

PREPRINT

Scientific
Discourse in
Herodotus Book
II and its
Reflection in the
Age of New
World
Discovery

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Introduction

Herodotus' nine books are the literary product of an intellectual milieu in which different areas of knowledge were born and first developed as parts of a holistic approach toward the unknown world (that of the so-called Barbarians). Geography (including climatology), ethnography, dietetics, botany, zoology (besides politics, linguistics, literature, religion, etc.) all formed part of historiographical research (Greek *historiē*).¹ As Achille Olivieri pointed out (2004: 7), it was precisely in Herodotus methodology (so familiar with ethnology, anthropology and oral history) that contemporary history inspired itself. The first purpose of my analysis is to demonstrate the many ways in which the Book II of Herodotus highlights many of those scientific methodologies throughout his *logos* on Egypt (section 1- Foundations of scientific discourse in Herodotus' Book II). My second goal is to illustrate the tenacity of these conceptualizations in the travel literature surrounding the Portuguese exploration of Brazil (section 2- Herodotus through *Others'* eyes: the Herodotian matrix in the historiography of 16th century Portuguese settlers concerning the land and peoples of Brazil).

In these introductory words to my study I will begin by explaining the selected subject's relevance (A). It is followed by the discussion of the literary foundations and historical context in order to approach the scientific discourse's method (B) in a book titled *Ethnicity and Identity in Herodotus*. At last, I will discuss the reception of that narrative model in Portuguese texts from the Age of Discoveries, which are also accounts on unknown people and places, true *Barbaroi* in light of the confrontation with the cultures of the authors of such descriptions (C).

(A) As all who dedicate themselves to studying Herodotus' work know, the bibliography about the historian and his work is a true *thoma megiston!* Bringing a fresh contribution to such an extensive collection of titles is certainly a challenge. Herodotus' historiography inaugurates a new holistic approach to constructing the past of peoples

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through narrative. To *identify* in his *Histories* the cultural matrix behind the travel narratives written on the New World by the first Portuguese settlers, is one of the ‘revealed wonders’ (*thomasta*) of the classical tradition of Western thought and a path that has not yet been taken by other scholarsⁱⁱ. That is the reason why I decided to develop in section 2 some thoughts on how Herodotus can be seen *Through Others’ Eyes*. These “others” are 16th-century Portuguese settlers who composed works on the land and peoples of Brazil.

I must also explain why I decided to circumscribe my corpus of analysis on the scientific discourse, a topic displayed through all the nine books of *The Histories*, to Book IIⁱⁱⁱ. There are different ‘reasons’ (*aitiai*) behind my choice:

1. Within the multi-ethnic universe of *The Histories*, Book II is the only book that is entirely dedicated to one people, a fact which demonstrates the importance of Egypt and its people for the author, as compared with the other non-Greeks he describes^{iv}; consequently this book constitutes a privileged Herodotean piece of text of convergence of the three main themes of my research: scientific methodology, ethnicity and identity.

2. In Book II the author devotes considerable space to what is contemporarily called “the earth and life sciences”, or, to describe it in terms more coeval with Herodotus, the questions pertaining to the ‘nature’ (*physis*) of the territory and the living beings (animals and plants) that inhabit it; to avoid overrunning my allotted pages, I shall focus in more detail on the nature of the territory, discussing such passages as frequently evoked discussions on the lands of the Nile that animated ‘scientists’ or ‘men of knowledge’ (words expressed in Greek by the synonymous nouns *sophoi* and *sophistai*^v) in Herodotus’ time; this approach reveals the application of a scientific discourse to the construction of (land) *identity*, a *physical* issue always with *ethnical* implications on the historian’s portraits of people’s and individual’s customs and characters^{vi}.

3. Egyptians are the people whom the author most admire intellectually, calling them ‘by far the most learned (λογιώτατοι) people’ (2.77.1) and ‘the wisest of men’ (τοὺς σοφωτάτους ἀνθρώπων Αἰγυπτίους, 2.160.1); and this admiration is precisely based most particularly on the Egyptian’s quest for historical knowledge, which Herodotus calls ‘the memory of humanity’ (μνήμην ἀνθρώπων πάντων, 2.77.1); so it can be

legitimately deduced that love for knowledge (ie, science) is in Herodotus' portrait of the Egyptians a mark of *ethnic identity*.

(B) Differently from other chapters included in our book on *Ethnicity and Identity in Herodotus*, in which the authors are focused on the analysis of *contents* revealing the importance of ethnicity and identity towards the construction of the narrative mesh of the *Histories*, in this contribution the study object is the historian's *modus (de)scribendi*. Herodotus' manner of describing land and people, with his portraits of ethnicity and identity, is only fully understood if we analyse his literary production through the dialogue he necessarily establishes with the intellectual context which has preceded him and the one in which he lives. This reflection, even short, renders it essential, in the sense in which it reveals the *raison d'être* for the 5th century BC Greek historiography discourse to be a miscellany of knowledge which, only through progressive specialization, marked in the following century by the zoology treaties by Aristotle and botanic by Theophrastus, among others, would come to walk towards autonomy and separation. In the light of ensuing conceptions, particularly the subsequent historiography, the Herodotean text would not be considered "history" but, using the definition by Caroline Dewald (2008: 52), "an ongoing workshop on how to think historically".

