Muge 150th

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The 150th Anniversary of the Discovery of Mesolithic Shellmiddens—Volume 1

Edited by

Nuno Bicho, Cleia Detry, T. Douglas Price and Eugénia Cunha

Cambridge Scholars Publishing

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FOREWORD

In 1863, Carlos Ribeiro and his team from the Portuguese National Geologic Services discovered the first Mesolithic shell midden in the Muge area (central Portugal) in the Tagus Valley. In the following years and decades, a dozen or so of other similar sites were found in the region. In the following century the same pattern of discovery took place in the Sado Valley. The two Mesolithic complexes composed the main bulk of knowledge on the Iberian Mesolithic up to the end of the 20th century.

Those discoveries are well known internationally, not only due to the considerable effort that the Portuguese academics put forth for the international recognition of the importance of those sites, including the 1880 World Congress of Archaeology and Ethnology, but also due to the very high number of human burials (over 300) excavated during the last 150 years. Despite a century and half of research, until recently those sites were poorly known and very little data were analyzed and published, at least at the international level.

In 2013, celebrating 150 years of the discovery of the Muge Shellmiddens, we were able to organize an international conference, MUGE150th - The 150th Anniversary of the discovery of the Mesolithic Shell Middens, held in Salvaterra de Magos in March, 2013. There, recent results from the Mesolithic of both the Muge and Sado regions were presented, together with important and new results and data from Mesolithic research around Europe.

The proceedings of the MUGE150th - The 150th Anniversary of the discovery of the Mesolithic Shell Middens is organized in two volumes and includes most papers presented in the congress covering the Mesolithic sites from many regions in Europe, as well as a set of general syntheses on the state of the art on specific topics such as the use of Isotopes in diet determination and migration, plant use, and burial practices. In addition to these papers, there is also a set of papers on the general topic of shell middens.

Volume 1, now published by Cambridge Scholars Publishing, focuses only on the Mesolithic of the Muge and Sado Valleys, with a total of 27 chapters. The second volume, to be published soon, will integrate all the remaining papers, covering an array of topics and regions.

The organization of the conference and the publication of the Proceedings was only possible due to the help of Casa Cadaval, where many of the Muge Shell Middens are located, the Câmara Municipal de Salvaterra de Magos, and the CIAS - Research Centre for Anthropology and Health, from the University of Coimbra.

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CHAPTER ONE

CARLOS RIBEIRO AND FRANCISCO ANTÓNIO PEREIRA DA COSTA: DAWN OF THE MESOLITHIC SHELL MIDDENS OF MUGE (SALVATERRA DE MAGOS)

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Abstract

This paper presents the original unpublished documentation on the identification by Carlos Ribeiro, of the first two Mesolithic shell middens in the region of Muge: Arneiro do Roquete (or Quinta da Sardinha), in the Magos creek valley, and Cabeço da Arruda, in the Muge creek valley, also known as Paul do Duque (Duke's Marsh), on the 13 and 14 April 1863 and on the 24th of the same month, respectively. It is interesting to point out that Carlos Ribeiro did not realize the archaeological importance of the piles of shells and bones he came upon in both locations, admitting that they were the result of torrential transports.

Such discoveries were framed in the geological studies developed at the time in Portugal by the two pioneers who were directly connected to them: Carlos Ribeiro and Francisco António Pereira da Costa, Director members of the Comissão Geológica de Portugal (the Portuguese Geological Commission), whose personal and institutional relations are also characterized in this paper, for being determinant in the evolution of the geological and archaeological investigations then made in the country.

The Comissão dos Trabalhos Geológicos was created by the Decree of 31 December 1852. However, the Commission was only regulated by the Decree of 8 August 1857 and by two other royal Decrees made on the same day when people were appointed to it as members: Carlos Ribeiro (1813-1882), who was at the time Captain of the Artillery, and General Filipe Folque, "Lente", that is, Professor of Mineralogy and Geology of the Escola Politécnica. Both members of the Commission were dependents of the Director of the Trabalhos Geodésicos do Reino, functioning within the scope of the Ministério das Obras Públicas, Comércio e Indústria (Boletim 1857).

