

Neolithic and Bronze Age Studies in Europe

From material culture to territories

edited by

Marie Besse and François Giligny



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(4-9 June 2018, Paris, France)
Volume 13
Session I-4

edited by
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FROM MATERIAL CULTURE TO TERRITORIES

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Foreword to the XVIII UISPP Congress Proceedings

UISPP has a long history, originating in 1865 in the International Congress of Prehistoric Anthropology and Archaeology (CIAAP). This organisation ran until 1931 when UISPP was founded in Bern. In 1955, UISPP became a member of the International Council of Philosophy and Human Sciences, a non-governmental organisation within UNESCO.

UISPP has a structure of more than thirty scientific commissions which form a very representative network of worldwide specialists in prehistory and protohistory. The commissions cover all archaeological specialisms: historiography; archaeological methods and theory; material culture by period (Palaeolithic, Neolithic, Bronze Age, Iron Age) and by continents (Europe, Asia, Africa, Pacific, America); palaeoenvironment and palaeoclimatology; archaeology in specific environments (mountain, desert, steppe, tropical); archaeometry; art and culture; technology and economy; biological anthropology; funerary archaeology; archaeology and society.

The UISPP XVIII World Congress of 2018 was hosted in Paris by the University Paris 1 Panthéon-Sorbonne with the strong support of all French institutions related to archaeology. It featured 122 sessions, and over 1800 papers were delivered by scientists from almost 60 countries and from all continents.

The proceedings published in this series, but also in issues of specialised scientific journals, will remain as the most important legacy of the congress.

L'UISPP a une longue histoire, à partir de 1865, avec le Congrès International d'Anthropologie et d'Archéologie Préhistorique (C.I.A.A.P.), jusqu'en 1931, date de la Fondation à Berne de l'UISPP. En 1955, l'UISPP est devenu membre du Conseil International de philosophie et de Sciences humaines, associée à l'UNESCO. L'UISPP repose sur plus de trente commissions scientifiques qui représentent un réseau représentatif des spécialistes mondiaux de la préhistoire et de la protohistoire, couvrant toutes les spécialités de l'archéologie : historiographie, théorie et méthodes de l'archéologie ; Culture matérielle par période (Paléolithique, néolithique, âge du bronze, âge du fer) et par continents (Europe, Asie, Afrique, Pacifique, Amérique), paléoenvironnement et paléoclimatologie ; Archéologie dans des environnements spécifiques (montagne, désert, steppes, zone tropicale), archéométrie ; Art et culture ; Technologie et économie ; anthropologie biologique ; archéologie funéraire ; archéologie et sociétés.

Le XVIII^e Congrès mondial de l'UISPP en 2018, accueilli à Paris en France par l'université Paris 1 Panthéon-Sorbonne et avec le soutien de toutes les institutions françaises liées à l'archéologie, comportait 122 sessions, plus de 1800 communications de scientifiques venus de près de 60 pays et de tous les continents.

Les actes du congrès, édités par l'UISPP comme dans des numéros spéciaux de revues scientifiques spécialisées, constitueront un des résultats les plus importants du Congrès.

Marta Azarello
Secretary-General /
Secrétaire général UISPP

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Introduction to Neolithic and Bronze Age studies in Europe: from material culture to territories

Marie Besse, François Giligny

A large amount of papers have been proposed during the 18th UISPP Congress. It has become tradition to propose that some of them be presented in general sessions for each period, and one of these sessions was dedicated to the Neolithic and the Bronze age. Here we present eight papers related to this session, the majority concerning the Neolithic and one the Bronze age period.

Neolithic studies are promoted on behalf of the UISPP Commission 'Neolithic Civilizations of the Mediterranean and Europe' during the 18th Congress, and a large amount of communications have been proposed in many sessions.