Considering the focus of my analysis, I will review the scientific background before Herodotus and in his days. Not wishing to duplicate the arguments laid down by several Herodotean specialists before me,^{vii} it is important to remember that, in order to understand the presence of the language and concepts of 'scientific discourse', as it is generally called, in Herodotus' work one must consider the methodological affinities between our historian and his coeval intellectuals in East Greece (ie, in the late 5th century BC). The distinctive epistemological traits of that representation of reality are the study of the tangible, the visible, and the empirically verifiable. There is a clear difference as concerns the Ionian pre-Socratic philosophers of the 6th century BC, whose thought was based on speculations on the 'invisible', or the abstract (Thomas 2006: 62). As Rosalind Thomas (2006: 71) has highlighted, Herodotus' method of presenting his material reveals his close proximity to contemporary intellectual trends. This Herodotian familiarity with other scientific works should be understood not as a relation of dependence but of interaction (Raaflaub 2000: 154). As I will try to show when discussing Book II (section 1), the markers of scientific identity in the discourse of

Herodotus (shared with other of his contemporary ‘scientists’) consist in the commentary upon his sources, stressing the critical importance of eyewitness accounts (Gr. *autopsia*), and highlighting the presence of the author in the text (using the first person and including explicitly personal comments).

As concerns studies on the nature of the Earth (which were much later to become the autonomous scientific branches of geography, climatology, and geology), Herodotus shares his interest, as well as some affinities - and many differences -, with some authors before him, as well as with some of his contemporary Ionian natural philosophers (a group he calls ‘Ionians’), and also Hecataeus. Going from the “earth sciences”, an area on which many 6th- and 5th-centuries BC authors write, to the “life sciences”, James Romm’s apt description of Herodotus as a “proto-biologist” (2006: 181) makes perfect sense. Not before the 4th century would studies on the fauna and flora (which in Herodotus’ work were still in their embryonic state - and still interwoven with scientific and mythological arguments) - achieve major scientific literary status, thanks to the works of Aristotele (*Historia Animalium*) and Theophrastus (*Historia Plantarum*).

Another scientific field where similarities with Herodotus have been examined in detail is that of the medical treatises of the *Corpus Hippocraticum*. Within this vast body of work, the earliest ones are the closest to Herodotus, connecting him with the texts where ethnography, dietetics, and medicine are more intricately enmeshed, with the *Airs, Waters, Places* having been extensively studied. In the interest of saving time, and because this ‘kinship’ between historiographic narrative and Hippocratic treatises has been extensively developed,^{viii} I shall not be discussing in this paper the epistemological dialogue between Herodotus and that Hippocratic treatise on dietetics. But I will take into consideration (in section 2) the presence of the Hippocratic matrix in the writings of the Portuguese settlers, another subject until now neglected by the scholars. To conclude this summary on the relationship between Herodotus and other “scientific” authors before him and of his time, it must be noted that his originality consisted in applying his ‘scientific discourse’ to the subject of past history and not to present days (Thomas 2006: 72-3).

(C) Finally, regarding the use of *Histories* by Herodotus as a model for European writers to describe the “wonders” that the New Worlds revealed through the presented

Discoveries, it has precisely been the fact that the Heredotean narrative looks on unknown lands and people that contributed towards its rehabilitation as an historiography model during that period (Dewald 2008: 53; Varotti 2012: 101). There is widespread consensus among contemporary historians concerning the classical (literary) matrix of Renaissance New World accounts (Earle 2012; Rubiés 1993, 2006; Lopher 2003). The overall influence of the Greek and Latin authors that form the basis *litterae humaniores* was paramount on the humanist teaching practiced in colleges and universities. Nevertheless, as Joan-Pau Rubiés explains (2006: 141), the impact of the classics was not confined to the intellectual milieu; it was also felt in the texts of what has been named “popular humanism”, ie, those whose authors were not trained in the reading of the Greek and Latin originals of the humanist canon. He defines “popular humanism” as an intermediate reception of the classical culture. In fact, he links this concept to what he calls “urban culture” or “court culture” acquired by those first settlers who went to the New World for economic and political reasons - to become riche(r) and (more) powerful. Probably they did not have the full-blown humanistic education, which means that they had a limited access to formal education (especially to Latin and Greek texts). Although they were interested in vernacular literature, including vernacular translations of Classical authors. So in their works we find what Rubiés rightly called the “humanistic flair” (2006: 144).

