

The presence of *Homo* in Sicily: evidence, hypotheses and uncorroborated ideas. An archaeo-anthropological perspective

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ABSTRACT: This article summarises the main findings and data on the ancient peopling of the Mediterranean island of Sicily through an archaeo-anthropological perspective. The hypothesis surrounding the presence of the Lower Palaeolithic in Sicily with more ancestral species of *Homo* is also extensively reviewed and it is explained why there are not sufficient elements to maintain it. Finally, future multidisciplinary proposals are made to fill the gap on Sicilian cave archaeology.

KEY WORDS: archaeology, caves, chronology, *Homo*, palaethnology, peopling, prehistory, Sicily.



Original article

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Introduction

Sicily has long been the subject of anthropological research due to its long history and frequent population movements occurring throughout its territory both in prehistoric and historic times (Baker 2000). Besides classical ethnological and anthropological studies, bioarchaeological research and palaeopathological studies have been growing in recent years (Varotto et al. 2021; Fiorentino et al. 2022; Melintenda et al. 2023). The present study, focusing on the early arrival of humankind to the island, aims to highlight the phases and methods of the peopling of Sicily in prehistoric times by offering an examination of the most updated scientific literature and comparing it to the relevant theories proposed in the 20th century. The long-standing controversy regarding the possible existence of *Homo* species predating *Homo sapiens* in Sicily, which was rejected in the past due to questionable archaeological criteria, will also be discussed. We also evaluate the interpretations regarding the possible presence of more ancestral human species in Sicily. The history of the first settlements in Sicily is still a topic of considerable interest in the field of archaeological and anthropological research. This is mainly because there is an undeniable lack of systematic studies of the territory, which could reliably confirm or deny the presence of other species of the genus *Homo* that predated *sapiens* on the island. Yet, in the previous two centuries, there was no lack of interest on the part of scholars in studying many caves of the territory, since they were considered the first humankind's "dwelling place". It should be mentioned, nonetheless, that cave exploration is not necessarily in itself

a "privileged" form of enquiry because nomadic prehistoric populations performed most of their activities outside caves; indeed, caves were no longer used for their original purpose already in proto-historic times. Only if rediscovered many centuries later without signs of being looted in antiquity (or more modern times) and depending on the state of preservation of the remains found therein, caves can indeed be considered places where reading the archaeological record is often possible.

What is more, in the first half of the 19th century, the history of European archaeo-anthropology (at the time still often referred to as palaethnology) began with caves, and the same path of research was followed in Sicily. Between the 19th and 20th centuries, there was a particular interest in examining the caves of western Sicily, which were investigated in order to study and learn more about Quaternary faunas (Privitera 2007). The archaeo-anthropological heritage preserved in the island's caves also attracted foreign scholars such as Hugh Falconer (1808–1865), after whom the *Elephas falconeri* would be named, and Ferdinand von Andrian (1875–1951), who joined Italian scholars in the effort, often transferring the recovered materials to museums of natural history and/or archaeology according to an unclear bureaucracy and communicating what was found in an incomplete manner, which caused a loss of precious contextual data (Battaglia 2014).

The fervour of studies that interested early Sicilian archaeo-anthropology led to the excavation of caves that proved fundamental to the understanding of certain aspects of Sicilian prehistory (Privitera 2007). Specifically, the cave of San Teodoro (Messina) was investigated in

the first decades of the last century and between 1937 and 1942 the remains of seven individuals buried within it were brought to light (Garilli et al. 2020 and references therein); the Genovese cave (Trapani) was discovered in 1949 and its findings made an important contribution to the history of rock art and the study of Quaternary faunas. The excavation of the Chiusazza cave (Siracusa) made it possible to understand and clarify the succession of Sicilian *facies* from the Neolithic to the Bronze Age (Privitera 2007); the investigation of the Uzzo cave (Trapani), begun in the second half of the 1970s, contributed to understanding the transition from the Mesolithic to the Neolithic in Sicily and in general the island's cultural transformations between continuity and external contributions (Tagliacozzo 1994; Mannino et al. 2015).