In the first contribution, Alfonso Alday and his co-authors, 'Deconstructing the Neolithic: reflections from the Iberian Peninsula' discuss the Neolithization process of Iberia. It's an opportunity to come back to one of the most important debates of the Neolithic: the process of economic, social and symbolic changes involved with this period. The neolithization process is key to some of the most extraordinary changes in the relationship between man and his environment to the extent that it is now considered by some as an ecological disaster and the beginning of the Anthropocene. The intention of the authors is to deconstruct some concepts and to build another perception of the Neolithic in the Iberian peninsula. Two questions are discussed, animal domestication and village settling. The domestication itself is not always easy to demonstrate at its beginnings, when wild animal species equivalent are living in the same biotopes, as is the case for example for the Suidae or bovines, and where hybridization is possible. Some of them are present in Mesolithic contexts. Some technologies admitted as markers of the Neolithic are invented sometimes before the Neolithic, such as pottery vessels or polished axes. One of the points developed here is to consider the complexity of the phenomenon, which cannot be expressed with a single unique model, and to take into account the contribution of Mesolithic communities to the neolithization with regards to the colonization process.

The paper proposed by Chiara Messina and co-authors concerns 'Faunal exploitation in an Early Neolithic site: the assemblage from Casa Gazza (Travo, Piacenza, Northern Italy)', a site attributed to the Vhò culture. In this area, the neolithization is quite old and the process goes back to the 7th millennium BC. Excavated in the 1980's, the site, situated on a bank of the river Trebbia, has delivered an assemblage of more than 7000 bone fragments and allowed for the determination of 1417 of them. The site shows an agricultural and livestock breeding economy. Domestic species are dominant (73%), and Ovis or Capra is the most popular domestic animal. Wild species are dominated by Cervidae and adult red deer hunting was frequent. Other species, such as pond tortoise, were also consumed as food. The site is part of an economy of meat resources similar to that of known sites in the region, with a majority domestic share supplemented by the consumption of deer.

Also illustrating the contribution of archaeozoological analyses, the paper by Svenja Höltkemeier and Susanne Friederich discuss the role of the animal in Neolithic symbolic manifestations in the Elbe-Saale area between 5500 and 2200 BC. These events are visible in causewayed enclosures, in the form of deposits of artifacts or animal and human funeral remains recorded. The enclosure of Salzmünde-Schiepzig (Saxony-Anhalt) played a major role for communities in the second half of the 4th millennium BC at the regional level. The economy of the meat resources is based mainly on cattle, the bone assemblage found in the enclosure ditches and the other structures is mostly



Faunal exploitation in an Early Neolithic site: the assemblage from Casa Gazza (Travo, Piacenza, Northern Italy)

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Abstract

The faunal assemblage of Casa Gazza, providing new data to lighten the economic model of the Early Neolithic communities in northern Italy, represents a significative evidence in the Po Plain. The settlement, a half-buried pit, is located on a large terrace on the left bank of the Trebbia River (150 m a.s.l.), in the area of Travo (Piacenza, northern Italy). The results of zooarchaeological, taphonomic and paleoecological analyses are here discussed.

The faunal assemblage consists of 7,354 remains of which 1,417 were identified (NISp). Faunal composition shows a prevalence of domestic animals on the wild ones. Butchery marks are well documented and several modifications are related to hard animal material manufacturing.

Comparisons with Neolithic sites of the Po Plain, show that the economy at Casa Gazza was characterized by a fully-developed sedentary breeding.

Keywords: Early Neolithic, Po Plain, north-east Italy, zooarchaeology, taphonomy

Résumé

La contribution fournie par Casa Gazza à la connaissance et à la reconstruction du modèle économique des premières communautés du Néolithique du nord de l'Italie représente un important témoignage dans la plaine du Pô. Le site, qui se caractérise par une fosse à demi enterrée, est situé sur une grande terrasse sur la rive gauche de la rivière Trebbia (150 m a.s.l.), dans la région de Travo (Piacenza, Italie du Nord). Les résultats des analyses archéozoologiques, taphonomiques et paléocéologiques sont présentés ici.

L'assemblage faunique est composé de 7.354 restes, dont 1.417 ont été identifiés au niveau spécifique. La composition de la faune montre une prévalence d'animaux domestiques par rapport aux animaux sauvages. Les stries de découpe de boucherie sont bien documentées et plusieurs modifications sont liées à la fabrication d'artefacts en matière dure animale.