Pedro de Aguiar (1941), who was married to a granddaughter of Carlos Ribeiro, wrote that the Minister had wanted Carlos Ribeiro to occupy the position of Director, due to the fact that he had held the position of the Chief of the Mines Section since the Ministry was created in 1852, by invitation of the Minister at the time, António Maria Fontes Pereira de Melo. However, it had been recognized that there was a clear advantage for the said Commission to include someone particularly devoted to paleontological studies which was well considered as essential for such purposes; Carlos Ribeiro was, apparently willingly, co-opted for the direction of the newly-formed Service along with Francisco António Pereira da Costa (1809-1889), and their assistant was the young army officer Joaquim Filipe Nery da Encarnação Delgado (1835-1908).

Pereira da Costa had previously worked, fruitfully, with Carlos Ribeiro: both had written the Lei de Minas, published on 31 December 1852, which remained in print for a long period of time. Therefore, mutual confidence and esteem existed between them.

It was an alliance between two complementary personalities: Carlos Ribeiro (Fig. 1.1), with his great experience in fieldwork was, alongside Nery Delgado, in charge of assuring the coordination of a remarkable team of collectors, whose relevance in the fast progress of the geological survey of the country has only very recently been the object of study (Carneira 2005); Pereira da Costa, an academic and Professor of Mineralogy and Geology at the Escola Politécnica, was in charge of the cabinet work, involved in the studies of the paleontological collections, and with the objective of stratigraphic support for the geological surveys, as well as the organization of the collections.

This complementarity, however, originated due to the serious dissent that ended in the extinction of the Second Geological Commission in February 1868. Nery Delgado, who knew very well the causes of the divergence, elegantly silenced them with the remarkable historical compliment paid to Carlos Ribeiro in 1905, without, however, failing to

register the scientific merits of Pereira da Costa, inasmuch as the first headquarters of the Geological Commission were located in the private residence of Pereira da Costa in Lisbon, São Roque St. (Delgado 1905) from November 1857 until April 1859 (Almeida & Carvalhosa 1974). In fact, from that date the Commission occupied the upper floor of the extinct Convento de Jesus, which was then already the office of the Academia Real das Ciências de Lisboa. As the last testimony of this state of affairs, the Geological Museum is still located in this same place today, though it is now integrated into the Laboratório Nacional de Energia e Geologia (LNEG).

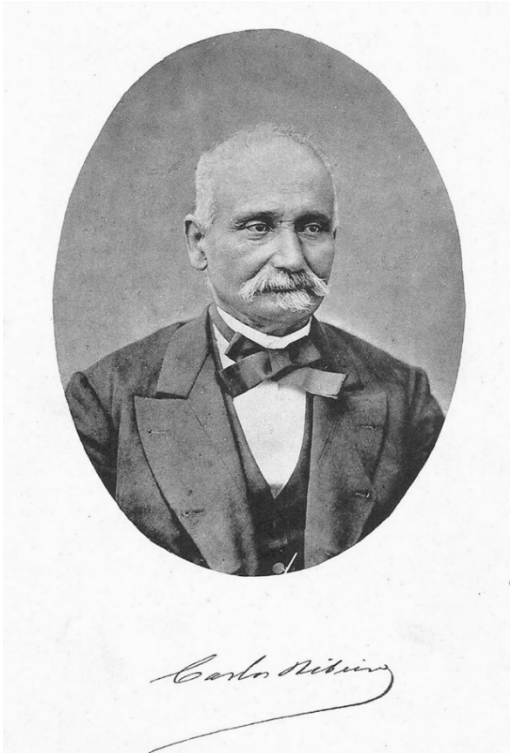

Fig. 1.1. Carlos Ribeiro (1813-1882).

The LNEG is the successor of its two prior institutions, the Serviços Geológicos de Portugal, from 1918, and, more recently, the Instituto Geológico e Mineiro. The LNEG keeps the collections of the Muge shell

middens, recovered after the extinction of the Second Geological Commission, which occurred, as already mentioned, in 1858.

