A "dominance" of the littoral sea breams and, secondarily of the gadoid fishes (Pollock, *Pollachius pollachius,* Hake, *Merluccius merluccius* and Whiting pout, *Trisopterus luscus*).
b) The ubiquity and relative "abundance" (NISPs are minute in all cases) of Pandora

that the *Veleia* assemblage reinforces to some extent. In this way, the coincidences between *Veleia* and the few cantabrian sites available include the abundance of the sea breams in general, and of Pandora in particular. Also coincident appear to be the relative abundances of the (Ballan) wrasse and the presence of the conger eel, a most unusual taxon in sites outside northern Iberia before medieval times (Roselló, 1989).

In terms of differences, the main one refers to the absence of the gadoid fishes at *Veleia*. This group's importance in cantabrian waters is paralleled in the North and Baltic seas where gadids often constituted the main family in Holocene sites (Bødker-Enghoff 1999, 2000). Additional differences at *Veleia* were the absence of the presumably ubiquitous salmon and the presence of the presumably rare moray eel.

Although still at a very tentative level of analysis, the overall impression one gets from these very limited data is one of a rather heterogeneous and peculiar assemblage existing at *Veleia* that incorporated two kinds of marine fishes, namely the presumably processed mackerels, probably deriving from non-cantabrian waters, and the "white fishes" presumably deriving from cantabrian waters and marketed fresh.

Still, if choice rather than availability determined presence in the *paedagogium* level, then the differences between the fish assemblages of *Veleia* and those of the coastal cantabrian sites may reflect a subtler phenomenon. Indeed, the combined absences of presumably common cantabrian fishes and presence of presumably rare ones convey the impression of a selective gathering that would have resulted in the fish assemblages (i.e., the "diet") from *Veleia* conforming better with a mediterranean, meaning Roman, fauna rather than with a cantabrian one. From such a standpoint, choice would have reinforced the luxury food status of the fish component of the diet, the mackerels then merely adding an additional "Roman identity" item to the spectrum of fashionable foodstuffs.

The framing of the *Veleia* data within such a non-parsimonious scenario will hopefully help illuminate the non-biological issues that the analyses of future fish assemblages harbour. These issues have thus far been overlooked for the most part yet probably hold the answer of many of the questions that have surrounded Roman fish productions in Iberia to this day.

CONCLUSIONS

Within the realm of Roman fish productions it appears that from the late second century AD onwards, a development of fish sauces at places far away from the classical iberian and Black Sea centers was started. These places ranged from the North to the the Red Sea and the most common species included the local clupeiform fishes, as was the case of the herring (*Clupea harengus*) and sprat (*Sprattus sprattus*) in the North Sea, and of certain anchovy-like species in the Red Sea (Jones, 1988; Studer 1994; Van Neer & Lentacker, 1994). Ocassionally certain freshwater species were also used both in Europe and in Egypt (Studer, 1994; Hüster-Plogmann, 1999; Van Neer & Ervynck, 2004). This production kept on at certain places even after the Roman empire collapsed (e.g., Israel). In all cases the animals were of very small size so that the productions conformed best with sauces of the *muria* or *hallec* type that most authors consider a low quality foodstuff meant to provide cheap protein to the poor (Curtis, 1991). The third

century AD that followed witnessed the collapse of many of the Iberian fish factories and also those at Chersonessos, and it remains unclear whether these two phenomena are linked in any way to each other or to this secondarily regional development of sauces (Ervynck *et al.*, 2007). What does seem to be clear is that after this collapse, the iberian factories that survived aimed at the mass production of this rather cheap foodstuff (Desse-Berset & Desse, 2000).

Around the end of the second century AD, the first vessels of the so-called *naves vivaria*, meant for the transport of live fishes, started to be documented in Italy (Boetto, 2007). Along with them, Seneca refers that the Romans (meaning the rich classes) only eat those fishes what they can see alive before reaching their tables. These two very different lines of evidence suggest that the need to supply distant markets with live fish may date to about the same time when the mass production of low quality fish sauces gained strength. Again, to what an extent are these two phenomena coupled to each other and refer a situation of specialisation within the fishing industries of the Roman empire remains open to question. Still, if the *Veleia* fishes reflected the fashions of the day more than anything else, then the absence of clupeids and the presence of a very specific range of fresh species at their tables may represent two faces of the same coin (i.e., a high-status diet keen on exhibiting signs of its Roman identity). The confirmation that a significant portion of the fishes represented fresh goods, on the other hand, could be taken reflect a change in the dietary habits of Roman society of far-reaching consequences for the fishing enterprises of Iberia at this time that may pave the way for a more holistic interpretation of the so-called third century crisis.