Les comparaisons avec les sites néolithiques de la plaine du Pô montrent comment l'économie de Casa Gazza était caractérisée par un élevage sédentaire pleinement développé.

Mots-clés : Néolithique ancien, plaine du Pô, Italie du Nord-Est, archéozoologie, taphonomie

1. Introduction

The first neolithic communities appeared in the central Po Plain at the end of the 7th millennium BP. Two cultural *facies* are attested in northern Italy: the Vhò Group that spread in southern Piedmont, south-eastern Lombardy and western Emilia and the Fiorano Culture, attested in Veneto and Emilia-Romagna (Biagi, Starnini, Voytek 1993).



Zooarchaeological analyses carried out on Early Neolithic sites of the Po Plain highlighted faunal assemblages characterized by small quantity of remains and a high fragmentation index. Among these sites, Vhò-Campo Ceresole (Barker 1976, 1977 and 1983) and Ostiano-Dugali Alti (Barker 1983; Biagi 1995) in the Cremona Area, allowed, between the '70s and '80s of the last century, to define a preliminary model of the subsistence strategies adopted in the Po Plain during the Early Neolithic. This model shows an economy still tied to hunting against breeding that seems to constitute a secondary practice. In fact, the faunal assemblages of the two sites highlight a predominance of wild species over domestic ones. Fishing is also attested and integrated the diet of the community.

Further evidence on the final phase of the Early Neolithic comes from Casalmoro site (Mantua; Clark 1984) and from the pit of Isorella (Brescia; Bon, Zampieri, Starnini 2003). These sites represent a transitional phase from a mixed economy (hunting and breeding) to a full neolithization phase. Whereas the Casalecchio di Reno site, close to Bologna and belonging to the final phase of the Fiorano culture, shows a faunal assemblage characterized by the prevalence of the main domestic taxa and with scarce remains of wild species (Thun Hohenstein *et al.* 2012). The Ponte Ghiara site (Mantovani 2012), a few miles away from Casa Gazza, and the Rivarolo Mantovano (Catalani 1984) pits have yielded data on subsistence activities during the Middle Neolithic. Finally, the two sites of Belforte di Gazzuolo (Catalani 1985) and Tosina di Monzambano (Bona 2015), both in Mantua area and the Botteghino site (Parma) (Berto, Bon, Zampieri 2012) provided the economic framework during the Late Neolithic in the Po Plain.

This paper aims at illustrating the archaeozoological data recovered at Casa Gazza, in order to reconstruct the natural environment of the Po Plain during the Early Neolithic, the economic choices and finally, to add new interesting informations about animal hard materials manufacturing of the Vhò cultural *facies*.

2. The site

The Casa Gazza site is located in the middle of the Trebbia Valley (northern Apennines) on a large terrace on the left bank of the River Trebbia (150 m a.s.l.), near the town of Travo (Piacenza; Figure 1A). During the excavations in 1984-85, carried out by the Archaeological Superintendence of Emilia-Romagna, a bilobed half-buried pit of about one meter deep, 10 m long and 6 m wide was excavated (Figure 1B). Its functional interpretation is unclear and the radiocarbon dates made on charcoal have returned two dates: 6130±160 BP; 5830±210 BP (labo). The filling was uniform and consisted of a clay soil, very dark and extremely rich in lithic, ceramic and faunal material (Bernabò Brea 2004; Bernabò Brea, Dal Santo, Mazziere 2017). Once its primary use was finished, the sunken structure was reused as a waste disposal area that preserved a great deal of materials (Bernabò Brea 1991).

