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Chapter 7

In search of interdisciplinarity in Portuguese archaeology: notes on the 1960s

Ana Cristina Martins

*Archaeology is no longer a hobby;
it became a domain with rigorous methodology.
Archaeology requires a long learning with experts. [...].
The archaeologist working alone is outdated*

(III Curso... 1970, 313. Our italics)

Abstract

*Beginning with the question of whether there had been any kind of interdisciplinarity in Portuguese archaeology during the 1960s, this chapter examines some of the situations of that decade through the analysis of certain episodes and the pages of the journal *O Arqueólogo Português* (*The Portuguese Archaeologist*), published by the Museu Nacional de Arqueologia (National Museum of Archaeology) in Lisbon since 1895. It aims to assess the extent to which the older generation of Portuguese archaeologists understood and applied the new theories and methods arriving from abroad, including interdisciplinarity. It also analyses the role played by the ‘Transition Generation’/‘Three Pillars’ in training the succeeding generation in new theories and methods, with special focus on interdisciplinarity. Finally, the chapter reflects on whether the presumed interdisciplinarity claimed by many actors from these three generations was really an interdisciplinary approach or, in contrast, a multidisciplinary one.*

Keywords: interdisciplinarity; archaeology; *O Arqueólogo Português*; 1960s; ‘Transition Generation’/‘Three Pillars’; Portugal.

Introduction

In this article we follow the historian and philosopher of science Olga Pombo in her understanding of ‘interdisciplinarity’ as the combination of various academic

disciplines working in an ‘intradisciplinary’ way on one activity in order to establish an organisational unit crossing traditional scientific boundaries (Pombo 2008). As she herself states, ‘it is extremely difficult to talk about interdisciplinarity nowadays [...] [since] it seems that no one knows exactly what it is’ (2008, 9–10). Moreover, other authors have drawn ‘attention to the “comedy” of pretending to be interdisciplinary when almost everyone understands that this is an unattainable goal – at least in the framework of the traditional scientific paradigm characterised by hyper specialisation and fragmentation of human knowledge about the world’ (Heintz, Origgi and Sperber 2004, 9). However, Pombo’s definition clearly marks the distinction between ‘interdisciplinarity’ and ‘collaboration’ (Pombo 2004, 31–32). ‘Collaboration’ refers to the pre-existence of a hierarchical way of producing science, although encompassing some negotiation. It means that there is a project led by the representatives of one academic discipline, who ask for ‘collaboration’ to clarify certain issues. Nothing is unexpected in archaeology, since it is a vast multi- and interdisciplinary academic field.

The need for ‘interdisciplinarity’ results from the long modern road to scientific specialisation. A long way filled with various narratives of crises and resistance and consisting of a permanent search for relationships and articulation between sciences revealed in multiple prefixes: *pluri*, *multi* (both denoting multiplicity) and *inter* and *trans* (indicating homogeneity) (Pombo 2008, 15). All these are prefixes (*i.e.* semiotics) that can clarify much about each concept (*i.e.* semantics). *Pluridisciplinarity* (or *multidisciplinarity*) means the ‘collaboration’ between two or more disciplines in order to analyse one problem together. This ‘collaboration’ is coordinated by one of the involved disciplines, often without real communication between them. *Interdisciplinarity* involves the search for convergent points of view (Pombo 2008, 14–15), *i.e.* for a synthesis demanding continuous teamwork and the reorganisation of research processes (Pombo 2004, 37–38), often in a context of hybridisation and intersection, understood by some authors as a *notion trompeuse* (Dogan and Pahre 1991, 155–160). Finally, *transdisciplinarity* implies the unification of disciplines and the building of a common language. This is the ultimate but less often attained goal in a scientific world that is still very segmented into its own specialisations with well-defined territories. Even so, it is stated that ‘nobody knows exactly where is the frontier from which a certain practice – scientific or educational – becomes *interdisciplinary* and not *multidisciplinary*, *pluridisciplinary* or *transdisciplinary*’ (Pombo 2004, 3). That is also why it is possible to state that the concept of ‘interdisciplinarity’ is – as are all the others – polysemic, illustrating the complex path from specialisation to the unity of science. In this context, ‘interdisciplinarity’ means *interspace*, *i.e.* an in-between position (Pombo 2004, 5). Moreover, as stated by Pombo (2008, 22–24), *interdisciplinarity* enriches science thanks to the transfer of concepts, questions and methods, as well as through an in-depth, stratigraphic analysis of realities. This transfer and analysis allow the emergence of new (post-modern) challenges to be studied, thus fulfilling the French philosopher Etienne Durand’s (1921–2012) ‘poetics of interdisciplinarity’ (Durand in Pombo 2008, 21–24).

This chapter aims to provide an understanding of whether the archaeology practiced in Portugal during the 1960s assumed a clearly collaborative (*i.e.* pluridisciplinary) approach, or whether it began to take on some interdisciplinary insights. It was a crucial decade for this science in general, as archaeologists attempted to implement databases, new field and laboratory methodologies and conceptual frameworks such as ‘interdisciplinarity’ (Klein 1990, 56). It was then that certain theoretical and practical changes took place in Portuguese archaeology, mainly due to the presence of the German Archaeological Institute (Deutsches Archäologisches Institut, operating in Portugal from Madrid) at the excavation of the Chalcolithic hillfort of Zambujal (Parreira 1995, 227–211) and that of the Luso-French mission at the Roman site of Conimbriga (1964–1971) (Alarcão and Étienne 1974–1977). Cultural and scientific journals were crucial in this context, along with conferences, exhibitions and university courses. *O Arqueólogo Português* (OAP; *The Portuguese Archaeologist*) was one of those journals. Launched in 1895 by the Museu Etnológico Português (MEP/MNA; National Ethnologic Museum),¹ this journal is one of the oldest in the country devoted to the study, safeguarding and dissemination of knowledge, especially that of archaeology. More than that, it was one of the first journals to publish innovative approaches in archaeology written by young Portuguese archaeologists. In the framework of the analysis of interdisciplinarity, we will explore how ‘interdisciplinarity’ worked in Portuguese archaeology in the 1960s or whether, in contrast, ‘collaboration’ in the sense of *pluridisciplinarity* continued to prevail.