Carlos Ribeiro was a pioneer: he established the survey of the mineral and hydrogeological resources of the country, knowing that the development of the country depended, in part, on its geological knowledge, and his early studies of geological nature in its various aspects: without forgetting the so-called "Pure Geology", with the integration of geological cartography, for which the knowledge of Stratigraphy and Palaeontology was essential. Nery Delgado accompanied him many times on his long stays in the field, resulting in the publication of the first geological maps as early as 1866 and 1867 at the 1/100 000 scale, which constitute the first serious attempt at the geological cartography of the country and reveal the scientific and graphic quality of the work associated with its execution (Zbysewski 1949). Unfortunately, they were never distributed. This was due to purely scientific motives (Cardoso, 2013) since there could be no other reasons after the reconstitution of the Geological Commission (although with another name), in December 1869. Indeed, in 1866 Carlos Ribeiro had already charted a good part of the detrital deposits of the Tagus Basin, thought to be Quaternary. These deposits attained the thickness of 400 m and had been heavily subjected to severe tectonic processes, some in the vertical position. However, when confronted with the odd mapping of the deposits transmitted to him by de Verneuil, Carlos Ribeiro changed his opinion and correctly remitted those formations to the Miocene and Pliocene (Ribeiro 1871), thus rendering useless those two geological maps.

Carlos Ribeiro was, indeed, a man of the field and a man of action, even though he did not forget the scientific publication of his field results. Nery Delgado reported (Delgado 1905) that Ribeiro was born in 1813, the son of a silver caster of the Casa da Moeda (the institution in charge of printing and coining currency in Portugal), and that he had to start working very early in his life, as a clerk apprentice: at the age of ten he worked in a grocery shop in São João da Mata St., in Lisbon. In 1905, his main biographer, Nery Delgado, who was by then Division General, tells us that such an establishment was attended by boys coming from good families who used to make that shop their meeting point. One of the most assiduous attendees of those meetings was Filipe Folque, his future hierarchic superior but at that time just a student-cadet of the Academia Real de Fortificação, Artilharia e Desenho, who assumed for himself the role of protector of the smart clerk apprentice. Carlos Ribeiro acquired a knowledge of French grammar and was soon able to take advantage of the contents of the books that Folque lent him. This allowed him, at the age of

19 on 4 August 1833, to enlist in the Artillery, thus embracing the Constitutional cause, against the wishes of his father, who was an absolutist. Because of that decision, he could no longer expect the slightest aid from his father: he was all by himself and dependent only on himself, based on his qualities and his behaviour. As a matter of fact, the busy personal and professional life of Carlos Ribeiro was the object of a short yet touching novel written by Camilo Castelo Branco, his former classmate at the Academia Politécnica do Porto. This novel was published in 1884, two years after the passing of Camilo's colleague (Castelo Branco 1884) and it very well portrays the generous and romantic soul of the future geologist.

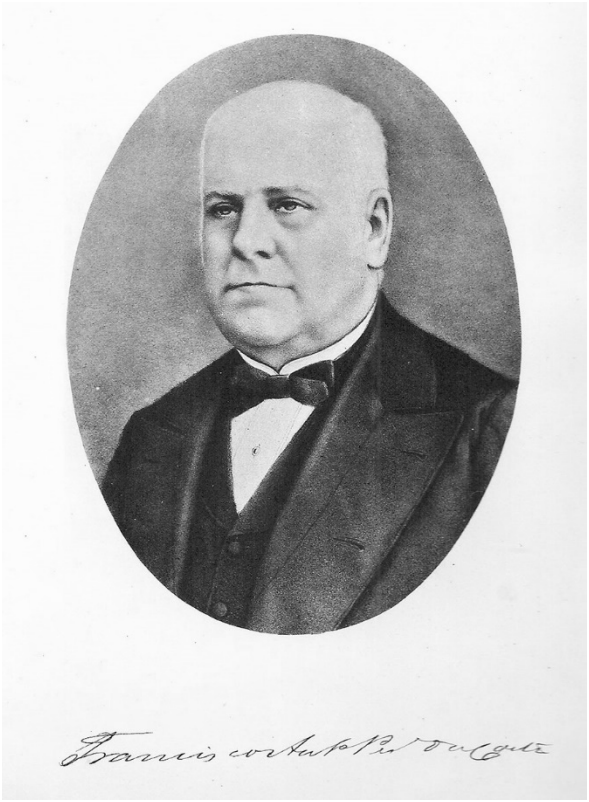

Fig. 1.2. Francisco António Pereira da Costa (1809-1889).