The role of caves in the Sicilian settlement dynamics

In the Upper Palaeolithic, the first hunter-gatherer communities used caves as sedentary sites and settled mainly in coastal areas; they almost certainly explored the inland areas of the island and its relief, as already noted by Vaufrey in the 1930s (Martini et al. 2007). Final Upper Palaeolithic groups had to settle at higher altitudes, probably not only because of the presence of wildlife, but also for the procurement of raw materials, such as the flint sources near Monte Cervi, in the Madonie area (Belvedere and Forgia 2010). Groups settled near watercourses and hunting activities had to take place in the surroundings. The cave was a privileged environment, although there was no lack of living facilities in more or less deep rock shelters, of

which few traces remain in the archaeological record, such as hearths. Even in a period as ancient as the Upper Palaeolithic, humankind exploited the large space offered by caves to perform burial rituals, evidence of which remains in the San Teodoro cave and the Grotta d'Oriente (Martini et al. 2007).

When the first human groups arrived in Sicily during the Final Epigravettian (ca. 16,000 years ago), the island must have been characterised by strong climatic instability with alternating warm interstadial phases and cooler steps (Romano et al. 2021). These arrangements led to the formation of steppe-like environments, especially at the Younger Dryas (dated to a time interval of 12,900 to 11,700 years ago) that closed the Late Glacial Period. This first phase of peopling was characterised by an uneven distribution of sites across the territory, mostly on the northern and eastern coasts. On a geological level, there was a progressive uplift of the coastline and the disappearance of continental shelves in front of the current coastline; a comparison with marine variations in the lower Tyrrhenian slope led to the hypothesis of a sea level lowering of around 40 m during the Late Glacial Period. Absolute dating (AMS¹⁴C) on human bones to date indicates the oldest site in Addaura Caprara (Monte Pellegrino, Palermo), dated to 16,060–15,007 (calibrated–BP), while the San Teodoro site (Acquedolci, Messina) has been dated to around 14,500 years (Sineo et al. 2014); ST1 has been dated to 15,232–14,126 (calibrated–BP) (Garilli et al. 2020; Catalano et al. 2022). At the current state of research, the best investigated Epigravettian and Mesolithic sites are located in the western part of the island, in the Trapani area (Uccerrie cave; Cala dei Genovesi cave; Oriente

cave; Uzzo cave; Racchio-Isolidda cave; Cala Mancina cave), in the Palermo area (Termini Imerese Castle shelter; Addaura cave; Niscemi cave) and in the Agrigento area (Acqua Fitusa cave). Few sites are found in eastern Sicily and have been identified in the Messina area (San Teodoro cave; Sperlinga di San Basilio), in the Catania area (Perriere Sottano), in the Siracusa area (Giovanna cave; Canicattini Bagni; San Corrado cave), and in the Ragusa area (Riparo Fontana Nuova) (Lo Vetro and Martini 2022).

During the Palaeolithic period, therefore, caves were mainly used as settlement sites. Their use changed from the Upper Palaeolithic to the Bronze Age, but often persisted over time (e.g., cave churches and cave dwellings from the Middle Ages) (Patti 2013).

In later periods, and especially from the Copper Age onwards, caves played a complementary role to other settlements, being used as temporary shelters, perhaps during transhumance, as in the Palermo area (Battaglia 2014), or becoming “appendages” of villages (warehouses and/or workplaces) (Privitera 2007); some continued to be used as burial sites (from the Palaeolithic to the Bronze Age, in conjunction with rock necropolises), others as places where funerary ritual practices took place (e.g., the Petralia cave, in the Catania area (Palio 2014), the Fontanazza cave on the slopes of Monte Grande in the province of Caltanissetta (Panvini 2014), the Chiusazza cave in the Siracusa area (Tanasi 2008) and the Calaforno hypogeum (Ragusa) (Varotto et al. 2022).

The use of caves at high altitudes (around 1000 m), such as the Grotta del Santo in Adrano (Catania), the Grotta del Lauro on Monte Crasto (Messina), and the Grotta del Vecchiuzzo near Pe-

tralia Sottana (Palermo), has been documented since the Late Copper Age. In all probability, these were seasonal shelters linked to the movement of flocks (Cazzella and Maniscalco 2012). In general, for all the caves on the island, it can be said that their use varied on the basis of needs and beliefs, not only over the long term, but also within the same prehistoric *facies* or chronologically close phases (Privitera 2007).