Previous practices in a nutshell

‘Collaboration’ is a substantial component of archaeology’s DNA. Rooted deeply in philological, literary, architectural and artistic traditions, archaeology was genealogically entangled with antiquarian practices from the fifteenth to the eighteenth centuries, especially with Johann Joachim Winckelmann (1717–1768) (Harloe 2013, 14–29). The end of the eighteenth and the beginning of the nineteenth century opened the way to the birth of archaeology as an academic discipline (Díaz-Andreu 2007). This was especially possible due to the emergence of prehistoric studies methodologically connected to numismatics (Schlanger 2010; 2011), geology and zoology. These fields helped ‘free archaeology from its [...] status as an auxiliary discipline to history [...] contributing to the emerging acceptance of the evolution of mankind’ (Kristiansen 2009, 24). In the nineteenth and twentieth centuries, humanistic disciplines (*e.g.* history, ethnography, ethnology and anthropology), natural sciences (*e.g.* biology and medicine) and certain techniques (*e.g.* photography) also contributed to the establishment and development of archaeology. Additionally, the Three Age System gradually became standard practice in prehistoric studies and museum exhibitions after its publication (Rowley-Conwy 2007).

The contacts between archaeology and other disciplines were more collaboration exercises than interdisciplinary work. It stayed that way for most of the time until the 1940s and 1950s, when the new form of absolute dating and the *-isms* brought new theoretical and practical frameworks into archaeology. The time had come for

a new ‘revolution’ in archaeology and the use of computer technology. It was during this period that archaeology became an innovative and inventive scientific discipline, if we look back at some of the coeval multidisciplinary approaches and attempts at interdisciplinarity (Born and Barry 2013, 6–8). Since then, archaeology has been transformed into a growing intersection of scientific fields that collaborate in order to solve archaeological questions, beginning with the understanding of original landscapes and ecosystems. However, it appears that it was necessary to wait until the end of the 1970s and the early 1980s to finally open up the way to a truly interdisciplinary approach that transcended collaborations. This was possible once the concept of ‘interdisciplinarity’ – the idea appeared in the 1920s and gained prominence in the 1960s – was coined in 1972 by the Organisation for Economic Cooperation and Development (Miller 2010, 2). This is perhaps the reason why some authors tend to root the concept in the labour economy: ‘the hierarchical division of labour that characterises many kinds of interdisciplinarity is an arrangement that may favour the stability and boundedness of component disciplines and inhibit epistemic change. In this mode the service discipline(s) is commonly understood to be making up for or filling in for an absence or lack in the other, (master) discipline(s)’ (Barry, Born and Weszkalnys 2008, 28–29). This period was followed by an almost simultaneous spread of scientific need for ‘interdisciplinarity’, despite the arrival, for example, of post-processual, interpretive approaches in archaeology (Thomas 2000, 3–4; Repko 2008, 17; Kluiving and Guttman-Bond 2012, 14): ‘The concept [...] gained prominence [...] to solve the problem of how knowledge can be unified and what the implications of such unity are for teaching and research in the universities’ (Miller 2010, 1).

Interdisciplinarity in Portuguese archaeology: a brief overview

In 1958, a National Congress of Archaeology (CNA after its name in Portuguese) was organised for the first time in Portugal (Martins 2016, 92–95). Reading its proceedings, it is possible to find papers dealing with the relevance of an interdisciplinary approach in archaeology. Nonetheless, it was only at the end of the 1960s, as a result of the presence of the DAI Madrid (see introduction) and the efforts of the (mostly) Lisbon-based ‘Transition Generation’ – in a very positive, productive and challenging sense – that a new group of young archaeologists began to search for other models to follow. They were aware of the latest literature in the field, attended conferences and congresses, even if mainly in Portugal due to political and financial obstacles and restrictions. The ‘Transition Generation’ was composed of the so-called (by us) ‘Three Pillars’, *i.e.* those who played important roles in Portuguese archaeology, such as the physician, archaeologist, museum director and university professor Fernando de Almeida (1903–1979); the archaeologist, university professor, museologist and heritage manager João Manuel Bairrão Oleiro (1923–2000); and the economist and archaeologist Eduardo da Cunha Serrão (1906–1991).

Contrary to what could have been expected, considering their somewhat leading roles in Portuguese archaeology, it was not the Faculty of Letters of the University

of Coimbra or that of Lisbon (FL-UL)² or even the prestigious journal *OAP* that led the process towards interdisciplinarity. This role was fulfilled by the journal of the Sociedade Martins Sarmento (Martins Sarmento Society), a nineteenth-century private erudite society established in 1881 in Guimarães, in the northern part of the country. The journal was directed by the society's president, Colonel Mário Cardozo (1889–1982), who was an open-minded person with a concern for heritage. It was he who published the first articles signed by the young University of Coimbra (UC) professor Jorge de Alarcão (1934–) and the young University of Lisbon student Vítor Oliveira Jorge (1948–). Both were subsequently to introduce new archaeological specialities, make significant inputs and set up innovative working groups in the country: Jorge Alarcão in classical archaeology and Vítor Oliveira Jorge in prehistoric and protohistoric archaeology. Through their activity, they placed the Universities of Coimbra and Porto at the forefront of their specialties in the country (Martins 2016).

Although it did not stand out on its own in this field, this chapter will mainly focus on the *OAP* and on how it influenced the introduction and dissemination of 'interdisciplinarity' in Portuguese archaeology. It was (and still is) the major reference journal in Portuguese archaeology and is published by the MNA, whose director was always the full professor of archaeology at the FL-UL. This means that in the 1960s and 1970s, Fernando de Almeida played one of the core roles in Portuguese archaeology, as he was the head of archaeology at the FL-UL and director of the MNA. He was also the president of the country's oldest and most prestigious private society for heritage safeguarding, the Associação dos Arqueólogos Portugueses (AAP; Association of Portuguese Archaeologists), based in Lisbon since 1863. During de Almeida's presidency, the AAP was revitalised and opened its doors to new generations of archaeologists. Together with the Serviços Geológicos de Portugal (SGP; Geological Survey of Portugal) (1918) and the Archaeology Section of the Sociedade de Geografia de Lisboa (SGL; Geographical Society of Lisbon) (1895), the FL-UL, MNA and AAP were the main places where a group of young archaeologists connected to Fernando de Almeida and Eduardo da Cunha Serrão began to grow intellectually and professionally, at least as far as Lisbon was concerned. Therefore, a thorough analysis of the *OAP*'s content shows that, despite it not having played the leading role, it did in fact contribute to the development of this science according to international theoretical and methodological standards. This was because the young scholars at the time used it as a means of publishing their first articles, in this way contributing to the introduction, assertion and development of interdisciplinarity in Portuguese archaeology. The decision to focus on the *OAP* also makes it possible to contextualise this process from different institutional points of view.