In contrast, Francisco António Pereira da Costa (Fig. 1.2), born in Lisbon on 11 October 1809 was, as mentioned above, the prototype of a cabinet researcher, with sedentary and regular habits. Like Carlos Ribeiro, he fought for Liberalism in the Academic Batallion, and, right after the triumph of the Constitutional cause, he graduated in Medicine at the Universidade de Coimbra (University of Coimbra). At the time of the foundation of the Escola Politécnica in 1837 Pereira da Costa was much more attracted by the studies of the Natural Sciences than by Medicine, and he applied for the position of Professor of Mineralogy and Geology, which he only took up in 1840.

Gifted with a meticulous spirit, Pereira da Costa took an interest in the cataloguing of the collections of the Museu de História Natural, located at the time in the Academia das Ciências de Lisboa, where he temporarily conducted the classes (Gomes, 1903/1904) during the reconstruction of the building of the Escola Politécnica after the great fire of 1843. In the collections of that Institution, the most important core consisted of the antique Colecção Real da Ajuda, which had, in the meanwhile, been transferred to the Academy.

This collection, although very depleted, had lately been incorporated into the Escola Politécnica, certainly as the result of the intervention of Pereira da Costa, where a major part of it was destroyed in 1978 by the great fire that took place there. So, Pereira da Costa's lack of enthusiasm for the daily growth of the collections of the Comissão Geológica is understandable, in unfair competition with those of the Polytechnic (Antunes 1986): this was so, in spite of the fact that he was the author of an important proposition presented after the reform of the Academia das Ciências de Lisboa in December 1851, during the session of 10 March 1852 (Costa 1949), transcribed below (*in* Costa, 1949: 8):

> *The capacities of the Reformative Decree of the Academia Real das Ciências de Lisboa point to the satisfaction of the purposes of this institution, the following two are mentioned: First–the special study of Portuguese soil, both on the mainland and in the overseas provinces, considered in itself and with regard to the industrial arts. Second–the enlargement of the collections of the natural products in the Academy. The duty of taking care of the execution of these two legal precepts belongs to the section for Historic-Natural Sciences and the duty of indicating what seems to me to be the more convenient thing to do in that respect belongs to me, who has until now been responsible for classification in the Museum,....* (Our translation)

This stand had a precise goal: Pereira da Costa insistently claimed that the First Geological Commission of the Kingdom was responsible for the collections reunited by Charles Bonnet, saying that:

> *he thought it indispensable to gather in a single location all the elements of study of the Historic-Natural Sciences that were scattered all over Lisbon, and to minister the teachings in the establishment where those elements were reunited, giving them a 'definitely practical' character. For that, he suggested that not only the collection existent in the Casa da Moeda– started by Eschwege (...)–should be transferred to the Museum of the Academy, but also the collections of the Escola Politécnica (Polytechnic School) and those, as he said, of the 'Commission of the Geological Map of the Kingdom'* (*in* Costa 1949: 8). (Our translation)

Due to the fact that he had been unable to achieve his goals at the time, and thanks to the re-establishment of the teaching in the Escola Politécnica after the reconstruction of the building following the fire of 1843, it is perfectly understandable that Pereira da Costa had reservations regarding the flourishing assets of the Museum of the Second Geological Commission, which had furthermore been enriched with the materials of study and comparison gathered during the travels made by Carlos Ribeiro from 4 July to 14 December 1858 (Delgado 1905).

When the importance of the Academia das Ciências de Lisboa to the geological survey of the country had been diminished as a result of the creation of the Second Geological Commission by the Ministério das Obras Públicas, only a few months after Pereira da Costa's proposal transcripted above, the only thing he could do was to achieve an understanding with Carlos Ribeiro, with whom he had always maintained good relations.