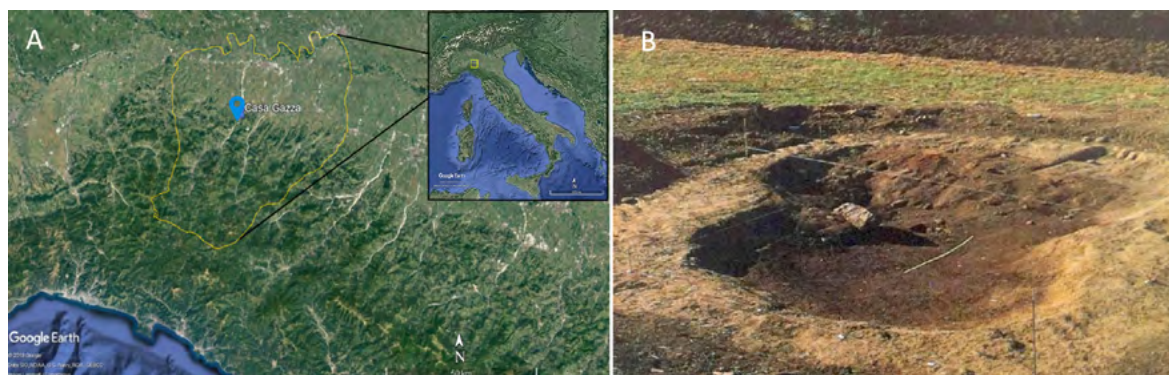


Figure 1. (A) Localization of the Trebbia Valley and the Casa Gazza site (modified from Google Earth); (B) bilobed pit (from Bernabò Brea 1991).

Pottery from Casa Gazza belongs to the *Vhò facies* and there are also ceramic remains probably imported from the area of the Fiorano Modenese *facies* or imitating Ligurian materials.

The lithic industry is mainly made of pre-alpine flint (Monte Baldo and Monti Lessini), of higher quality than the Apennines ones (Bernabò Brea 1991; Bernabò Brea *et al.* 2017).

3. Material and methods

The specimens were identified and quantified (NISp, MNI), using the reference collections of the Laboratories of Zooarchaeology and Taphonomy and of Large Mammals and Birds at the Department of Humanistic Studies of the University of Ferrara. The osteological manuals edited by Pales & Lambert (1971), Schmid (1972), Barone (1976) and Wilkens (2003) were also consulted. The distinction between goat and sheep was made according to the criteria elaborated by Zeder & Pilar (2010) for teeth and by Boessneck (1969) and Zeder & Lapham (2010) regarding the post-cranial skeleton. The discrimination between wild boar and pig was made according to the dimensions of the anatomical elements and the osteological reference collections. The minimum number of individuals (MNI) was estimated taking into account the largest anatomical element for each *taxon* combining age classes and laterality, and the data obtained by the teeth analyses. The estimation of age at death was based on the epiphyseal fusion of long bones according to the methodologies proposed by Barone (1976) and on the observation of tooth eruption and wear stage following Grant (1982) and Silver (1969). The taphonomic analysis was performed using a Leica S6D stereomicroscope (0.63x-4.0x magnification) equipped with an EC3 digital camera.

4. Composition of the faunal assemblage

The faunal assemblage is composed of 7,354 bone remains, of which 1,417 (19.27%) were identified (Table 1). The composition of specimens shows a clear prevalence of domestic animals on the wild ones. Besides mammals, among the wild species there are also some remains of eel, pond tortoise and unidentified birds.

Tab. 1 – NISp and MNI and relative percentages of the Casa Gazza faunal assemblage.

The community of Casa Gazza was devoted to agriculture and livestock breeding. The economy was mainly based on goat breeding. The high number of remains is confirmed by 21 estimated individuals. The variability in the composition of this herd suggests a mixed breeding, aimed at the exploitation of meat, testified by the presence of juvenile and sub-adult individuals, and probably the production of secondary products (Figure 2). Teeth are the most represented anatomical element. The appendicular skeleton is particularly attested, with a high number of long bones. These ones include tibia (NISp 41), radius (NISp 40) and metapodials; among which 32 remains belong to metacarpal, 24 to metatarsal and 10 to a metapodials. Pigs are the second most represented *taxon*. All age classes are represented with a prevalence of juvenile individuals (Figure 2), testifying an exploitation of the pigs aimed at consuming the meat and fat. The most frequent anatomical elements are teeth (NISp 94), phalanges (NISp 35), scapula (NISp 19), ulna (NISp 14) and humerus (NISp 11). Cattle is present with 6 individuals, mainly young, highlighting the exploitation of its meat (Figure 2). The presence of at least one individual over 42 months old, could indicate its use as labour force, production of secondary products and reproductive purposes. Teeth are the most represented anatomical element (NISp 34), followed by phalanges (NISp 13). 26 remains are metapodials, among which 14 were determined as metacarpals and 10 as metatarsals. Fore limb and hind limb bones are quite equally present, also confirmed by 10 remains of coxal and 10 of scapula. Finally, the domestic fauna of Casa Gazza is completed by the presence of dog, with at least 4 individuals identified, two of which are very young. The lack of anthropic marks on dogs' bones suggest that it was bred for his social role.