Collaboration

An analysis of the content of the *OAP* volumes published between the mid-1950s and the end of the 1970s, a period that coincides with the origin of interdisciplinarity in science (Hoffmann-Riem 2008; Schmidt 2008), allows us to reach some conclusions regarding the evolution of interdisciplinarity in Portugal. Firstly, there are no

references to ‘interdisciplinarity’ as a term in the *OAP*, as it was not established in an academic context until 1972. However, it may have been known, as the idea of ‘interdisciplinarity’ was already being referred to in the 1920s (see above), although it was not generally included in the Portuguese language dictionaries published during the decades discussed in this section. This means that the term was still officially ignored by academics and unknown to most of society. At the same time, these dictionaries (including those published early in the twentieth century) included the concept of *collaboration* as a synonym for *cooperation*, i.e. ‘working together with one or more persons, especially on a literary or scientific monograph’ (Séguier 1910, 293). However, in order to explain the absence of ‘interdisciplinarity’ from later dictionaries (even in the 1970s) and the *OAP*, it is important to know whether it was being introduced and systematically applied in other countries or at least in the main western archaeological schools. It would also be interesting to see whether the concept was somehow already present in the Portuguese academic milieu, even if unofficially.

The concept of ‘interdisciplinarity’ was known in economic and social science circles where it seems to have emerged in the 1920s (Sills 1986/2016, 17–18). Furthermore, the Portuguese journal *Análise Social* (*Social Analysis*) was to be founded in 1963 by the then recently established Gabinete de Investigações Sociais (Cabinet for Social Research). The journal’s title might seem unexpected in the context of Portugal’s internal political agenda, which was dominated by a totalitarian regime that was generally unfavourable to social analysis, as it could not be controlled by the government. However, its publication was possible as universities maintained a considerable degree of autonomy and many professors encouraged the adoption of new scientific approaches, especially those that were being generated in the French and Anglo-Saxon historical and sociological schools (Cruz 2000, 466–468). Even so, there is no reference to ‘interdisciplinarity’ in the first issue of *Análise Social*. Conversely, the word ‘collaboration’ (understood as *pluridisciplinarity*) did appear, being used in the sense of *interrelation*, *interconnection* and *interaction*. The presence of the prefix ‘*inter*’ in the journal would suggest the existence of a common ground of analysis, i.e. the search for the practice of ‘interdisciplinarity’, although this was still uncommon at the time. The same is true for the *OAP*, in which it is possible to observe an increasing number of papers dealing with ‘collaboration’ research work, mainly in the areas of prehistoric studies, conservation and restoration.

Despite the growing interest of academics and students in specialising abroad, the main actors of this process in archaeology in the country were foreign scholars, especially German archaeologists. Nevertheless, the first interesting idea to be found in the *OAP* is the emphasis placed on one of the oldest, although subsequently almost forgotten, interactive practices: ‘collaboration’ with local actors such as priests, schoolmasters, doctors, lawyers, landlords, journalists, photographers, employees of museums and other institutions, etc. (Almeida 1956, 111–116). The importance of collaboration was underlined by the MNA’s future director (1967–1973), Fernando de Almeida, who, thanks to his personal and professional power and influence, opened up the way for a new generation

of Portuguese archaeologists, motivating and enabling them in the accomplishment of their projects. He considered collaboration especially valuable, particularly in classical archaeology, which encompassed the ‘collaboration’ of numismatists, epigraphists, philologists, historians, architects and museologists (Coelho 1971, 167–180). This situation could explain the existence of different forms of ‘collaboration’ and an inherent (unofficial) hierarchy, neither of which was acknowledged as such by their actors.

The excavation of the Escoural cave (near Évora city, Alentejo region, Portugal) is an example of collaboration in Portuguese archaeology. The anthropological finds from the first excavations were examined at the Anthropological Institute of the University of Oporto (UP). The drawings were executed by Virgílio dos Reis Cadete, a proficient book translator from Verbo publishers (Lisbon), who is much less known for his drawings, and Francelina Gonçalves Rodrigues (Santos and Ferreira 1969, 62), who studied painting at the Escola Superior de Belas-Artes de Lisboa (High School for Fine Arts of Lisbon) between 1940 and 1950.

Pluridisciplinary collaboration

Another form of ‘collaboration’ consisted of the participation of Portuguese and foreign professors, young scholars and students in archaeological excavations. This demonstrates that, despite being totalitarian, the ‘Estado Novo’ (New State) regime did not completely obstruct scientific, technological and cultural contacts with other countries (Lopes 2018). Apart from these irregular episodes, there was a cumulative number of systematic types of ‘pluridisciplinary’ collaborations aimed at understanding certain archaeological questions and finding new research topics. However, the results enriched mostly foreign research projects. From this point of view, there was no real and systematic ‘collaboration’. Looking at the several volumes of the *OAP* published between the mid-1950s and the mid-1970s, we note the prevalence of ‘collaborations’ with fields such as geology and zoology in articles related to prehistoric research (twenty-five examples). This can be compared to those in the archaeology of later periods (eight examples), in particular ancient Rome in which there were ‘collaborations’ with epigraphy and numismatics. This is not surprising considering the genealogical links between prehistory and geology, in contrast to those of classical archaeology, which arose from philology, epigraphy, numismatics, architecture and the history of art. In addition, this suggests that archaeology gained much from the continuous proximity of prehistorians to other human, social, natural and technological academic disciplines. However, this does not mean that all Portuguese archaeologists fully understood the inferences and consequences of the new theoretical approaches such as structuralism and functionalism or even processualism when applied to archaeology. On the contrary, most archaeologists in Portugal showed little interest in theoretical approaches to their discipline before the 1970s.

The majority of the 25 examples of collaboration in prehistoric studies were related to the need to learn about palaeoenvironments and improve understanding of the ways of life in ancestral human communities. This is clearly the case of the

first examples of ‘collaboration’ identified in the mid-1950s that were linked to geology. Archaeologists’ collaborations with geologists, geographers and geomorphologists were strengthened from the 1940s, thanks to the presence in Portugal of foreign researchers and professors such as Henri Breuil (1877–1961), Pierre Birot (1909–1984) and Georges Zbyzewski (1909–1999). The latter was a Russian-born French geologist and prehistorian who lived and worked in Portugal for many years right up until his death. Between 1952 and 1976, he was invited to collaborate by Ernâni Barbosa, a research fellow from the governmental Instituto de Alta Cultura (Institute for High Culture). He ‘kindly classified the shell debris from the site of “castro da Pedra de Ouro” as belonging to different species’ (Barbosa 1956, 83), while working on the Geological Map of the country. A logical request since archaeologists should be leaving

to our colleagues specialised in typology the concern to review and clarify this question [debris of biface use] whose importance cannot be underestimated. Being the purpose of Prehistory to reconstruct the evolution of the human civilisations which preceded us, we believe we should not neglect any observation and interpretation brought from all (not that many) the available sources (Oliver 1956, 109. Our italics).