With the analysis perspective I propose – the presence of the classical models in the works of these Portuguese settlers, directly or indirectly linked to a humanist education – I surely do not intend to deny the influence that the more recent travel narratives have had in their texts. In the Portuguese case it must be kept in mind that the medieval text by Marco Polo has been translated and published in Portugal in the beginning of the 16th century (1502) by Valentim Fernandes, an editor known for his taste for travel literature (an evidence of the genre’s popularity in vernacular languages at the time of our authors) ^{ix}. It also cannot be forgotten that the 16th century’s 50’s decade has been crucial in terms of key works’ publishing for the imperial historiography of the Hispanic renaissance, both in Spain and Portugal.^x Not denying the potential influence of these readings in the writing of the studied settler-authors’ texts, I will, in turn, conduct an analysis on the classic models that are the literary matrix of all these works of humanist inspiration.^{xi}

The adopted research method is the one of the comparative studies, being that I limited the universe of classic primary sources to the great literary genre in which the texts of the Portuguese settlers with the description of ‘Other’ or New World are affiliated: historiography. Because nowadays this categorization corresponds to a scientific discourse type that is totally autonomous, which has not happened before the 18th century^{xii}, it is important to clarify, even briefly, that the *modus cogitandi* of 16th century authors which we mention on ‘history’ is the classic (and Herodotean) understanding of *historiē* (‘investigation, research, inquiry’). However, given this conception of *historiē* dialogues, already in its Greek origin, with the medical scientific discourse, I will include the Hippocratic dietary discourse in part 2 referring to the study of the classic matrix in the works of Portuguese settlers.

Even if necessarily brief, it must be considered the reception of *Histories* at the time of the analyzed Portuguese authors. As observed by Adam Foley (2016: 213-4), Herodotus is absent from the 15th century’s humanist reception on historiography, given that the historians from that period seldom or never adopt the Greek author’s history writing model^{xiii}. That does not mean that they did not mention, quote or translate him (into Latin), with the Latin translation by Lorenzo Valla having become the reference work in this field.^{xiv} However, as Foley (2016: 220) concludes, “reading Herodotus, therefore, meant reading Valla” and by that reason the Greek historian “remained yoked to the standards of Latin prose rather than those of ancient historiography”. That is, the interest of the great names of Italian humanism for the release, through translation into Latin, of the monumental historiography work composed in Greek, was surely responsible for the increase of its circulation in the European intellectual meanders.

Tracing the editorial course of *Histories* in Italy and France has already deserved the detailed attention and studies by Achille Olivieri (2004), Stephano Pagliaroli (2006, 2007, 2012), Carlo Varotti (2012), Adam Foley (2016) and Benjamim Earley (2016), respectively. Shortly after the first complete translation into Latin, by Mattia Palmieri (ca. 1450), Lorenzo Valla publishes, in 1455, the edition which has transformed into the Renaissance’s editorial reference^{xv}. Only a century later (in 1566), Henri Estienne publishes another Latin edition of *Histories* in France. The Portuguese humanists would have surely had access to the editions by Valla and Estienne, as testified by the deposit of those works in the Library of the University of Coimbra^{xvi}. Also the translations into the vernacular languages have arisen in Europe, the first in Italian, by Matteo Maria

Boiardo (dated 1491 but published in 1533), also circulated in Portugal.^{xvii} The first Greek edition is not far from this activity, because it comes in 1502 by the hand of Aldo Manuzio.

So, to Adam Foley (2016: 213-4), even when some 15th century humanists write about unknown lands, producing ethnographic and geographic reports and using methods from the Herodotean historiographic narrative (as it is the case of the visual testimony's case, among others), seldom or never have they adopted Herodotus as model. Only in the 16th century will the humanists reveal interest in the "Herodotean style" of writing history, "often by way of apology for relying on eyewitness testimony and oral tradition occasioned by the expansion of Europe into East Asia and Americas" (Foley 2016: 215). According to the humanist *modus cogitandi*, the Greek antiquity (and not only Latin) offers *exempla* and encloses an *auctoritas* which modern authors still hold, even if they do it in an undeclared manner (ie, without identifying the classic literary sources in which they have inspired). Moreover, the *Histories* by Herodotus have become more "credible" to the eyes of 16th century readers because, as it is observed by Anthony Grafton (2010:444), "As European knowledge of Asia and the Americas grew, what had seemed tall tales in Herodotus gained a new plausibility, and offered a powerful model for writers who set out to describe the peoples that conquistadores and missionaries met in Mexico and Andes, China and India"^{xviii}, and Brazil, as this study will prove.