Table 1. Composition of the Casa Gazza faunal assemblage (NISp and MNI and relative percentages).

TAXON	NISp	%NISp	MNI	%MNI
<i>Lepus europaeus</i>	6	0.42	1	1.23
<i>Erinaceus europaeus</i>	2	0.14	1	1.23
<i>Martes foina</i>	5	0.35	2	2.47
<i>Lutra lutra</i>	1	0.07	1	1.23
Mustelidae	1	0.07	-	-
<i>Canis lupus</i>	1	0.07	1	1.23
<i>Vulpes vulpes</i>	3	0.21	2	2.47
<i>Sus scrofa</i>	48	3.39	7	8.65
<i>Cervus elaphus</i>	250	17.65	7	8.65
<i>Capreolus capreolus</i>	32	2.26	2	2.47
cfr. <i>Rupicapra</i> sp.	1	0.07	1	1.23
Total wild mammals	350	24.70	25	30.86
<i>Canis familiaris</i>	10	0.71	4	4.94
<i>Sus</i> sp.	242	17.08	9	11.12
<i>Sus domesticus</i>	57	4.02	4	4.94
<i>Bos</i> sp.	7	0.49	-	-Bos
-Bos	175	12.35	6	7.41
^{taurus} <i>Capra hircus</i>	15	1.06	4	4.94
<i>Ovis aries</i>	36	2.54	5	6.17
<i>Ovis vel Capra</i>	503	35.50	21	25.93
Total domestic mammals	1045	73.75	53	65.45
Total mammals	1395	98.45	78	96.31
<i>Anguilla anguilla</i>	1	0.07	1	1.23
Aves indet.	19	1.34	1	1.23
<i>Emys orbicularis</i>	2	0.14	1	1.23
Total others taxa	22	1.55	3	3.69
Total NISp	1417	100	81	100

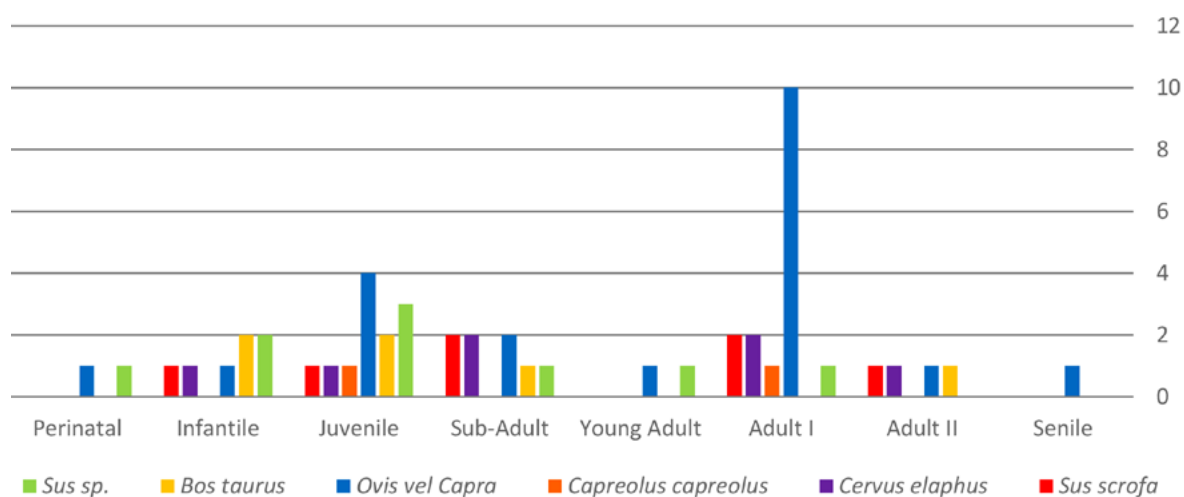


Figure 2. Casa Gazza: Age classes of the main taxa.