Gradually, other concerns were also included in the complex academic ‘collaboration’. As director of the MNA, Manuel Heleno³ (1894–1970) was well aware of the need to achieve a solid and permanent ‘collaboration’ in the conservation and restoration of museum artefacts. The museum did not have enough experts in those fields. Therefore, he sought them outside the museum. This was the case with the consolidation and restoration of the mosaics from the Roman site of Conimbriga, near the university city of Coimbra, or the ruins of the Roman villa of Torre de Palma (Monforte) with the team from the *Opificio delle Pietre Dure* of Florence to survey the discovered mosaics and transport them to the museum. With a nationalistic approach specific to those times, Manuel Heleno stated that it would be possible to

introduce to Portugal new methods of conservation and restoration, whose success will determine the safeguarding of a significant part of the national archaeological heritage.// [...] being the first attempt in Portugal to consolidate and restore in situ Lusitanian-Roman mosaics and release them from the mask of sand that obscures and damages their beauty (Heleno 1956, 253–255. Our italics).

The First National Congress of Archaeology in Portugal

There was a long gap in the publication of the *OAP* between 1956 and 1962. There were several reasons for this. The fact that its director, Manuel Heleno, was intensely involved in the long and intricate process of transferring the MNA to its new site (which never took place), while ingloriously fighting against ceding a part of the museum’s building to the Ministry of Maritime Affairs, were surely not the least of them. Another was that he also became deeply involved in the organisation of the First CNA, whose global

aim – i.e. the diffusion of new archaeological theories, methods and techniques and the establishment of personal contacts between Portuguese and foreign researchers – was to be achieved in the near future (Martins 2017, 87–98).

After a break of half a decade, the newest edition of *OAP* (now in its second series) appeared in 1962, the same year the First Archaeological Colloquium of Oporto (ACP) was held in Porto and Guimarães. This colloquium was organised in the absence of the Second National Archaeology Conference, which would take place in 1969 (Anonymous 1970a). The first volume of the third *OAP* series (1967–1977) is the most relevant for the topic of this chapter, as it includes three articles covering scientific ‘collaboration’, two in prehistoric archaeology and one in classical studies. This confirms that collaborations were becoming more frequent in Portuguese archaeology, mainly due to a scientific policy and strategy established in the MNA by its new director, Fernando de Almeida, who was appointed after Manuel Heleno’s retirement. Additionally, a growing number of enthusiastic young scholars was demanding the study, debate and application of new theoretical understandings and field methods.

The 1967 *OAP* volume shows that something was really changing in Portuguese archaeology, perhaps as a delayed echo of the first CNA final resolutions (Actas e Memórias 1970, 367–368). The academic milieu was beginning to witness an increasing number of projects, papers and monographs jointly signed by Portuguese and foreign experts from fields such as epigraphy, geology and zooarchaeology. Nevertheless, there had also been some attempts to collaborate with other disciplines. This is suggested by the narrative of two of the authors, the archaeologist Jean Roche (1913–2008),⁴ a researcher at the Centre National de la Recherche Scientifique (CNRS) and the Laboratoire de Paléontologie des Vertébrés et de Paléontologie Humaine in the Sorbonne, and the geologist and prehistorian Octávio da Veiga Ferreira (1917–1997) from the SGP. Both mentioned that the physician, anthropologist, prehistorian and UP professor, António A.E. Mendes Correia (1888–1960),

wishing to obtain more solid data to establish an *absolute chronology* of shell mounds asked us to date the coals by the *Carbon 14 method*. This work was done by the *Laboratoire l’Électronique Physique du Centre d’Études Nucléaires de Saclay*⁵, in France. [...]//2 - *analysis of fauna and its paleoclimatic effects*//3 - *anthropological study*⁶ carried out by *Mademoiselle D. Ferembach*⁷ (Roche and Ferreira 1967, 32–34. Our italics).

In addition to clarifying how Portuguese archaeology followed the news concerning absolute chronology, the excerpt above also informs us of the international institutional and individual networks established by some Portuguese researchers. It also shows what types of analyses were requested in the 1960s and their aims, in this case to gain an insight into the palaeoclimate in order to understand the initial environment of humankind.

The importance of absolute dating and physical anthropology analyses was also highlighted by the requests from other Portuguese scholars. This was the case of the prehistorian Manuel Farinha dos Santos (1921–2001), who mentioned that the

anthropologic finds from the Escoural cave were to be studied by the Anthropological Institute of the University of Oporto and the carbonised material sent to the laboratory for absolute dating (Santos 1967, 108). Together with Fernando de Almeida, Octávio da Veiga Ferreira also pointed out the relevance of similar analyses, reporting that ‘The seeds found [in a Lusitanian-Roman well] were *identified by the expert from the National Agronomic Station, A.R. Pinto da Silva*’ (Almeida and Ferreira 1967, 59. Our italics). However, it is interesting to note that, in contrast to these last two examples, the radiocarbon dating of the finds from shell mounds (see above) requested by Mendes Correia was only carried out by foreign (*i.e.* French) institutions and individuals. It has not been possible to find an ultimate explanation for this. Even so, it is likely that the closeness of Mendes Correia to European scientific institutes, laboratories and university departments could have enabled such requests. On the other hand, it is important to note that some of the better equipped research units were located abroad. Moreover, it was still not possible to carry out some of the analyses in Portugal, simply because the human or material resources did not exist at that time. Nevertheless, it is unclear how Mendes Correia was able to pay for the analyses he requested from outside the country. Perhaps it was thanks to the financial capacity of the institutions he was leading or other funding obtained from the IAC or the Fundação Calouste Gulbenkian (FCG; Calouste Gulbenkian Foundation).

Deutsches Archäologisches Institut

The volume of the OAP published in 1968 brought some novelties. One of them was related to a brief report on the excavation of the site of Zambujal (Torres Vedras municipality, Centro region, Portugal) that would open the way for a large number of articles to be published on the subject of ‘collaboration’ (Sangmeister, Schubart and Trindade 1968, 35–38). Although the paper was co-authored by Portuguese and foreign researchers, the leading scientific role had been assumed by Germans, albeit only unofficially, as the site was in Portugal. In addition, the actors and the results were to be shared by both the Portuguese and German teams. Moreover, it is important to note that the Zambujal site had already been transformed into a non-official archaeological field and laboratory working school. Excavated between 1964 and 1973, mainly thanks to a joint venture established between the DAI and the Institute of Prehistory of the University of Fribourg (IPUF), the site was able count on the collaboration of

U. Heinberg, P. Kalb, E. Klemm, G. Lindemann, [...] H. Pereja, B. Sielmann, K. Spindler, Y. Vuilleumier, R. Wolf [...] and Miguel Requena and Fermin Garcia from the German Archaeological Institute of Madrid. E. Soergel studied the *animal bones* from the excavations of 1964 and 1966. As our guests for several weeks we had Dr. A. Dauber and his wife, Dr. P. Harbison, Mr. Herberg and his wife, Mrs. Françoise Treines, as well as several Portuguese students who visited us for some days (Sangmeister, Schubart and Trindade 1969, 71–114).