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REFERENCES

ALTUNA, J., 1980.- Historia de la domesticación animal, en el País Vasco, desde los orígenes a la romanización, *Munibe,* 32, p.1-163.

AREVALO, A., D. BERNAL (Eds) 2004.- *Garum y Salazones en el Círculo del Estrecho*, Algeciras, Servicio de Publicaciones Ayuntamiento de Algeciras

B'DKER-ENGHOFF, I., 1999.- Fishing in the Baltic region from the 5th century BC to the 16th century AD: Evidence from fish bones, *Archaeofauna*, 8, p.41-85.

B'DKER-ENGHOFF, I., 2000.- Fishing in the southern North Sea region from the 1st to the 16th century AD: Evidence from fish bones, *Archaeofauna*, 9, p.59-132.

BOETTO, G., 2007.- A Roman fishing vessel from Ostia. Paper presented at the International Workshop *Nets and Fishing Gears in Classical Antiquity*, november 15-17th Cádiz (Spain).

COTTON, H., LERNAU, O., GOREN, Y., 1996.- Fish sauces from Herodian Masada, *Journal of Roman Archaeology*, 9, p.223-238.

CURTIS, R., 1991.- *Garum and salsamenta: Production and Commerce in Materia Medica*, Leiden, E. J. Brill.

DELUSSU, F., WILKENS, B., 2000.- Le conseve di pesce. Alcuni dati da contesti italiani. *MEFRA* 112, p. 17-18.

DESSE, J., DESSE-BERSET, N.,1993.- Pêche et surpêche en Mediterranée: le temoignage de l'os. *in* :J. Desse, F. Audoin-Rouzeau (eds) *Explotation des Animaux à travers le temps*, Juan-les-Pins, Editions APDCA, p. 327-340.

DESSE-BERSET, N.,1993.- Contenus d'amphores et surpêche: l'exemple de Sud-Perduto (Bouches de Bonifacio). *in* :J. Desse, F. Audoin-Rouzeau (eds) *Explotation des Animaux à travers le temps*, Juan-les-Pins, Editions APDCA, p. 341-346.

DESSE-BERSET, N., DESSE, J., 2000.- Salsamenta, Garum et autres préparations de poissons. *MEFRA* 112, p.73-97.

ERVYNCK, A., VAN NEER, W., HÜSTER-PLOGMANN, H., SCHIBLER, J., 2003.- Beyond Affluence: The Zooarchaeology of luxury, *in*: M. Van der Meen (ed) *Luxury Foods*, London & New York, Routledge, p.428-441.

ERVYNCK, A., VAN NEER, W., 2007.- Fish processing and consumption at the ancient city of Chersonessos (Crimean Peninsula, Ukraine), paper presented at the meeting *Archeologie du Poisson*, october 18-20th Juan-les-Pins (France).

GÜNTHER, R.T., 1897.- The Oyster culture of the ancient Romans, *Journal of the Marine Biological Association,* 4, p.360-365.

FERRÉ, M.C., REY, J.M., CONCHEIRO, A., VÁZQUEZ, J.M. 1996.- Contribución al conocimiento ictiológico del castro de O Achadizo (Cabo de Cruz, Coruña, Galicia) *in* : P. Ramil-Rego, C. Fernández, M. Rodríguez (eds) *Biogeografia Pleistocena-Holocena de la Península Ibérica*, Santiago de Compostela, Junta de Galicia, p.291-296.

http://www.fishbase.org/search.php

HÜSTER- PLOGMANN, H., 1999.- Fischreste aus Schlammpröben aus dem Bereich der Herdstelle in Raum B6, *in*: H. Sütterlin (ed) *Kastelen 2. Die Älteren Steinbauten in den Insulae 1 und 2 von Augusta Raurica*, Augst , Forschungen in Augst, 22, p.214-219.

JONES, A.K.G.,1988.- Fish bones from the excavations in the cemetery of St.Mary Bishophill Junior", *Archaeology of York*, 15(2) p. 126-130.

LERNAU, O., COTTON, H., GOREN, Y., 1996.- Salted fish and fish sauces from Masada, *Archaeofauna*, 5, p.35-41.