Such working relations, developed within the principle of complementarity mentioned above, would be maintained until 1866/1867. But, as expected, Pereira da Costa's growing grudge increased further. Several reasons for this can be pointed out: the enlargement of the assets of the Geological Commission and the use of funds made available to the Institution where teaching was not practised; all this was done to the detriment of the Museu da Escola Politécnica where Pereira da Costa still belonged to the teaching board; naturally, the School had a limited budget–and only by serving the teaching would the Museu would make any sense. These were, amongst other reasons, at the origin of unrecoverable disagreements. Once again, Nery Delgado discreetly mentioned those reasons:

> *With the authorization of a special fund for the geological survey of the country (...), the survey work began on 18 May 1866, with Carlos Ribeiro*

leaving for Alentejo accompanied by the Commission assistant [Nery Delgado himself]. *They both returned to Lisbon in November, and in April 1867 they left for the north of the kingdom, with the work of this first survey finishing in September of that year.*

One can date from this period the misunderstandings between the two directors of the Geological Commission which had such dire results. For some reason, which will not be easy to understand, Pereira da Costa fiercely opposed him over the execution of the survey, creating for Carlos Ribeiro the greatest difficulties and openly denying him his collaboration in the work and in the supervision of its expenses, unlike his usual actions on the regular funding of the Commission (…).

Having been witness to this fight since it began, I have never been able to understand its true motive. In the private correspondence of Carlos Ribeiro, an immediate cause for this quarrel with Pereira da Costa appears to be the disagreement over an issue of administration; but I believe that this dissent could have been easily fixed given the intense friendship that bonded them, as long as another hidden cause did not contribute to that result. Even in their correspondence it appears that, beyond the presented reasons, there was a more intimate cause for this breaking up of relations. Maybe a misunderstanding or mistrust that later turned into a serious offence originated that disgraceful fight that injured one of the contenders, and for which the other has won nothing with its triumph. (Delgado 1905: 23 and 24). (Our translation)

Pedro de Aguiar was the only one who, until today, has pointed out concrete leads to the causes for the quarrel between the two colleagues. He says:

My dear friend and uncle by affinity, (…) José Vitorino Damásio Ribeiro [son of Carlos Ribeiro], *told me, yet very secretly, that it was a misunderstanding or a refined susceptibility by Dr. Pereira da Costa. Even after a certain age, Dr. Pereira da Costa had some hidden love affairs, which infatuated him. Carlos Ribeiro, always sensitive and polite, may have said something to him that Dr. Pereira da Costa did not appreciate. Maybe that is the origin of the possible resentment and then divergence, because the love offences are unforgivable.* (Aguiar, 1941: 25) (Our translation)

This was also the version taken by M. Telles Antunes as the immediate cause for the disastrous known outcome, even though he does not quote Pedro de Aguiar (Antunes 1986: 795, 1989: 144) and also by other researchers before him, who were apparently unaware of that work (Costa 1949:13). However, beyond these mundane affairs invoked without concluding evidence, other deeper and more imposing realities which were certainly much more important, will better explain what happened.

Without speculating on the private life of the apparently austere Professor of the Polytechnic, he had permanent motives that would justify the attempt to neutralize the Second Geological Commission, as Nery Delgado mentions in his statement. Carlos Ribeiro's priority was the geological survey of the country from which resulted the already mentioned first maps at 1/100 000 scale, but for Pereira da Costa, fieldwork was only interesting if it provided him with the raw material for scientific publications. These publications involved very high typographic expenses. In fact, Pereira da Costa wrote and published a remarkable work (Costa 1866/1867), having left an important set of lithographs which were printed and published after his death (Dollfus *et al.* 1903/1904). In other words, for Pereira da Costa, the fieldwork was not an end in itself, as opposed to Carlos Ribeiro's perspective. Thus, it is in this light that the words of Nery Delgado, transcripted above, gain such major importance: one can understand that for Pereira da Costa it would have been preferable for the financial resources that Ribeiro was planning to channel into the fieldwork to be mainly spent on publication where his merit was undoubtedly distinguished. This was, then, the origin of the poisonous atmosphere that was brooding in the Geological Commission in 1866 and 1867 (Carneiro 2005: 155).