More than the International Archaeological Camps co-organised by the Mocidade Portuguesa (Portuguese Youth, the Portuguese version of the fascist and totalitarian

Italian, German and Spanish youth organisations) at the northern Portuguese Iron Age hillforts, the Zambujal site was considered by the youngest Portuguese archaeologists as *the school*. It was also the first example of an organised, long-term ‘collaboration’ in Portuguese archaeology based on a win-win approach. All its members contributed something and obtained something in return; either theoretical and practical archaeological knowledge or even data essential to the building of a new narrative of the country’s past. In summer 1968, counting workers and scientific collaborators, 61 Portuguese, English, French, Irish and German researchers visited Zambujal (Sangmeister, Schubart and Trindade 1968, 36–37). In 1970, in the *OAP*’s fourth volume, the excavation’s scientific directors described the 1968 campaign at Zambujal in detail, mentioning the name of each specialised collaborator, including two colleagues from the Central Institute for Conservation and Restoration in Madrid, an expert on animal bones from Freiburg, and a photographer (Sangmeister, Schubart and Trindade 1970, 65–113), as if it were a truly pluridisciplinary effort of teamwork.⁸ Thus, it seems that scientific research in archaeology was especially accepted when it involved the collaboration of experts from the natural sciences, as scientificity was still very closely related to the idea of ‘measure(ment)’. Therefore, in the 1960s, archaeology in Portugal could be seen more as an ample ground for scientific ‘collaboration’ than an autonomous scientific discipline.

The second news item reported in the 1968 *OAP* dealt with the growing importance of underwater ‘activities’ in archaeology (Escavações 1968, 193–194). These ‘activities’ were undertaken by certified members of the Portuguese Youth Group *Escola de Brigadas Especiais* (School for Special Brigades) and the *Centro Português de Actividades Submarinas* (Portuguese Centre for Submarine Activities). The idea of ‘underwater archaeology’ was gradually being conceptualised and introduced into the Portuguese scientific lexicon (Notícias 1959, 12).⁹

1969: a turning point

This was a particularly important year for Portuguese culture, science and university life. Following the ‘May 68’ movement in France, Portuguese students requested that universities update their course programmes and that the material associated with them include their recommended bibliographies. They also requested the renewal of the lecturing staff and better classrooms. These demands emerged from a new democratic and liberal spirit nourished by a strong need for freethinking and a country without intellectual and cultural boundaries. These voices increased at the same pace as the disillusion that came with the failure of the Primavera Marcelista (Marcelo’s Spring) between 1968 and 1970, a period characterised by political openness, economic liberalisation and social policy improvements (Rato 2000, 421–427). At the same time, thousands of people were being murdered in the colonial wars in Africa, compromising the future of new generations and discrediting Portuguese policy and the country’s image abroad (Pélissier 2000, 159–163).

Subsequent to the student manifestation that took place at the University of Lisbon in 1962, and following the Parisian 'May 68', the University of Coimbra witnessed a general student strike on 17 April 1969 (Ferreira 2000, 553–555). This strike symbolised the profound disenchantment with national policy and the people's yearning for freedom of thought. However, only a completely new ideology and political agenda could accomplish that aim. The success of archaeology in Portugal also depended on this. Much had already been done and, although slowly, new theories (mainly structuralism and functionalism) and field and laboratory work were being introduced into the Portuguese archaeological milieu (Raposo 2011, 6). Gradually, a growing number of international collaborations was established. The FCG was increasingly sponsoring archaeological projects; young Portuguese students and scholars were travelling abroad and spending time at internationally reputed archaeological institutions. More frequently than ever, future Portuguese archaeologists were gaining access to specialist foreign archaeological literature, *i.e.* that published mainly by Anglo-Saxon and French authors. This meant that even though the country was still dominated by a totalitarian regime, Portuguese institutions such as the AAP were welcoming and promoting debates on the most varied archaeological topics.

The above described internal scenario seemed to appeal to and justify the organisation of a new kind of archaeological meeting: not a congress, not a colloquium, but a several-day seminar called 'Jornada(s)' in Portuguese. This term is possibly more than a change of name or the literal translation of the French *journée*; it could also suggest a conceptual and intellectual change in behaviour. Open to all those interested in archaeology, including students, the 'Jornadas' implied a permanent dialogue between speakers and attendees on a specific subject, regardless of their age and academic status. In addition, these 'Jornadas' were meant to 'analyse the latest scientific research, and prepare for that to come, both collectively and individually' (Jorge 1970, 15). This was somewhat unexpected, as Portugal was still under an authoritarian regime. Even more unusual was the fact that the First Archaeological 'Jornadas' took place not at a university, a state academy or a national or municipal museum, but at a civilian, private, scientific, cultural society. Of course, this was not an ordinary society, it was the AAP. However, looking at the venues of the first CNA and the several ACPs, one could have expected the 'Jornadas' to take place at a university, for example the UL, given the status and influence of Fernando de Almeida. Perhaps this was the best solution considering the country's political regime and the students' general strike in April 1969 (see above). At the AAP, Fernando de Almeida could easily decide to organise such a 'Jornada', as it was somehow considered to be neutral scientific and cultural territory (Martins 2016, 183–184).

Taking place between 3 and 5 November 1969, *i.e.* about half a year after the student movement at the University of Coimbra (see above), the 'Jornadas' were reported in different newspapers, emphasising the valuable collaboration between Portuguese archaeologists and their Spanish, French, German and English counterparts. These foreign colleagues included Antonio García y Bellido (1903–1972), Miquel Tarradell

(1920–1995), Hubert Newman Savory (1911–2001), Jean Roche, Jean Guilaine (1936–), Konrad Spindler (1939–2005) and Ignacio Barandiarán (1937–) (Primeiras Jornadas 1969, 304). The importance of most papers presented at the ‘Jornadas’ was such that the proceedings were published the following year. As expected from such an innovative scientific meeting, the first novelty in the proceedings of the ‘Jornadas’ was the presence, albeit minor, of papers written by both senior and junior scholars in the same publication. Despite this, most of the texts continued to follow the strongly descriptive and now outdated cultural-historical approach. Nevertheless, there was a significant improvement in the quality and number of illustrations, including drawings, photographs, maps and detailed stratigraphic profiles.