The first peopling of Sicily: solid evidence

Most prehistory scholars accept the theory that no hominins arrived in Sicily before *Homo sapiens*. The event would have occurred during the final Epigravettian, ca. 16,000 years ago. Since that time there would have been a constant presence of human groups on the island, which would have gradually changed various ecosystems on the island, such as soils and vegetation. For instance, from 7,000 years ago throughout around the middle of the 5th millennium BC (Middle Neolithic) there would have been particularly intense agropastoral exploitation (Pasta and Speciale 2022). The expansion of *Homo sapiens* on the island occurred during the climatic alternations of the Bølling-Allerød (warm fluctuation) and Younger Dryas (cold fluctuation) (Sineo et al. 2014). The first hunter-gatherers inhabiting Sicily were characterised by low genetic diversity, which suggests a small effective population size of about 70 individuals (Posth et al. 2023). The main communication bridge must have been represented by what is now known as the Strait of Messina, separating Sicily from Calabria: most of the an-

imal species present in Calabria in the Middle and Upper Pleistocene passed through Sicily, and it seems that the channel linking the Ionian and Tyrrhenian seas was crossed more easily and more often than previously thought, particularly in the “saddle” area, characterised by relatively shallow waters and a short distance between the southernmost tip of Calabria and the north-eastern cusp of Sicily (Marra 2009). Just as animals could cross this bridge, hominins could follow the same route. According to a study by D’Amore et al. (2009), there is a morphological continuum, based on skull morphologies of examined prehistoric individuals, between the Palaeolithic hunter-gatherers of the island and the Magdalenian people of continental Europe, suggesting a penetration and dispersion in Italy and Sicily of homogenous peoples or at least not entirely isolated from one another. These data were obtained by comparing the skulls from the San Teodoro cave with others found in western European contexts (D’Amore et al. 2009). Therefore, it is the Late Pleistocene phase that saw the entry of Upper Palaeolithic human groups into Sicily, a phase characterised based on the lithic industry by a unified cultural physiognomy (Petrucci et al. 2011). Other land bridges have been suggested to have played an important role in the ancient peopling of Sicily is the vast area of the Sicilian Channel, which, along with the Strait of Gibraltar, Babel-Mandeb and the Sinai Peninsula, links the African continent to the European one and allows for the transition of bands of Palaeolithic explorers.

Nonetheless, there is no evidence of migrations from Africa to Sicily (and more generally Europe) from those routes (Sineo et al. 2014).

Pre-Epigravettian Sicily – uncertain evidence generating speculative theories

The final Epigravettian is widely accepted as the time of the entry of human groups into Sicily. Thus, most members of the scientific community believe that the discovery of out-of-context human lithic artefacts (Fig. 1) typologically attributed to the Lower Palaeolithic, therefore to the Middle Pleistocene, is not sufficiently strong evidence to affirm that pre-Epigravettian peoples ever existed on the island.

Such artefacts should be found in association with the *Elephas falconeri* Faunal Complex, dating to the early Middle Pleistocene, based on an absolute dating applied to the tooth enamel of the dwarf elephant *Palaeoloxodon falconeri* (455,000 ± 90,000 BP) (Sineo et al. 2014). Despite the lability of the available data, some scholars in the past supported the idea of older Pleistocene phases for Sicily, which will be examined here. One of the first was the famous archaeologist Paolo Orsi (1859–1935), who in 1899 published a report on the discovery of a lithic axe in the Alcamo area (Trapani), attributing it to the Lower Palaeolithic (Orsi 1899). This attribution, confirmed by the palaeoethnologist Ugo A. Rellini (Rellini 1924), was refuted by Raymond Vaufrey, a French palaeoethnologist, who judged the axe to be instead a Neolithic artefact (Vaufrey 1928; Vaufrey 1929).

In the 1960s, the debate on the first peopling of the island was reopened by Gerlando Bianchini, a Sicilian palaeoethnological enthusiast from Agrigento. In the area of San Giovanni Gemini (Contrada Rocca del Vruaro, Agrigento), in a layer of red sand also containing the

remains of large mammals in a poor state of preservation, he found a bifacial, carved from a quartzite pebble (common among the alluvial material of the Pla-

tani river), currently on display at the Regional Museum of Agrigento, while a copy was on display at the Musée de l'Homme in Paris.