In fact, it is not only the editorial disclosure of the works which testifies its greater or lesser vitality in a certain period. Also its inclusion in school programs of the time shows as some authors could have entered in the literary culture and intellectual ideology of the authors which we are analyzing. Herodotus enjoyed that recognition at the highest level of the European Renaissance because, as it is underlined by Neville Morley (2016: 146), Erasmus has included it in his work on the grammar school curriculum, the famous *De Ratio Studii* (= On the Right Method of Instruction), as one of the recommended Greek prose writers. Considering that our reception incides on Portuguese works, we present as follows the elements we could appreciate on the study of Greek, during the 16th century, in the religious schools' and universities' *curricula* (finally installed in Coimbra from 1537 onwards, alternating thus far its location between this city and Lisbon). I focus my attention only in these study centres, and I will not consider the interest that the study of the Greek language and authors have had on private cycles (in the court and some Portuguese noble houses)^{xix}, given the

biography of the writer-settlers studied indicates that they would have attended public or religious teaching of the time.

Thanks to the studies by Sebastião T. Pinho (2006) and Carlos Morais (2009) we can assess the relevance of Greek study in Coimbra and in the Society of Jesus' religious schools, respectively. As a preparation measure for the University's transfer from Lisbon to Coimbra, King D. João III orders a studies' reform in the Monastery of Santa Cruz in Coimbra, a pre-university teaching religious institution where Greek language started being taught from 1535 onwards. A sign of the appreciation for the Hellenic language and culture was the existence (between 1530 and 1557) of a typography in the same convent, where not only works in Portuguese and Latin, but also in Greek, were printed^{xx}. Especially meant for the support of the Greek lessons lectured in Santa Cruz's schools, in 1532 the *Lexicon Graecum et Hebraicum*, by Heliodoro de Paiva is published, of which there is unfortunately no copy (Meirinhos 2001: 322).

With the university coming to Coimbra (1537), higher education classes (then known as General Studies) began taking place in the city's schools belonging to the order of Santa Cruz and they included Greek in their *curriculum*. There is no Herodotus included in the authors used in classes, agreeing with the general position of marginality for the Greek historian in the studied classics' group, aforementioned by Adam Foley. The preference went to another literary type (not historiography), ie, oratory (Isocrates), moralist and religious literature (*Dialogues* by Lucian, St. Basil and Gospels) ^{xxi}. From 1547 onwards, D. João III provides the city of Coimbra with minor university studies, lectured in the Royal College of Arts, where the teaching of Greek remains mandatory. With the school's direction passing to the Society of Jesus (1555), Greek will remain in the *curricula*, not only of the teaching lectured in the city, as it will be disclosed homogenously in the institutions of the Society scattered throughout the world, due to its addition to the Jesuit *Ratio studiorum* (whose definitive writing dates from 1598). Apart from that program of general studies, it is known the canon of Greek authors studied in Jesuit schools, thanks to the publishing in Coimbra, in 1583, of a text selection by Greek authors (*Aliquot Opuscula Graeca ex variis auctoribus collecta*. Off. António Maris). Herodotus is still absent from this cast (comprehending Demosthenes, Theocritus, Homeric Hymns, Lucian, Aesop, epigrams, epitaph of Bion, Pythagorean *carmina aurea*) ^{xxii}.

In summary, having been demonstrated, in the Portuguese case, the presence of Greek studies in the training of young literates and the “oblivion” of Herodotus’ historic work from those *curricula*, it is equally clear that the reading and influence of the Greek historian is revealed in another context, the one of humanist culture not tied to school manuals or programs. Being more difficult to track the presence of the work in non-school environments attended by the 16th century’s literate men, we wished, even so, to testify that Portugal would not have been indifferent as to the European movement. Proof of that are the aforementioned several editions of the work integrating the collection of the Old Book of the Library of the University of Coimbra.

Regarding these introductory clarifications, let us observe, as follows, how book II of *Histories* reveals the scientific *identity* in the construction of his speech.

1. Foundations of scientific discourse in Herodotus’ Book II

Let us start by looking into the contribution of the Greek terminology used in the field of science. As we shall see in the following analysis, keywords and concepts such as ‘knowledge’, ‘wisdom’ and ‘reasoning’ (respectively related to the roots *soph-*, *episteme-*, *log-*) are all used in *Histories* with meanings that can be subsumed under the common name of our object of analysis, ie, “science”.

As happens with any exercise of ‘identity definition’ (ie, saying *what one is*), the essence (ie, *being*) of *what is* can only be grasped against (ie, by *contrast* with) what is not. The materialization of this exercise is achieved through verbalization, ie, through *discourse*. In fact, as we can see in the text of Book II, the language of “scientific discourse” becomes implicit in its exposure of a “non-scientific discourse”. But before we look into some passages where this mirror game is enacted, it is important to mention that the presence of this characterisation of science based on non-science is mostly a consequence of the fact that *Histories* was written at a moment in history where this new way of thinking and this new discourse were still very recent, and therefore still struggling for self-determination (ie, *identity*).

Of course Herodotus’ aim was not to theorise scientific thought, and neither did he mean to systematise the characteristics of scientific thought or of scientific discourse. However, the clarifications on this topic provided in his writings enable the reader to *identify* a discursive network of a scientific nature that is responsible for conferring a

level of gravity on his account of Egypt and that intentionally differentiates it from other less earnest, or even implausible, narratives. But before we consider the foundations of this methodology, we should discuss the types of discourse (and, implicitly, their underlying methods) whose use the author finds objectionable (though not necessarily inapplicable^{xxiii}) in ‘research’ (Gr. *historiē*).