Hunting, mainly directed to large and medium size ungulates, was a marginal activity. Red deer is the most abundant *taxon* among wild mammals. It is represented by at least 7 individuals, with a predominance of adults and sub-adults (Figure 2); hunting therefore was focused to mature game which would have ensured a greater quantity of meat, and to young-adult males, that are an easy target when they abandon their original herd. The appendicular skeleton is well represented, with an abundant quantity of phalanges and long bones; some remains show butchery marks (Figure 3A), technological traces that indicate that hard animal tissues were used to manufacturing objects and tools (Figure 3B). The small quantity of remains of roe deer (Figure 2) compared to the red deer ones shows that this species was sporadically hunted. Despite the lower frequency of remains, wild boar is present with the same number of individuals (NMI 7; Figure 2). They are mainly adults and sub-adults, demonstrating that this species was occasionally hunted.

The remaining wild species, such as hare, hedgehog, beech marten, otter and fox, are represented by few remains. Their introduction into the site was probably for natural causes, due to the lack of anthropic marks that could testify their exploitation. Butchery marks are instead present on some wolf remain, a distal epiphysis of left ulna, and probably connected to the recovery of the fur. However, the consumption of its meat is not to be excluded.

Eel is evidenced by the discovery of a vertebra which, along with the finding of a probable hook made on a wild boar canine, shows how fishing could occasionally integrate the daily feeding into the Casa Gazza settlement that is located near the river Trebbia. The presence of pond tortoise is evidenced by two fragments of plastron, belonging to the same individual, which preserve butchery marks and manufacturing traces.