One of the papers in the proceedings of the ‘Jornadas’ emphasised the importance of rigorous stratigraphic analysis. Apart from debating the need for an objective and uniform descriptive archaeological vocabulary, the article, ‘Estratigrafia’ (‘Stratigraphy’), written by the archaeologists Octávio da Veiga Ferreira and Carlos Tavares da Silva (1970), may have been, together with that published by Vítor Oliveira Jorge (1970), the first to include the concept of *interdisciplinarity*. Octávio da Veiga Ferreira’s position should not surprise us, as he was one of the first in Portugal to understand and attempt to apply what could be considered ‘interdisciplinarity’ in archaeology. This was an objective he demonstrated, for instance, during his presentation of the fauna from a Mesolithic site at the IV International Congress of Pre- and Proto-Historic Sciences (Zaragoza, Spain, 1954) (Cardoso 1997). In these two articles, *interdisciplinarity* was needed to understand the daily life of ancient communities, which is why it should be jointly analysed by several academic disciplines. The article ‘Estratigrafia’ also mentioned the concept of social life, which was not particularly welcomed by the dominant political regime in the country, as it was always apprehensive about (almost) everything related to ‘social’ topics if it was not controlled by its own ideological agenda (Cruz 2000, 466–468):

it is urgent [...] to make archaeology interdisciplinary, as already happens in other countries.// At every archaeological site *everything can talk* about the ancestral *social life* that took place there. From simple grains of sand to elaborately decorated vases, everything must be collected and *studied simultaneously*, not only by archaeologists, but also by geologists, zoologists, palaeobotanists, physicians, chemists, etc. In our case, there is a group of finds awaiting more detailed study by experts. We have fauna and flora, ceramic pastes, metals (spectrograph), lithics (mineralogic and petrographic analysis) and charcoal (C14 analysis) (Ferreira and Silva 1970, 4. Our italics).

Pluridisciplinarity (as ‘collaboration’), together with laborious fieldwork, was essential for comprehending ancestral ‘social’ life. The past then began to be analysed by Portuguese archaeologists more focused on the relevance of permanent contacts and interinfluences than on diffusions and migrations. Statistics were fundamental in this research process as they could guarantee the ‘scientisation’ (in the sense of quantification) of archaeology:

prehistoric archaeology being a way of doing *social history* [...] we [paper authors] are committed to establishing general tendencies *statistically translated* based on which it can be possible to reach chronological conclusions and search for *contacts* and *interinfluences* between differentiated cultures (Arnaud and Gamito 1972, 143. Our italics).

‘Collaboration’ in Portuguese archaeology strengthened in 1969. This was the case with the analyses carried out by Manuel Trabucho from the Chemical Laboratory of the Portuguese Geological Services on a metal ring (Ferreira 1969, 115); the radiography applied to the reconstitution of bronze manufacturing techniques (Secção 1970, 309); the ‘collaboration’ of palaeobotanists from the Copenhagen High Institute of Agronomy (Secção 1970, 322); the possibility of using two EDXRF (Energy dispersive X-ray fluorescence) instruments, one in the Centre for Atomic Physics at the UL and the other at the Laboratory for Nuclear Physics and Engineering at the Technical University of Lisbon (Araújo *et al.* 2013, 69–70). This collaboration was enhanced in the following year during the Second CNA held at the UC with the participation of 43 Spanish, French, English, German, Italian and Brazilian archaeologists, as well as 104 from Portugal (O II Congresso Nacional 1970, 301–303). It appeared that the road was being definitively opened up to an increasing *pluridisciplinarity*. However, as pointed out by Vítor Oliveira Jorge, one of the main problems of archaeology in general and particularly in Portugal was,

the lack, insufficiency or ineffectiveness of institutes that could *gather together* experts from different scientific branches with the aim of an indispensable *collaboration*, and in this way to extend university classes in order to more efficiently prepare the researchers; the inexistence or scarcity of true laboratories, the need for non-mausoleum museums; and for the non-separation of activities still performed by one only person – the archaeologist (Jorge 1970, 14. Our italics).

This situation was perhaps the reason why Vítor Oliveira Jorge and other archaeologists frequently requested ‘collaboration’ and not ‘interdisciplinarity’, as the latter demanded more expertise and equipment (Arnaud, Oliveira and Oliveira 1971, 112).

Another pioneering paper in the proceedings of the ‘Jornadas’ was written by Eduardo da Cunha Serrão, one of the aforementioned ‘Three Pillars’ of the future generation of archaeologists, along with João Manuel Bairrão Oleiro and Fernando de Almeida. Being theoretically up to date and reflecting – as did Vítor Oliveira Jorge¹⁰ – on concepts such as *type*, *artefact-type*¹¹ and *archaeological culture*, Eduardo da Cunha Serrão underlined the need for ‘collaboration’ in gathering data as essential for comprehending ancient phenomena, that was ‘only possible in *well-equipped laboratories* and thanks to the intervention of very well-trained experts’ (Serrão 1970, 7. Our italics). In addition, he was perfectly conscious that, ‘only a close *collaboration* between those *experts and archaeologists* makes *truly profound knowledge of the past possible*’ (Serrão 1970, 7. Our italics).

Supported by the IAC and the FCG, some young archaeologists, *e.g.* María de los Ángeles Querol (1948–), Susana Lopes (1953–), Vítor Oliveira Jorge, Jorge Pinheiro

Monteiro and Francisco Sande Lemos, travelled to France in the spring of 1972 to learn about recent methods in archaeology such as those applied by the French prehistorian Michel Brézillon (1924–1993) to engravings in the Sahara desert (Serrão *et al.* 1972; Lemos 2011, 9). However, on their return to Portugal they seem to have failed in implementing a truly interdisciplinary approach based on the French experience. Instead, they tried to apply the methods learned abroad, perhaps because they did not have sufficient means to carry out a collaborative and even less an interdisciplinary project. Moreover, there was perhaps an individual (albeit unconscious) effort to be encyclopaedical or even scientifically hybrid, as in the case of some geologists who were still becoming archaeologists (Dogan and Pahre 1991, 155–160).¹²

The reflections, demands and experiences of the new generation of archaeologists resulted from (and motivated) a profound theoretical and methodological renewal of archaeological practice in Portugal. This transformation was also made possible by the influence of foreign archaeologies and archaeologists in the country, and of young Portuguese archaeologists studying abroad. This renovation was urgent in order to overcome many scientific problems and was needed to change the negative ideas foreign colleagues had about the way archaeology was practiced in the country:

In recent years, Portugal has observed a discontinuous, but very plain movement, aiming to achieve not the renovation of fieldwork and cabinet methods, but a complete restructuring of all the archaeological *processus*. A perfectly understandable attitude, considering the European hostility to Portuguese research that was responsible for a long period of isolation with extremely negative consequences¹³ (Gonçalves 1970, 390).