Within that plural universe of ‘non-scientific’ approaches, one can find seemingly scientific discourses alongside with other discourses of an obviously different nature. The most difficult thing is to identify alleged science, as it is often presented as genuine by its authors. The way in which Herodotus mentions the Ionians’ accounts on the variations of the Nile’s flow (2. 20-23) leads to the conclusion that their approaches were not scientific, but based on pseudo-science. The same is true when we analyse the way in which Herodotus introduces his countrymen’s explanations, which he also criticises. Among the vocabulary used by the historian we find the word *sophiē*, whose literal meaning is the ‘knowledge’ possessed by the so-called *sophos*. Possessing that knowledge ‘marks the person with a seal’ (Gr. *episēmenoi*), which is equivalent to saying that he is ‘distinct’ from the common masses. What could be seen as an asset, however, is presented as a fault, since in our historian’s words some individuals use their knowledge (even if false, as he contends) as a means of social self-promotion:

Three different theories have been advanced by certain Greek thinkers, who were, however, motivated by a desire (βουλόμενοι) to enhance their reputation (ἐπίσημοι) as clever (σοφίην) people. (2. 20.1)^{xxiv}

All three theories on the Nile flow are devoid of ‘scientific qualities’, or, to use the terminology of chapter 21, where the second theory is discussed, they are ‘non-scientific’ (ἀνεπιστήμων). Nevertheless, the author ranks them, describing the second one as ‘more non-scientific’ (ἀνεπιστημονεστέρη) than the other two, as perhaps more dangerous, we would say, since the argument of ‘reasonability’ only serves to give it a misleading appearance of wisdom. From the author’s considerations on this theory it becomes clear that ‘being reasonable’ is not synonymous with ‘being true’, cf. 2.22.1: *The third theory, despite being the most plausible (ἐπιεικεστάτη), is also the furthest from the truth (μάλιστα ἔψευσται).*

In fact, at the light of Herodotus’ conception of inquiry, truth is not a condition *sine qua non* for reporting^{xxv}. Later in Book VII (152.3) he will call his readers’ attention to this

by explicitly saying about the issue of whether the Argives went over to the Persian side in the Persian Wars: *I am obliged to record the things I am told, but I am certainly not required to believe them – this remark may be taken to apply to the whole of my account.* Turning back to Book II, as for the less scientific of the theories on the Nile flow, the second one (concerning the supposed existence of a river called Ocean which surrounded the Earth, and which the Nile flowed into), Herodotus clarifies the purpose of scientific thought and of scientific discourse: they aim to ‘shed light’ on issues, to ‘impart knowledge on, to reveal’ (Greek root *phan-/phain-*) what had been hidden (Gr. ἀφανής) or not yet fully known, rather than to examine or to lead to an inscrutable conclusion, or, as can be read in chapter 23, to offer what is dubious and ‘cannot be proven’ (οὐκ ἔχει ἔλεγχον). As mentioned before (Introduction), Herodotus the researcher is thus distancing himself from what is intangible and invisible. This position is patent in the author’s argument against the Ionian theory concerning the river Ocean:

It is impossible to argue against the person who spoke about the Ocean, because the tale (τὸν μῦθον) is based on something which is obscure (ἐς ἀφανέος) and that can not be proven (οὐκ ἔχει ἔλεγχον). (2.23)

In some passages the historian explicitly (rather than implicitly, as in the quotation above) states that what drives him, ie, his ‘object of inquiry’ (τὰ ἱστορημένα), is exactly the aim of ‘clearly revealing’ issues that are surrounded by polemics or are simply unknown. He explains it, for example, when he discusses Heracles, both within the Greek and the Egyptian religions:

These inquiries (τὰ ἱστορημένα) of mine, then, clearly show (δηλοῖ σαφέως) that Heracles is an ancient god. (2.44.5)

As can be read further on, in chapter 49, that process is exactly the mission of ‘men of knowledge’ (σοφισταί): ‘to explain, to clarify’, or, using Herodotus’ own terminology, *ekphainein* (cf. ἐξέφηναν, 2.49.1). However, Herodotus the researcher shares with other contemporary scientists a sense of intellectual humility,^{xxvi} that is, an awareness of the limits of human knowledge, which moderates the inquiring impulse. The author explains this when, reporting on his research on the dissemination of the cult of the god and hero Heracles, he makes it clear that:

I wanted to understand these matters as clearly (σαφέως τι εἰδέναι) as I could (οἷον τε ἦν), so I also sailed to Tyre in Phoenicia, since I had heard that there was a sanctuary sacred to Heracles there. (2.44.1)

As I mentioned before, the *identity* of scientific thought and discourse can be also demarcated through a process of contrast with diametrically opposite realities. This is to say that the same subject-matter can be viewed from very different perspectives, generating considerations of a very different nature. Concerning the cult of Heracles in Egypt, Herodotus mentions a version told by his fellow countrymen, of whom he says that they *inattentively* (ἀνεπισκέπτως, ie, without a rigorous observation) *say many and different things* (λέγουσι δὲ πολλὰ καὶ ἄλλα, 2.45.1). The tenor of those versions (which include the human sacrifice of the Greek hero in the hands of the Egyptians) is so inconsistent with reality (ie, the nature and customs of the Egyptians) as the historian knows it that he does not hesitate in describing that ‘story’ (μῦθος) as ‘absurd’ (εὐήθης).