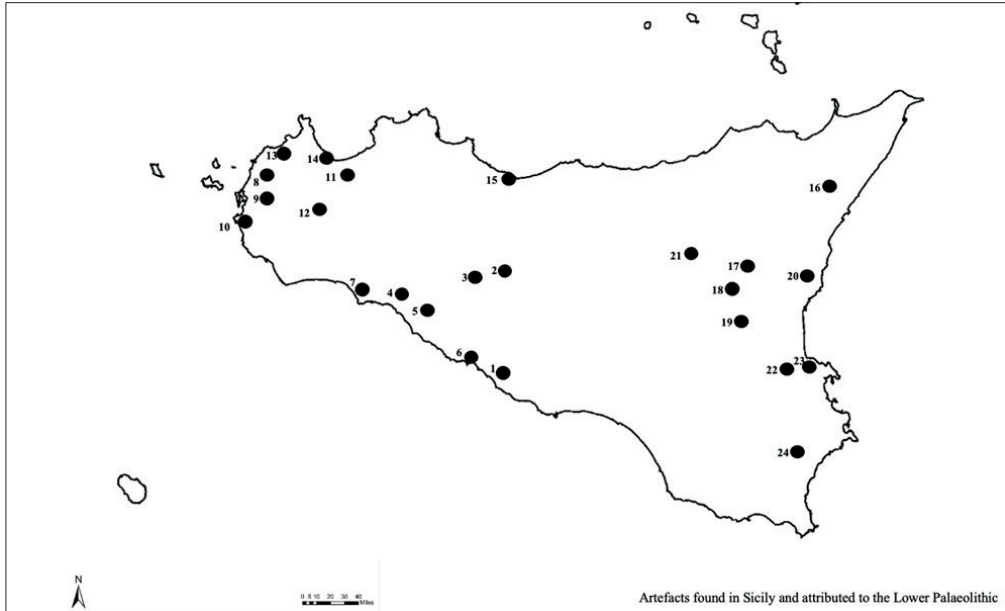


Fig. 1. Artefacts found in Sicily and attributed to the Lower Palaeolithic. Agrigento: 1. Maddaluso (Agrigento), 2. Rocca del Vruaro (San Giovanni Gemini), 3. Diga del Leone (Santo Stefano Quisquina), 4. Ribera, 5. Eraclea Minoa and Capo Bianco (Cattolica Eraclea), 6. Contrada Pergole and Capo Rossello (Realmonte), 7. Bertolino di Mare and Contrada Cavarretto (Menfi); Trapani: 8. Contrade Malummeri (Paceco), 9. Guarrato (Misiliscemi), 10. Contrade Chinisia and Granatello (Marsala), 11. Contrada Mulinello (Alcamo), 12. Contrade Bovara and Carnemolla (Salemi), 13. Grotta Emiliana (Mt. Erice), 14. Scopello (Castellammare del Golfo); Palermo: 15. Giancaniglia (Termini Imerese); Catania-Messina: 16. Valle dell'Alcantara; Catania: 17. Valle del Simeto (Poggio Monaco, Castellaccio, Fontanazza e Piccone), 18. Fiume Dittaino (Muglia Bassa and Muglia Nord), 19. Montagna di Ramacca, 20. Valverde; Enna: 21. Agira; Siracusa: 22. Lentini-Piana di Catania (Piano Meta, San Giorgio, San Basilio), 23. Contrada Piano Torre (Augusta), 24. Noto antica.

A further instrument, described as a small amygdala from the Diga del Leone, near Santo Stefano di Quisquina, was also collected by Bianchini in the 1970s. It was dated to the Lower Palaeolithic (Sineo et al. 2014). Bianchini also found some hachereaux in the ancient Agrigen-

tine neighbourhood of Maddaluso (Baldini et al. 1976). In 1961, Meli published reports on some bifacials from the basin of the Platani river, in the territory of Ribera (Agrigento): two were found in the riverbed and four near the mouth (Sineo et al. 2014).

Again, in the Agrigentine area, tools described as belonging to the Acheulean lithic industry were found at Eraclea Minoa (found in the mortar used by the Romans to build dwellings), Realmonte and Pergole. In the 1960s De Miro found artefacts in the Capo Bianco locality, which appear to be datable to the lower Palaeolithic (Baldini et al. 1976). In 1972, Biddittu and Piperno found limestone and quartzite tools at Bertolino di Mare (between Sciacca and Menfi) and quartzite tools at Contrada Cavarretto. No association with fossil fauna could be described. Pebble culture tools were found by the aforementioned Bianchini near Capo Rossello (Di Maida 2020). Other reports of lithic industries related to the Lower Palaeolithic come from the Trapanese area (contrade Malummeri, Guarato, Chinisia and Granatello), where pebble and flake artefacts were collected; from Contrada Mulinello, along the course of the Fiume Freddo river, quartzite flake lithic industry was collected, attributed to the Clactonian tradition. On the river terrace of the Fiume Grande, in Salemi, pebble, discoidal and flake tools were found in the vicinity of Bovara, Fiume Grande and Carnemolla, outside the stratigraphic context (Tusa 1999). A quartzite instrument was found on the beach at Scopello (Castellammare del Golfo), albeit showing signs of extensive exposure to water (Baldini et al. 1976).