The extinction of the Geological Commission took place soon afterwards, by the direct intervention of Pereira da Costa, making use of his relations with the Minister of Public Works, and his former colleague in the Escola Politécnica, who gave him the lead in the geological studies of the country. The Decree of 23 December 1868 ensured the transfer to the Escola Politécnica of all the study materials gathered there, including books, collections and furniture (Delgado 1905: 24, 25).

In this way, Pereira da Costa achieved, even if only for a moment, the goal for which he had been fighting for so long: the gathering in a single public institution in Lisbon of all the collections and documentation, including the library of the extinct Comissão Geológica, which would serve teaching and geological investigation. However, this was a wasted effort because the Geological Commission was again restored one year later when the political conditions allowed, but without Pereira da Costa. Until the end of his long life of about 80 years (he passed away on 3 May 1889), he continued to dedicate his efforts towards the maintenance and enlargement by acquisition of the geological collections (petrography), paleontology and mineralogy of the Museu da Politécnica, without publishing anything remarkable, probably thanks to the lack of means, which had not previously been a problem. It must be noted that the majority of the collections of the old Geological Commission were never

returned when this Institution was restored, as we had the opportunity to personally verify in 1977, at the Museu Mineralógico e Geológico da Faculdade de Ciências da Universidade de Lisboa. This also happened with the editions of the Commission before its extinction in 1868, especially those by Pereira da Costa: some of them were still there for sale at derisory prices in the 1980s, survivors of the terrible fire that almost completely destroyed the interior of the building in 1978.

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These two men with such disparate personalities and also with very distinct visions about the development of geological studies in Portugal and the methodologies, purposes and priorities, are both inextricably connected to the investigations into the Mesolithic shell middens of Muge. The conditions in which the first discoveries took place, in the valleys of the creeks of Magos and Muge, were reported by Carlos Ribeiro himself:

> *It was at the expense of hard work and many adversities that, in 1863 and in the following years, we discovered, and collected under our immediate and exclusive supervision, the remains of human skeletons, vertebrate animals and molluscs, in Cabeço da Arruda, in Salvaterra and in other places in the Tagus valley, as well as the biggest part of the numerous objects of pre-historic human art that, in 1868, could have been seen in the Museum of the Geological Commission. The origin of these investigations and discoveries was the necessity for surveying, by the examination of the geological facts, which were the most important movements that had occurred in our land after the opening of the first order valleys that nowadays cut it, and to indicate which of those movements were contemporary with the human species; these were questions of the highest importance that are interesting not only to the geology of the Iberian Peninsula, but also to the hydrography, and to the difficult hydraulic problems that engineering has to solve in order to allow the restoration and conservation of our ports and harbours.* (Ribeiro 1871: 1, footnote) (Our translation)

Notice that the author uses the past tense when he refers to the collections exhibited in 1868 in the Museum of the Portuguese Geological Commission, given the fact that in 1871 the said collections where no longer there, for they had been transferred to the Escola Politécnica, as it was called at the time, after the extinction of the mentioned Commission.

The field records of Carlos Ribeiro, published here for the first time, prove that it was on 13 and 14 April 1863 that the first discoveries were made (Fig. 1.3):