Conclusions

The examples from the *OAP* journal discussed in this article indicate that ‘interdisciplinarity’ was still a mirage in Portuguese archaeology, at least between the end of the 1950s and the beginning of the 1970s, the period chosen for analysis. This was a time of political, social, economic and cultural challenges and transformations in the country. However, at the same time considerable effort was put into strengthening *pluridisciplinarity* in archaeology as a way of attempting to fill the gap of ‘interdisciplinarity’, which was impossible to achieve due to the absence of the necessary human and material resources. Even so, interdisciplinarity was frequently referred to by young students and scholars, not only as something to attain in a near future, but as a deeper, vaster and scientifically more challenging approach than *pluridisciplinarity*. In any case, it was not only the lack of resources that had to be solved to achieve ‘interdisciplinarity’, a concept that was changing in full during the ‘Big Science’, *i.e.* the period in which complex and holistic scientific progress was demanded, incentivised and funded by national and transnational governments or groups of governments, and *subjected to overflow* [in the sense of being improved] *in the 1950s and 1960s* (Frank 1988, 139–140). There was an epistemological and – what was more urgent – a mental scheme that

had to be transformed in Portugal for interdisciplinarity to be achieved. This change could only be brought about by a new democratic Portuguese regime. Until then, 'collaboration/interrelation/interconnection' remained the predominant research form in Portuguese archaeology, even if the prefix *inter-* could point to *interdisciplinarity* (see introduction) (Frank 1988, 73–77).

Due to the indifference of the Estado Novo's propaganda machine, which was more focused on the monumental vestiges of the past, Portugal did not yet have a body of professional archaeologists; the discipline was mainly practised by amateurs, except for those who came from abroad, as was the case of German and French colleagues.¹⁴ Nonetheless, in the 1960s and 1970s, archaeology in the country was between two phases: the disciplinary (Klein 1990, 59), from 1969 to roughly 1973, and that corresponding to the so-called *group work* (Klein 1990, 56), which lasted from circa 1973 until 'interdisciplinarity' began to be established between the late 1980s and early 1990s. During this period of transition to 'interdisciplinarity', archaeology in Portugal seemed to be more 'additive'¹⁵ than 'integrative' and more 'cumulative' than 'interactive' (Klein 1990, 56). Although motivated and inspired towards interdisciplinarity by the most productive and challenging 'transition generation', it was the new generation of archaeologists influenced by French culture, the importance of French Palaeolithic research, and some German and French archaeological projects, that adopted and accomplished it. The fact that these young archaeologists became aware of the need to learn English also enabled them to stay abreast with the latest archaeological theories and practices in Anglo-Saxon archaeology.

In the same period, the 'Three Pillars' enabled the foundation of an archaeological circle at the FL-UL. Additionally, they facilitated the integration of some circle members, including Vítor Oliveira Jorge and José M. Arnaud, into prestigious Lisbon archaeological societies (*i.e.* the AAP and the SGL). They also authorised the recently established informal Grupo para o Estudo do Paleolítico Português (GEPP; Group for the Study of the Portuguese Palaeolithic) to establish its headquarters at the Museu Etnológico Português and invited its members to work on projects, receive institutional support to travel abroad, and present and publish papers. It was that state of mind that offered this new generation the possibility of advancing in their scientific intents and aspirations. Moreover, it was the international experience of this new generation that allowed its members to speak and write about 'interdisciplinarity'. However, it is debatable whether this was true 'interdisciplinarity'.

We could assume that the new generation of Portuguese archaeologists was perfectly aware of what 'interdisciplinarity' implied and did not use the term only to describe various kinds of research activity (Frank 1988, 139–140). It might be that 'interdisciplinarity' was a way of highlighting the need for a deeper and (almost) permanent 'collaboration'. Perhaps a different strength was given (even if unconsciously) to 'pluridisciplinarity' and 'interdisciplinarity' in science and especially in political life; for example, with innovative resolutions such as the educational reform drawn up in 1973 by the Minister for National Education, Professor José Veiga

Simão (1929–2014) in an attempt to modernise and ‘pre’-democratise the political regime (Vicente 2000, 430–431). In this area, it would also be interesting to look at the difference between ‘collaboration’ and ‘cooperation’, ‘collaboration’ being a sort of middle of the way between cooperation – in which leadership is unquestionable – and ‘interdisciplinarity’, which implies a certain degree of negotiation.¹⁶ The prefix *inter-* was perhaps more suitable for this modern appeal and to people anxiously awaiting the political renewal or change, as opposed to the prefix *pluri-*, which always demands a strong – although informal and perhaps subconscious – hierarchical ‘collaboration’ and a leading academic discipline. *Interdisciplinarity* could give the idea (if not the illusion) of equality in the contributions of each discipline to the solution of a certain problem. It would be a kind of hierarchy versus equality, a vertical/pyramidal versus a horizontal system. It would almost be an analogy of a totalitarian regime versus a democratic regime. These reflexions notwithstanding, the fact is that it was an approach incentivised by the ‘transition generation’, at least within the same research group, as appears to have happened with the GEPP. Nonetheless, on further analysis of the word, we could ask if there was a true ‘interdisciplinarity’ or if the quoted examples were of *pluridisciplinarity*. This is an understandable hesitation when one of the first papers analysing ceramics based on new technology and a natural scientific approach was written solely by a chemical engineer, João Manuel Peixoto Cabral (1928–), despite the fact that it aimed to increase ‘collaboration’ between Portuguese archaeologists and experts from other academic disciplines (Cabral 1977, 103–137).

Pluridisciplinary was (almost) largely impossible to achieve in Portugal, due to several constraints. The statement by Octávio da Veiga Ferreira is relevant in this respect:

[it would be important] to know if the mineral came from the same source. But of course, we cannot know this since it is impossible to obtain *spectrographic analyses* in our country, not only because there are *no specialists*, but also because of the *high cost* of such an analysis (Ferreira 1971, 143. Our italics).