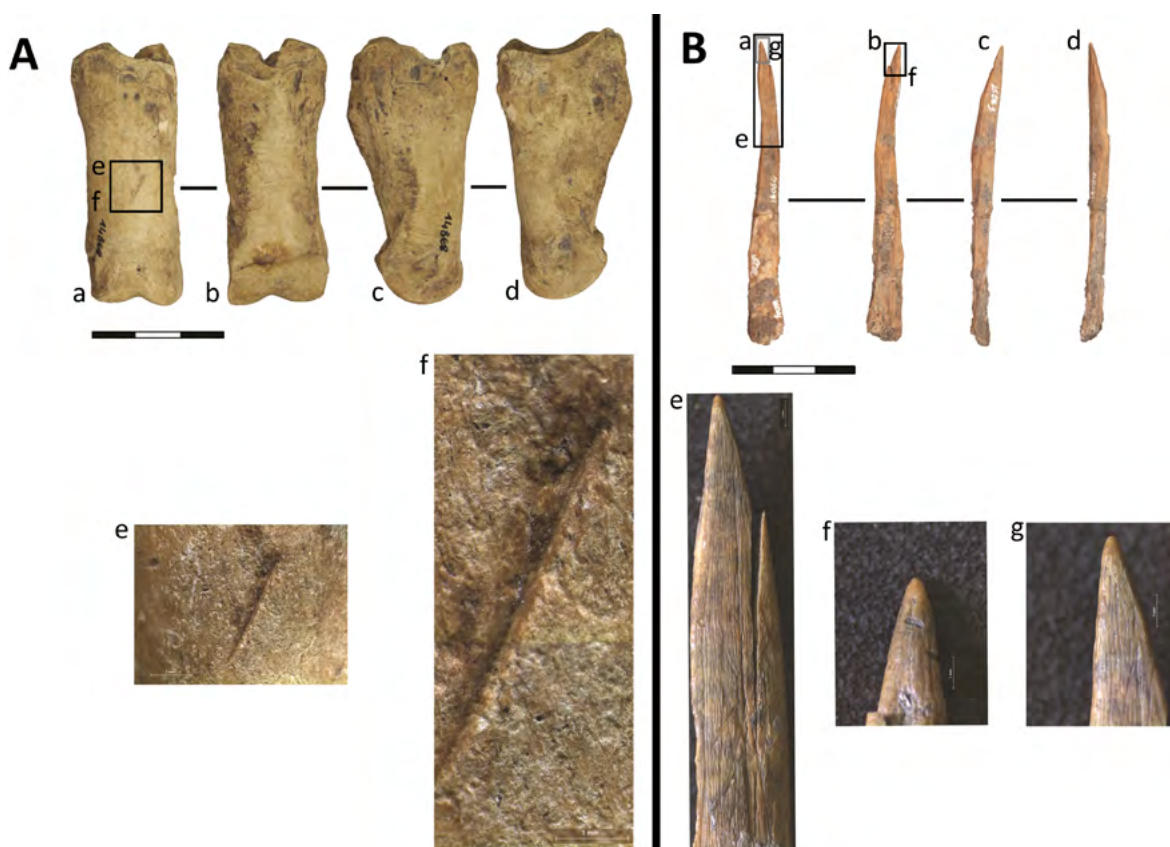


Figure 3. Casa Gazza: (A) First phalanx of *Cervus elaphus*. There is a disarticulation mark on the dorsal surface (e: 2 mm bar scale; f: 1 mm bar scale); (B) Awl on long bone of a medium-sized mammal. Scraping marks and use wear traces on the tip are visible (e, f, g: 1 mm bar scale).

The high fragmentation of bird remains, whose presence seems in any case to be connected to contributions of natural origin, did not make it possible to carry out an identification at the level of species or genus.

Through the analysis of wild species, it has been possible to obtain valuable paleo-environmental information. The presence of wooden areas near the settlement is evidenced by red deer, roe deer and wild boar remains. Tortoise, otter and eel indicate the presence of watercourses, wetlands and marshes, particularly suitable for pigs. Fox, marten, hedgehog and hare can be associated with both the forest context and open fields. The site of Casa Gazza was therefore placed in an environment that had to see the presence of cultivated fields and pastures alternate with forests and swamps, the latter derived from the proximity of the River Trebbia.

5. Discussion and conclusions

Zooarchaeological data obtained by this study show the adoption of sedentary breeding, aimed above all at exploiting goats and secondly pigs and cattle. The caprine sex-ratio suggests a mixed breeding, focused on exploiting meat and secondary products. Pigs and cattle were mainly bred for meat consumption. In addition, hunting was occasionally practiced as highlighted the presence of some wild species, such as deer, roe deer and wild boar. Fishing was probably practiced.

Comparing the faunal assemblages with other sites, it is clear that Casa Gazza site gives an important and unique contribution to the study of the economy of the *Vhò facies* sites (Figure 4).

The sites of Vhò-Campo Ceresole and Ostiano-Dugali Alti present an economy still linked to the exploitation of wild fauna and breeding seems to be a secondary practice (Barker 1976, 1977 and 1983, Biagi 1995). On the other hand, the Isorella and Casalmoro sites have an economy based on the exploitation of domestic taxa (Bon, Zampieri, Starnini 2003, Clark 1984). All the analyzed sites are located near rivers, on marshy lands and with abundant forests of mixed oak woods nearby. Therefore, the different economic base of the sites does not depend on different environmental conditions, but rather on chronological aspects. Indeed, the last three sites are located at the end of Early Neolithic, when breeding allowed to meet the food needs of a community (Figure 4).