MacKINNON, M., 2004.- *Production and Consumption of Animals in Roman Italy: Integrating the Zooarchaeological and Textual Evidence*, Portsmouth, Journal of Roman Archaeology, Supplementary series number 54.

MORALES, A., ROSELLÓ, E., 1989.- La ictiofauna de la Cueva de Amalda, *in*:J. Altuna, A., Baldeón, K., Mariezkurrena (eds), *La Cueva de Amalda (Zestoa, País Vasco). Ocupaciones paleolíticas y postpaleolíticas*: San Sebastián, Eusko Ikaskuntza, p. 255-265.

MORALES, A., ROSELLÓ, E., 1998.- Casual or Intentional? Comments on Fish Skeletal Representation from Iberian Archaeological Settlements, *in*: P. Anreiter, L. Bartosiewicz; E. Jerem, W. Meid (eds.) *Man and the Animal World*, Budapest, Archaeolingua, p.383-394.

MORALES, A., ROSELLÓ, E., in press.- 20,000 years of fishing in the Strait *in*: *T.C. Rick, J. M. Erlandson* (eds) *Archaeology, Historical Ecology, and Human Impacts on Marine Environments,* Berkeley, University of California Press

MORALES, A., ANTIPINA, E., ROSELLÓ, E., ANTIPINA, A., 2007.- An ichthyoarchaeological survey of the ancient fisheries from the northern Black Sea, *Archaeofauna*, 16, p.117-172.

MORALES, A., Bernal , Vargas, ROSELLÓ, E.,.- Salazones y salsas de pescado en la Antigüedad: un primer acercamiento a las evidencias de paleocontenidos y depósitos primarios en el ámbito euro-mediterráneo,

REESE, D.S., 2002a.- Fish: Evidence from specimens, mosaics, wall paintings and Roman authors, *in*: W. Feemster Jashemsky, F.G.Meyer (eds), *The Natural History of Pompeii,* Cambridge, Cambridge University Press, p.274-291.

REESE, D.S., 2002b.- Marine Invertebrates, Freshwater shells and Land snails: Evidence from specimens, mosaics, wall paintings, sculpture, jewelry and Roman authors, *in*: W. Feemster Jashemsky, F.G.Meyer (eds), *The Natural History of Pompeii*, Cambridge, Cambridge University Press, p.292-314.

ROSELLÓ, E., 1989.- *Arqueoictiofaunas ibéricas. Aproximación metodológica y bio-cultural*, Madrid, Universidad Autónoma de Madrid.

ROSELLÓ, E., CAÑAS, J.M., 1994.- Análisis de la Ictiofauna de la Plaza del Marqués, *in*: C. Fernández (ed), *Una Industria de Salazones de Época Romana en la Plaza del Marqués,Gijón*, Gijón, Ayuntamiento de Gijón, p.189-197.

ROSELLÓ, E., A. MORALES (in press).- Vertebrados de las factorías de la calle San Nicolás (Algeciras, Cádiz) y reflexiones zoológicas sobre las factorías romanas de salazones, *in*: D. Bernal (ed), *Las factorías de salazones de Traducta,* Algeciras.

SÁNEZ-REGUART, A., 1796.-*Colección de Producciones de los Mares de España. Tomo I.* (Unpublished Manuscript. 1993 facsimile), Madrid, Ministerio de Agricultura, Pesca y Alimentación.

STUDER, J., 1999.- Roman fish sauce in Petra (Jordan), in: W.Van Neer (éd) *Fish Exploitation in the Past. Proceedings of the 7th meeting of the ICAZ Fish remains working group,* Tervuren, Annalen Zoologische Wettenschappen, 274, p.191-196.

VAN NEER, W., LENTACKER, A.,1994.- New archaeozoological evidence for the consumption of locally-produced fish sauce in the northern provinces of the Roman Empire, *Archaeofauna*, 3, p.53-62.

VAN NEER, W., ERVYNCK, A., 2004.- Remains of traded fish in archaeological sites: indicators of status or bulk food?, *in*: S. Jones O'Day, W.Van Neer, A.Ervynck (eds.), *Behaviour behind Bones: the Zooarchaeology of Ritual, Religion, Status and Identity*, Oxford, Oxbow Books, p. 203-214.

WHITEHEAD,P.J.P., BAUCHOT, M.L., HUREAU, J.C., NIELSEN, J. TORTONESE, E.,1984.- *Fishes of the North-Eastern Atlantic and the Mediterranean*, UNESCO, Paris.