Most probably as a consequence of his close interaction with the Egyptians, as well as of his direct contact with local sources and informants,^{xxvii} from the beginning of the book he dedicates to the people of Egypt, Herodotus is particularly critical of what many of his countrymen have had to say about them. In chapter 5 he blames the Greeks for saying *many other nonsensical things* (ἄλλα τε μάταια πολλά, 2.2.5), besides declaring that Psammetichus had sent the children whose first spoken word he wanted to know to two nannies whose tongues he had cut out.

The passages in Book II I have so far surveyed show the distinction established by Herodotus between, on the one hand, forms of scientific discourse (ie, oriented towards building the type of knowledge he considers to be reliable), and, on the other, non-scientific discourse. However, in order to gain a deeper understanding of his concept of ‘science’, one must consider its founding bases. Although I cannot say with absolute certainty that Herodotus followed a well-defined programme for structuring a historical research method (which seems to me to be anachronistic, and therefore improbable^{xxviii}), the truth is that his readers can find in his narrative a description of the structuring elements of the conduct and activity of a man of science (be it in the domain of what today is called earth sciences, life sciences or human sciences). Let’s now focus my attention in the written evidences of the scientific tone of the historian’s methodology of research.

In the opening of chapter 99, Herodotus describes the foundations supporting the whole structure of historical knowledge as he conceives it. When he writes *So far my account of Egypt has been dictated by my own observations* (ὄψις), *judgment* (γνώμη), and

investigation (ἱστορίη), observation, the ability to formulate one's own judgement (ie, to examine sources critically), and investigation are highlighted. However, because he knows that in some circumstances he cannot have direct access to reality, knowing about it only vicariously, through the knowledge of others, Herodotus does not discard indirect, oral sources (ἀκοή), although he suggests that it is advisable to supplement them by means of other elements the researcher has personally gathered. This is his position, as implied in the passage immediately following my last quotation:

But from now on I will be relating Egyptian accounts as I heard them (κατὰ τὰ ἤκουον); *but to these I will add also what I personally saw* (τῆς ἐμῆς ὄψιος). (2.99.1)

Opsis, *gnome*, and *historiē* define the profile of Herodotus' scientific method and have practical bearing on his activity as a researcher^{xxix}. The need to observe and to have personal contact with his research topic leads him to travel. Among the numerous examples of the 'mobility' required from the researcher,^{xxx} his travels to Thebes and Memphis are mentioned as early as in chapter 3, in a passage where the author explains that one of the ways of validating the reliability of a given source is by finding other sources, with the same content but from a different origin:

The information I gained there led me to travel to Thebes and to Heliopolis, to try to find out whether their accounts would agree with the accounts (τοῖσι λόγοισι) *heard in Memphis*. (2.3.1)

This methodological requirement of the *opsis* must be understood as a specific scientific practice that, nonetheless, has its origins in folk wisdom, as shown by its form as a maxim. This dual dimension (scientific and popular) is mentioned by the author in different passages. In the narrative concerning Gyges' ascension to the throne of Lydia, triggered by Candaules, the then monarch's desire to prove (by showing) the extraordinary beauty of his wife and queen (whom they were talking about), Herodotus writes: *It is true that people trust their ears less than their eyes* (1.8.2).

On the other hand, when writing about his investigations on the headwaters of the Nile and the data he provides about that land, Herodotus confirms that direct observation (autopsy) enables him to greatly improve his narrative, as opposed to what he does when he must simply report what others have told him (ἀκοή):

I could not get any other information from anyone else, but I managed to know quite more (ἐπὶ μακρότατον ἐπυθόμην) *about other subjects because I have seen them with my own eyes* (αὐτόπτης),

in the path to Elephantine and, from there onwards, my research (ιστορέων) is based on what I have heard (ἀκοῆι). (2.29.1)^{xxx1}

However, in order to be able to interpret reality, as well as formulate his own opinion on it (his *gnome*), the researcher must possess a quality which the author cannot praise highly enough: the ‘reasoning ability’ (expressed in Greek through the verb λογίζεσθαι and other compounds of the *log-* root). *Being able to think* is so important that, when coupled with direct contact with the reality under analysis, it enables the researcher to interpret that same reality even in the absence of previous knowledge on his subject-matter (conveyed by *akoē*). The historian describes that *opsis-logos-gnome* methodological tripod in the following words:

My view is that they are right in saying this about the country. Even someone – a man of intelligence (σύνεσιν ἔχει), at any rate – who has not already heard about it (προακούσαντι), but just uses his eyes (ιδόντι), can easily see that the Egypt to which the Greeks sail is new in land which the Egyptians have gained as a gift from the river. (2.5.1)

Indeed, although Herodotus considers direct observation a major method of research, which is further reinforced, whenever necessary, by resorting to experimentation,^{xxxii} it becomes clear how, as the man of knowledge that he is, Herodotus acknowledges that using reason is more ponderous even than observing. The author explains the critical importance of that vantage point exclusively reserved for the ability to reason when he refutes the theory according to which the Nile’s abundant flow is a consequence of the melting of snows:

The idea that it rises in snowy regions makes no sense at all, as anyone capable of rational thought (λογίζεσθαι) could realize. The first and most convincing piece of evidence (μαρτύριον) is that the winds which blow from these regions are warm. (2.22.2)

As Nino Luraghi (2006: 78) very rightly wrote, “logical arguments (...) are the most powerful weapon of his [sc. Herodotus’] hermeneutical arsenal”. One of the most common reasoning techniques was comparison. Supported by comparative reasoning, thinkers formulated their theories (*gnomai*), which needed no other form of validation. That is to say that knowledge is grounded not only on what one sees and hears but also in the subject’s ability to formulate theories based on logical arguments. An example is

the way how Herodotus acknowledges the truth of the theory according to which the Nile divides Libya into two halves, based exactly on analogy. Logical reasoning is also posited here as an act of revelation, that is, of *making visible* (adj. ἐμφανής) *that which is unknown* (τὰ μὴ γινωσκόμενα). By using the verb τεκμαίρεσθαι, the author makes it clear that another methodological pillar for a researcher is rooted in his ability to construct reasoning on the basis of previously acquired knowledge, ie, in the ability to make inferences:

Etearcus thought that the river crossing the city was the Nile and that demonstrates logic (ὁ λόγος). In fact, the Nile comes from Libya, breaking it in half; and, according to my interpretation (ὡς ἐγὼ συμβάλλομαι) – which enables to discover (τοῖσι ἐμφανέσι) what I do not know (τὰ μὴ γινωσκόμενα) based on conjectures (τεκμαιρόμενος) –, the Nile starts at a distance similar to the Istros. (2.33.2)^{xxxiii}

It should be stressed that Herodotus had resorted to comparative logic before in order to confirm a thesis he had previously known (2.10-11). In fact, the Egyptian priests' theory that the regions of Memphis and Elephantine corresponded to the Nile alluvium, since the same natural phenomenon also occurred in the Ionian and Acarnanian coasts, had been readily accepted by the historian as probable.^{xxxiv}

From the examples mentioned above one should not draw the conclusion that formulating personal interpretations is necessarily always motivated by a desire to prove or refute somebody else's thesis. Autonomous reasoning is a component of scientific thought, as is shown by how proudly Herodotus proclaims his discovery, through personal deductive logic, of the Egyptian origins of the inhabitants of Colchis, situated on the eastern Black Sea margin:

For the fact is, as I first came to realize myself (νοήσας δὲ πρότερον αὐτός), and then heard from others later (ἀκούσας ἄλλων), that Colchians are obviously (φαίνονται) Egyptians. When the notion occurred me (μοι ἐν φροντίδι ἐγένετο), I ask both the Colchians and the Egyptians about it, and found that the Colchians had better recall of the Egyptians than the Egyptians did of them. Some Egyptians said that they thought the Colchians originated with Sesostris army, but I myself had guessed (αὐτὸς δὲ εἴκασα) their Egyptian origin not only because the Colchians are dark-skinned and curly hair (which does not count for much by itself, because these features are common to others too), but more importantly because Colchians, Egyptians, and Ethiopians are the only peoples in the world who practice circumcision and have always done so. (2.104.1-2)

It follows, therefore, that, in a period where history affirms itself as science, it legitimately claims the basic and timeless principles of a research method that is transferable to scientific thought and scientific discourse in different domains, and which is built upon observation, experimentation, source criticism and logical reasoning. The conjunction of these principles enables the researcher to formulate hypotheses and theories that are clearly different from non-scientific discourse. When the topic is “New Worlds”, ie, worlds that are unknown or little known to their readers, the historians’ main object of study is the difference present in their referent when compared with the “Old (and well-known) World”, which is their own. In other words, the historian’s writing focuses on surprising matters and events (which is the reason why they are called ‘wonders’, *θῶμα*, in Greek, and are described as ‘grandiose’, *μέγιστα*). Because it discloses what had hitherto been hidden and is guided by the quest for truth, we may conclude that the historian’s act of revelation (ie, of creating an *identity* for his verbalization of *historiē*) takes the form of scientific discourse.