In 2005, during excavations in Grotta Emiliana, along the northern slopes of Mount Erice, in a layer containing remains of Pleistocene fauna characterised by the presence of hippopotami, three beaked pebbles, one lithic nucleus and one flake fragment were found, which the excavators attributed, albeit with great uncertainty, to the Lower or Middle Palaeolithic periods. The uncertainty

was linked to the smallness of the sample (only five pieces), the poor conservation of the materials and the lack of clear comparisons that could be proposed for the Sicilian territory (Filippi 2014).

In the Palermo area, in 1961, Meli discovered what appeared to be choppers and bifacials in the locality of Giancanglia at Termini Imerese. These were also attributed to the Lower Palaeolithic by Blanc and Cardini, while other authors were perplexed at the attribution of such finds (Baldini et al. 1976). In the Alcantara Valley, between the provinces of Catania and Messina, Tomarchio reported on the presence of tools attributable to the Lower Palaeolithic and the Pebble culture (Baldini et al. 1976).

Moreover, in the Catania area, in the 1970s, tools of the lithic industry attributable to the Lower Paleolithic were found. Once again these were surface basalt and quartzarenite finds, unsupported by stratigraphic data or certain osteological data. The artefacts found (181 in total) were exhibited during the scientific meeting of the Italian Institute of Prehistory and Protohistory in March 1975 in Florence and were examined by Graziosi, Guerri, Radmilli and Tinè resulting in a positive judgment by the said scholars (Revedin and Mella 1984). Here follow the localities where these tools were found: Poggio Monaco, Castellaccio, Fontanazza and Piccone (along the Simeto river); Muglia Bassa and Muglia Nord (in the proximity of the Dittaino river); Piano Meta, San Giorgio and San Basilio (in the vicinity of the ancient marshes of Lentini and the Catania plain); Montagna di Ramacca and contrada Piano Torre (respectively at the Gornalunga and Porcaria rivers).

These are somewhat large flake-shaped lithic industries, mostly scrapers and denticulate tools and there is no

shortage of choppers and chopping tools. In addition, an artifact was also found by Lino in the Valverde locality (Catania) (Baldini et al. 1976), while Revedin and Mella reported the presence of Lower Palaeolithic quartzite and flint artefacts at Agira (Enna) and Noto Antica (Siracusa) (Revedin and Mella 1984).

According to Tusa, bifacials arrived in Sicily in the Lower Palaeolithic at the time of the Mindell (600,000–400,000) and Riss (320,000–140,000) ice ages; however, the number of finds is very small (Tusa 1999). In their study, Lo Vetro and Martini (2012), largely accepting the thesis already put forward by Palma di Cesnola in the 1990s (Palma di Cesnola 1994), identified three migratory phases that occurred during the Lower Palaeolithic, during which human groups from the European continent supposedly colonised the island. The first phase is the so-called Pebble Culture, which has been dated between 850,000 and 500,000 years ago on the Italian peninsula; the lithic industry consists of choppers and chopping tools, i.e., pebbles chipped on one or both sides in such a way as to obtain a sharp edge. The second phase is defined by an industry of flake tools without bifacials, which refers to the Clactonian industry and would date back to between 400,000 and 180,000 years ago; finally, the third phase would be that of the Acheulean, of which only faint traces remain (Lo Vetro and Martini 2012). Following Bianchini's reports, other scholars published studies on the discovery of Lower Palaeolithic industries between the 1970s and the 1990s (Bagnone 1981; Bidittu and Piperno 1972; Broglio et al. 1992; Recami and Baldini 1977) describing the discovery of choppers, chopping tools and bifaces, identified as Lower Palaeolithic industries.