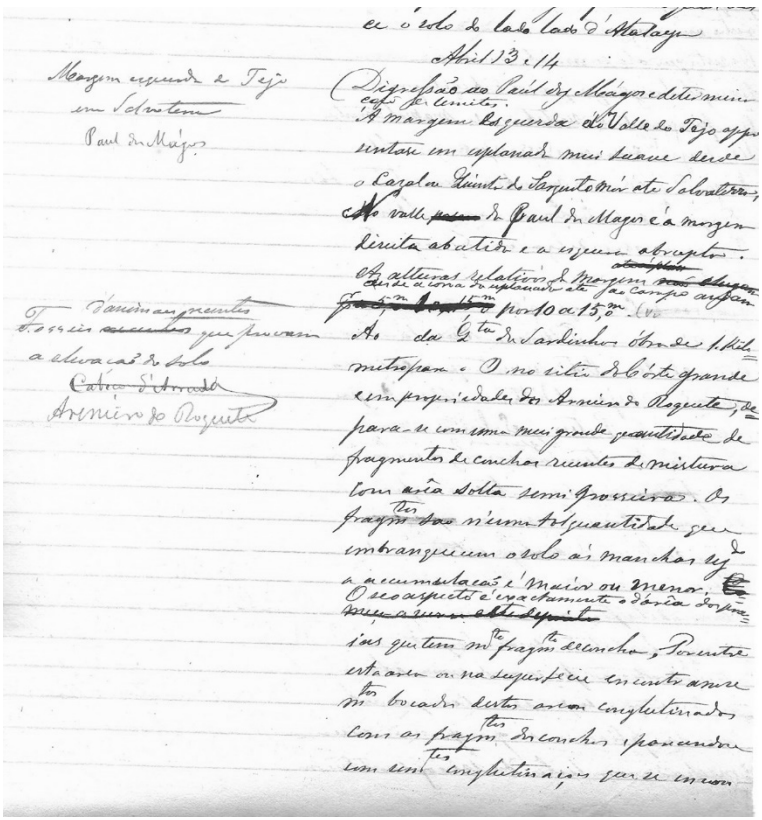

Fig. 1.3. Description of the identification of the shellmidden of Arneiro do Roquete (April, 13, 1863). Contemporary handwritten copy of the field notebooks of Carlos Ribeiro, written by himself, in sheets of lined paper.

April 13 and 14

Tour to Paul dos Magos (Magos Marsh) *and the setting of boundaries.*

The left bank of the Tagus Valley presents itself as a very smooth plain from the Cazal or Quinta do Sargento till Salvaterra. In the valley of Paul de Magos, the right bank is flattened and the left one is abrupt. The relative heights of the bank from the top of the plain to the field are about 10 to 15 metres.

[*From there*] *to the valley of the Q*[*uin*]*ta da Sardinha is a distance of 1 kilometre to the west. In the place of Córte grande and in the properties of the Arneiro do Roquete, one finds a very large quantity of recent shell fragments, mixed with loose rough sand. The fragments are in such quantity that they whiten the soil in spots, according to the larger or smaller accumulations. Their aspect is exactly like the sand of the beaches that have many rock fragments. In this sand or on the surface one finds many pieces of this sand conglutinated with the fragments of the shells, looking like many conglutinations found on the shoreline like, for example, at the place of Sete Bicas between Foz d'Albufeira and Foz da Fonte.*

The extension that it occupies is small, under 400 metres. And it is covered by the thin Pliocene sands, but those that the wind has set in motion. Its height is about 14 metres. Starting from the field or from a small ditch, it forms a ramp that precedes a plain where the animal remains finish.

The remains found there are:–A phalanx that appears to be from a digitigrade [.] *A vertebra fragment of a land mammal* [.] *A skull fragment (thick bone)–Idem. Bone fragments of the limbs–Idem. Rib fragments–Idem. Small thin bones and fragments of others–*

Crab claws–

Buccinum–Tellina–Nucula–Cardium edule–Oyster (???) in the Tagus estuary–Chitton (sic)–Idem–the one that is edible–Pecten–Solen–

Some of these shells have colours, the pearly nacre, and the others have the freshness of new shells. They are evidence of the old Tagus estuary. (…)

Some days after these observations, Carlos Ribeiro observed similar evidence in another tributary of the same margin of the Tagus located upstream (Fig. 1.4):

April 24–Tour by Raposa, Vale de Postigo and Machadinhos.

Above the layers of reddish tawny Pliocene sandstone that forms the cliff that people call Fonte da Burra next to Pontes do Ralão right outside Mugem there are conglutinations with abundant shell remains (Cardium, Telina, etc.) at a level of 12 metres above the fields of Mugem inside Paul. I followed the Motta da Valla until I got to the road that leads to Raposa and next to it, a quarter of an hour after leaving the Motta, there is a small hill called Cabeço d'Arruda. It is about 6 metres above the Paul. It presents, to the side of the Paul, an abrupt cliff formed by a deposit[1] *of marine shells and the bones of land animals with a visible thickness of 3 metres. There I found Cardium edule, a single piece of a Solen valve,and a small Cypraea, with the deposit being constituted mainly of Fragiliae and broken shells and all bivalves. I also found a jaw piece of a land mammal*

[1] N.T.: In the original, *lumachela*.