This was not new. In 1958, the First CNA resulted in several important conclusions and requests. One of them was to encourage ‘the application of modern techniques to archaeological research through the establishment of appropriate laboratories at the main Institutes of Archaeology or by requesting assistance from specialist Portuguese and foreign laboratories’ (Actas e Memórias 1970, 367–368). Despite this, there appeared to be a clear – albeit unofficial – notion that archaeology was an academic discipline to be undertaken with extensive teamwork (Pereira 1971, 145) by *an expert team* (Arnaud 1970, 312).

Another question that can (and must) be asked is whether ‘pluridisciplinarity’ reflects on ‘periphery’, one of the paradigms that is being reanalysed in this chapter from a history of science perspective. If the concept implies the existence of a centre (or several centres) and institutional and individual hierarchies, then it is possible to examine the case study discussed in the chapter from that point of view. The OAP

includes numerous examples confirming that Portuguese archaeology was peripheral to the main archaeological theories and practices or that perhaps it was only relevant when it could confirm ideas or was essential for establishing certain archaeological agendas and hypotheses.

Centrality and periphery regarding institutions, people and artefacts depend on the perspective from which the subject is being analysed. With regard to *interdisciplinarity* in archaeology it is possible to say that Portugal was peripheral. It was peripheral from the point of view of *pluridisciplinarity* and even from that of *interdisciplinarity*, the former being a sophisticated version of *collaboration* (as is *multidisciplinarity*). It was also peripheral in terms of new field and laboratory methods. However, it was not peripheral when it contributed to the consolidation of theories, even when these were drawn up abroad by foreign experts, or when they helped reinforce institutional and/or individual scientific *status*es, in this case archaeological.

The concept of 'periphery' (not only geographic) in the history of science can (and perhaps should) be related to one of the 'invisibilities' of the history of science, as it deals with topics such as the relevance of couples, main and (presumed) secondary actors (individual and collective, public and private) in the establishment and development of different academic disciplines. Therefore, recovering invisibilities from the history of archaeology contributes to rebuilding forgotten trajectories, as well as to following the construction of scientific memories, individual and collective personalism, and the process of forgetting. This is also the case for the introduction, implementation and development of collaboration and interdisciplinarity in Portuguese archaeology, the building of bridges between disciplines. It is a topic that will continue to be studied and will examine, among other issues, the reason(s) why some of the first treatises on the need for an interdisciplinary approach in Portuguese archaeology were published in the *Revista Guimarães (RG; Guimarães Journal)*. This was a peripheral journal from the point of view of national political and cultural geography, but not from the point of view of archaeological practice in the country. To understand this phenomenon, it will be necessary to contextualise it in many ways and from very different intertwined points of view, comparing it to the one we have analysed in this chapter: the *OAP*; a journal that played an important role in the introduction and dissemination of collaboration and interdisciplinarity in archaeology, as well as in the development of science according to international theoretical and methodological standards.

The topic of interdisciplinarity in Portuguese archaeology has not been exhausted in this chapter. In fact, this is merely a first approach to it. There are aspects that still require in-depth analysis and that need to be linked to the events discussed here. Among the aspects that merit further exploration is the collaboration between archaeologists and epigraphers, art historians, museum curators, conservators, restorers and, finally, science communicators who worked in both Portuguese and foreign teams.

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Notes

- 1 Today the Museu Nacional de Arqueologia (MNA; National Museum of Archaeology).
- 2 The full professor of archaeology at the Faculty was by law (1913) also director of the National Museum of Archaeology, i.e. the OAP publisher.
- 3 Manuel Heleno was the Museum's second director following José Leite de Vasconcelos (1858–1941).
- 4 Invited for the first time to travel to Portugal at the end of the 1940s, J. Roche returned several times, including in 1959 to lecture at the Faculty of Letters of the University of Coimbra on methodology in prehistoric archaeology, fieldwork techniques and typology.
- 5 Inaugurated in 1952, meaning that Mendes Correia was attentive to recent scientific news.
- 6 These two analyses were carried out after 1952.
- 7 Physical anthropologist Denise Ferembach (1924–1994) from the *Centre National de la Recherche Scientifique* (CNRS) 1939, whose 'collaboration' should also be analysed from the point of view of the history of women in science.
- 8 In the meantime, towards the end of the 1960s, as the person responsible for archaeological studies at FL-UL, the MNAE and the AAP, Fernando de Almeida reinitiated research into the Roman period. This opened the way to pre-medieval archaeology while reinforcing prehistoric studies in 'collaboration' with several institutions and experts: 'it is being explored [Lapa da Rainha] by an *archaeological mission* coordinated by the [Portuguese] National Museum of Archaeology under direction of Professor Fernando de Almeida with the *collaboration* of the *General-Board for Mines and Geology*//[...] and the French scientist Professor *Ab. Jean Roche* from the «*Centre National de la Recherche Scientifique de Paris*» [...]//From 1968 we began to undertake *scientific research* there [...] in order to *understand the nature of the identified archaeological deposit*' (Segunda campanha 1969, 295–96. Our italics).
- 9 The first attempt had been at the end of the 1930s (Southern Portugal) and was taken up again by Fernando Bandeira Ferreira (1921–2002) and Fernando Russel Cortez (1913–1994) in the 1950s.
- 10 In 1971, Vítor Oliveira Jorge presented *Languedocense in the light of proposals from statistical typology and cultural paleo-anthropology – concepts of «industry», «culture» and «cultural ensemble»* (O problema do Languedocense... 1971).
- 11 Eduardo da Cunha Serrão reproduced the concept established by David L. Clarke in *Analytical Archaeology*, the relevance of which was then underlined by Vítor de Oliveira (Jorge 1970, 497).
- 12 This is the case of the geologist Miguel Ramos (1932–1991) who became a prehistorian specialising in African archaeology after attending the *Sorbonne* in the 1960s (Coelho, Pinto and Martins 2015, 145–160; Martins 2015, 129–143).

- 13 This was especially worrying considering the recommendations approved by the General Conference of UNESCO on the international principles to be applied in archaeological excavations (New Delhi, 1956), as mentioned by Manuel Bairrão Oleiro during the III CNA (Porto, 5–8 de Novembro de 1973) (Oleiro 1974, 18), already as Director General for Cultural Affairs.
- 14 It is important to remember here that the degree in archaeology only began to be taught in the late 1980s, and even then as a variant of the history course.
- 15 However, some authors defend the idea that ‘interdisciplinarity should not necessarily be understood as the sum of two or more disciplinary components or as being achieved through a synthesis of different approaches’ (Barry, Born and Weszkalnys 2008, 28).
- 16 This is perhaps the reason why, although published much later, some papers written up to the end of the 1950s continued to use the term ‘cooperation’ (Viana 1970, 329).

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