Moreover, the re-examination of some of these lithic tools allowed to attribute these artefacts to the Campignien period, clearly a later *facies*, chronologically subsequent to the Mesolithic (Nicoletti 1997). The scepticism shown towards the theory of the island's peopling dating back to the Middle Palaeolithic was also poured over theories of a peopling of the island by species predating *Homo sapiens*. Indeed, many of the previously listed artefacts were found out of context and not associated with any Faunal Complex; furthermore, some scholars have ruled out the possibility that they could be authentically attributable to the Lower Palaeolithic (Nicoletti 1997; Piperno 1997; Tusa 1999; Leighton 1999). Many scholars, therefore, refuted the claim that there were Lower and Middle Palaeolithic phases in Sicily. In recent years, the Aurignacian phase has also been refuted, after the Fontana Nuova lithic complex was attributed to the Epigravettian. Radiocarbon dating tests carried out on individuals and zoological remains have provided dates between 9,910–9,700 cal. BP and 8,600–8,480 cal. BP, confirming that Fontana Nuova was occupied by Mesolithic and not by Aurignacian hunter-gatherers (Di Maida et al. 2019).

It can be affirmed that studies published on lithic finds are merely typological and the provided descriptions lack stratigraphic references and the support of other associated data, such as fundamental faunal complexes (Di Maida 2020). Moreover, lack of any stratigraphic association and the total absence of butchering marks, probably testifying their actual use, make it difficult to consider the tools found in Sicily as certain data and support the hypothesis that ancestral industrial modes can actually have been produced later, for punctual exigencies.

Pre-Epigravettian Sicily: theories on the population of species predating *H. sapiens*

No osteological evidence of species belonging to the *Homo* genus other than *sapiens* has ever been produced for Sicily. The discovery of a few uncertain lithic tools from the Lower Palaeolithic cannot be considered sufficient proof for the contrary, as these are mainly based on unreliable data. Most scholars believe that there were sporadic human populations due to the variable accessibility of the Strait of Messina, and therefore came from the European continent (Burgio 1997; Sineo et al. 2014; Lo Vetro and Martini 2012), while a now fading minority insisted that there was a displacement of human groups from the African continent (Alimen 1975).

The discovery from Grotta Emiliana (Trapani) of fossil hippopotamus bones (pertinent to the *Elephas mnaidriensis* Faunal Complex), however lacking traces of butchering, in association with three beaked pebbles, one probable lithic nucleus and one pseudo-Levallois flake fragment, could provide further evidence for a Pleistocene settlement of the area (Chilardi et al. 2012), yet no more convincing data have been published so far on the matter.

According to Tusa, the absence of contextual relationships with the Middle and Upper Pleistocene fauna could indicate the presence of humans on the island between the *Elephas falconeri* Faunal Complex and the *Elephas mnaidriensis* Faunal Complex, thus in a phase dating back to around 300,000 years ago, as if humans had found a way to survive at the same time as the extinction of the macrofauna. Such a chronology would be

compatible with the evidence of remains belonging to non-*sapiens* individuals in the Mediterranean basin. *Homo ergaster* appeared on the shores of the Mediterranean presumably not long after its dispersal from East Africa. In Dmanisi, Georgia, remains of *Homo erectus* dating from 1.8–1.78 million years ago were found (Vekua et al. 2002). From Atapuerca, Spain, come bone and stone remains of two different species belonging to the genus *Homo*: *H. antecessor* and *H. heidelbergensis* (Rodriguez et al. 2010). *Homo neanderthalensis* reached as far as Apulia: the famous Altamura Man lived between 180,000 and 130,000 years ago, when there was still a land link between Calabria and Sicily; Neanderthals dwelled the Calabria coasts (Bonfiglio et al. 1986) and presumably observed and evaluated the possibility to reach Sicily. No evidence of the Levallois technique has ever been described in the island.

However, this does not offer a valid explanation for the disappearance of human groups in the middle to upper Pleistocene and their subsequent reappearance in the Epigravettian period (Tusa 1999).