For which is concerning animal size, the *taxa* at Casa Gazza are consistent with those of the analyzed *Vhò facies* sites. Unfortunately, withers-height of any animal was not possible to be estimated, due to the lack of complete bones. However, several measurements have been recorded, which allowed some comparisons with the same sites seen above. The only differences concern the size of pigs with respect to Vhò-Campo Ceresole ones, compared through the GLI measurement of the astragalus. *Sus sp.* astragalus at Casa Gazza are in fact smaller, with a GLI measure of 45 and 41.4 mm. Suids present in Vhò (GLI 53.2 mm) are, however, larger in size compared to other sites

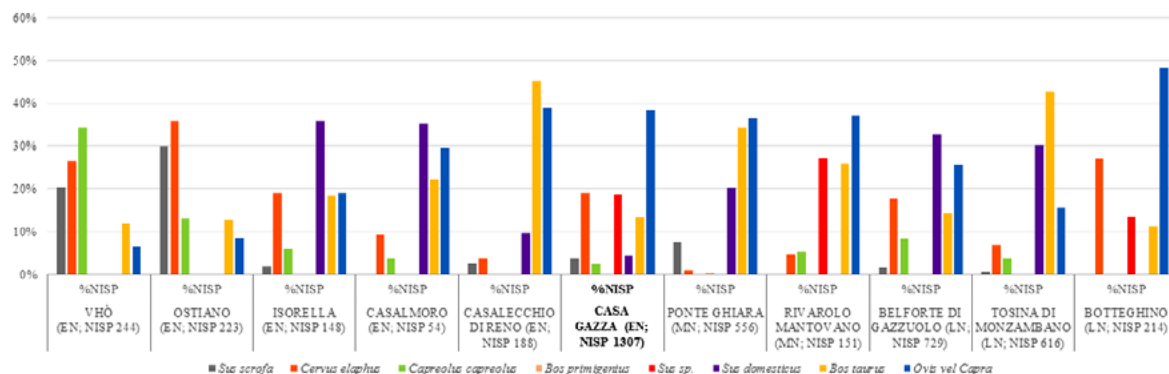


Figure 4. Casa Gazza: Comparison among the main taxa identified in the faunal assemblages recovered in the Po Plain sites during the Neolithic.



of the Ancient Neolithic, probably in relation to the luxuriant forest environment close to the site. Moreover, using the GLI measurement of astragalus we can also find a slightly larger size of cattle present at Casa Gazza (GLI 70 mm) than the one present at Casalmoro (GLI 64.4 mm).

The same economy of Casa Gazza can be seen in the two sites of Ponte Ghiara (Mantovani 2012) and Rivarolo Mantovano (Catalani 1984); both sites belong to the Square Mouthed Vases culture. The economy is based on the exploitation of domestic *taxa* and wild species played a scarce role (Figure 4).

The Late Neolithic sites of Belforte di Gazuolo (Catalani 1985) and Tosina di Monzambano (Bona 2015) and Botteghino (Berto, Bon, Zampieri 2012) document a breeding-centered society, in which, however, hunting, mainly directed to red deer, is still practiced (Figure 3A).

It is even more interesting to enlarge the spectrum to other Neolithic sites located in northern Italy. The sites of Friuli (Piancada, Nogaredo, Bannia, Palù di Livenza), where neolithization spreads earlier than in the Po Plain, present a faunal assemblage composed almost exclusively by the main domestic species (Petrucci *et al.* 2005).

Moving to Veneto, during the Late Neolithic, the Monselice and Maserà sites (Padua; Tecchiati 2015), and the Rocca di Rivoli site (Piper 2008) and Gazzo Veronese (Verona; Petrucci, De March, Thun Hohestein 2015) show fully agricultural and sedentary communities, where domestic species dominate the wild ones.

Therefore, comparisons with other Neolithic sites in northern Italy show how the economy of Casa Gazza was characterized by a fully developed sedentary breeding.

In conclusion, the faunal assemblage of Casa Gazza provides a fundamental contribution to the knowledge and reconstruction of the economic model in the Early Neolithic within northern Italy, and particularly in the Po Plain. The data obtained from this study are also important for the reconstruction of the natural environment of the Po Plain during the Early Neolithic. And finally, the Casa Gazza site has provided additional information regarding the animal hard materials manufacturing belonging to the Vhò cultural facies.

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