Sicily and its connections

According to some scholars, Sicily could be reached either from the European continent, through the Strait of Messina, or from Africa, through the Strait of Sicily, although virtually no scholar agrees today on the existence of the latter bridge. In the Sicilian Channel, the lowering of the sea level that occurred during the Ice Ages may greatly reduced the distance between Africa and Sicily in the Lower Pleistocene. During the peak of the last glaciation (late Weichselian), the sea level would have dropped by about 120 m,

to the point where the distance between Cape Bon and south-western Sicily was reduced to about 60 km. In the Sicilian Channel, the arm of the sea was involved in active Plio-Pleistocene tectonic deformations with consequent bathymetric variations. This sea arm, at the beginning of its development, was less wide, shallower and sometimes characterised by discontinuous land bridges. Favourable conditions also occurred during the glacial periods of the Middle Pleistocene, when the lowering of the sea level was considerably significant (Abbate and Sagri 2012). Based on the above, Iovino and Marziano hypothesised an Africa-Sicily-Malta connection during the marine regressions that occurred in MIS 22, MIS 18, and MIS 16 (Lower Palaeolithic), phases in which there must have been small archipelagos between the Tunisian shelf and Malta that acted as bridges between Africa, the island of Malta and Sicily (Iovino and Marziano 2008).

Nonetheless, these hypotheses were not widely embraced by other scholars and currently are not considered valid solutions to the problem of the peopling of Sicily due to their speculative nature (Sineo et al. 2014).

The faunal turnover from the Lower Pleistocene (Monte Pellegrino) to the Late Upper Pleistocene (Castello) shows that the isolation of Sicily was not as marked as previously thought. In particular, some species derived from North African taxa are included in the Monte Pellegrino Faunal Complex, implying a connection with Africa (Marra 2009). Furthermore, the spread of humans and fauna must have followed the same routes and times, especially during periods of marine regressions (Iovino and Marziano 2008). A land bridge could have been formed in the area of the Straits of Messina (Anto-

nioli et al. 2014). It was during the Late Palaeoglacial that an important geological event occurred: in this period, Sicily went from a phase of connection with southern Calabria, via a probable emerged bridge, to one of isolation (Petrucci et al. 2011); it is probable, therefore, that the connection that still existed between Sicily and Calabria in the earlier phase had favoured the arrival of new cultural and technological stimuli (Tusa 1999).

Conclusions

Flakes, pebbles and bifacial lithic complexes were identified in Sicily over the last 70 years. However, caution should be taken while identifying these first communities that populated the island which geography differed from today due to land bridges that were connected to the mainland. Today, the majority consensus of the scientific community dealing with such problems has it that no hominins came to Sicily before *Homo sapiens*, and that the latter reached the island coming from Europe (Burgio 1997; Sineo et al. 2014), not Africa (Alimen 1975; Iovino and Marziano 2008; Abbate and Sagri 2012). Although not all the found items can be clearly attributed to the Lower Pleistocene and some from the Agrigento area were found where land had not yet fully emerged at the time to which they are ascribed (Sineo et al. 2014), yet the presence of lithic industry from the Lower Pleistocene leaves a non-negligible question mark on Sicilian prehistory. Can it indicate that they were left on the island at a time preceding the final Epigravettian? Was this the result of Sicily being a land of passage? These questions appear legitimate. Although the undeniable presence of species of the genus *Homo* along the shores of the Mediterranean Basin would

logically suggest an affirmative or, at least, possibilistic answer, the lack of any conclusive evidence shall leave the question open until further (potential) discoveries be made. As is always the case in archaeological and anthropological research, one should proceed cautiously when addressing such problematic possibility: there is still too little data available to prove that human groups predating *Homo sapiens* indeed settled on the island. While the absence of evidence does not necessarily equal the evidence of absence, the available findings, nowadays supported by more recent techniques, such as ancient DNA and radiocarbon dating, point towards a non-pre-Epigavettian peopling of Sicily by groups belonging to *Homo sapiens* and originating from Europe. Overall, the absence of precise answers to the aforementioned problem of probable Lower Palaeolithic tools should stimulate further research into the matter. Moreover, a greater interdisciplinarity in such research should be encouraged so that the search for skeletal remains or lithic artefacts is not neglected; censuses of caves in the territory of archaeological interest; systematic excavations of a greater number of Sicilian caves and the recovery of those (few) data concerning the areas where Lower Palaeolithic lithic tools were found.

Conflict of interests

The authors declare that they have no conflict of interest.

Authors' contribution

CP conceptualisation, writing of the first draft; EV conceptualisation, editing and critical review of the first draft, supervision, data analysis, LS editing and critical

review of the first draft, supervision, data analysis, FMG editing and critical review of the first draft, data analysis, supervision

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