Let us now see how, in the case of the first writings on the Portuguese discoveries of America in the 16th century, the Herodotian matrix of historical narrative, as based on the methodological principles described, continues to live on.

2. Herodotus through *Other’s* eyes: the Herodotian matrix in the historiography of 16th century Portuguese settlers concerning the peoples of Brazil

The next three authors and their works share with Herodotus and his work the fact that they describe unknown lands and people. That is to say that all of them produce discourses about alterity, i.e. the *identity* of the ‘Other’. A comparative study of works written within a time distance of 20 centuries attests the vitality of Herodotus’ historiographic matrix as present in authors educated according to the principles of Humanism. This means that I will only focus on the general alignment of the accounts of Brazil with classical historiographical discourse and will not proceed to the analysis of their contents’ similarities. Let me start by identifying the authors and their texts:

- Pêro de Magalhães de Gândavo: *História da Província de Santa Cruz a que vulgarmente chamamos Brasil* [The history of the Province of Santa Cruz, which we commonly call Brazil] - 1576,^{xxxv}

- Fernão Cardim: *Do clima e terra do Brasil e de algumas cousas notáveis que se acham na terra como no mar* [On the weather and land of Brazil and some remarkable things that can be found on land and in the sea] - 1583-1601,^{xxxvi}

- Gabriel Soares de Sousa: *Notícia do Brasil* [News from Brazil] (1587), which includes two works: *Descrição verdadeira da costa daquele Estado que pertence à Coroa do Reino de Portugal, sítio da Baía de Todos-os-Santos* [The true description of the coast of the state of Bahia de Todos-os-Santos, which belongs to the Portuguese Kingdom]; *Memorial e declaração das grandezas da Bahia de Todos os Santos, de sua fertilidade e das notáveis partes que tem* [Memorial and declaration of the greatness of Bahia de Todos os Santos, of its fertility and famous lands].^{xxxvii}

In spite of its “humanistic flair”, the works of the Portuguese authors under analysis have not yet been read in this light: so far, the classical education of their authors and/or their alignment with a humanist *modus scribendi et cogitandi* has not been taken in consideration. This oversight, I suggest, may be due to the fact that these texts have been studied in the context of social, political and economic history, rather than cultural or literary history.

The works of the three abovementioned colonists share the fact that they all describe spaces and people they themselves witnessed in their travels, which allows us to ascribe them to the literary genre of Travel Literature. This denomination is quite extensive, leading literary theorists to propose numerous sub-specifications, from which I take the name created for the production in Portuguese language. Thus, in Fernando Cristóvão’s proposal, the analysed text *corpus* is of the type of the named “Expansion travel literature”,^{xxxviii} being that by gathering elements regarding settlers’ administrative and territorial implantation issues, as well as descriptions of fauna, flora, and autochthon populations’ customs, so as data on gentiles’ evangelization progress, the works of our authors accumulated among themselves the three subcategories presented for “Expansion Travels”, such as: political expansion, scientific expansion and expansion of faith. Still according to Joan-Pau Rubiés (2006: 132), we need to take full account of travel writing upon humanistic culture in order to understand how Renaissance eventually led to the Enlightenment.

Before analysing the works themselves, it is important to observe the biographic elements I could collect on each of the three author-settlers, particularly concerning

their probable school and intellectual training. We must keep in mind that “the educated traveller of the sixteenth and seventeenth centuries was essentially a humanistically educated traveller” (Rubiés 2006: 168). The available biographical data on these colonial authors reveal that one of them, Pêro de Magalhães de Gândavo, was a humanist and a teacher of Latin and Portuguese in a public school in the northwestern region of Portugal, probably in Braga, his birthplace, where, in 1531, in the College of Arts (also known as St. Paul’s College)^{xxxix}, the first city’s public studies were born. This was followed (from 1572 onwards) by a career as a scrivener (“moço de câmara”), copying books and documents at the Royal National Archive known as Torre do Tombo. Gândavo is clearly the case of a scholar with privileged access to both classical texts and to all sorts of other “literature” (namely official and administrative documents) which are so vitally important to Portuguese history. The addition of two poems by a great name of the Portuguese Renaissance literature - Luís Vaz de Camões - in the opening of his work, is again a confirmation of the circle of intellectuals with whom he had contact. The period of this first history of Portuguese America in print (1576), his work on *The history of the Province of Santa Cruz, which we commonly call Brazil*, coincides with the author’s stay in Brazil^{xl}, where he was appointed Commissioner for Royal Treasury of the Captaincy of the Salvador da Bahia Province. In other words, Gândavo undoubtedly enjoyed a scholarly academic training which he cultivated thanks to his many posts in the service of the Crown in the fields of culture, literature and politics.

Fernão Cardim (1548-1625) also undertook studies according to the humanist canon of the Jesuit’s *Ratio Studiorum*, with which he achieved a remarkable career as a Jesuit. After his studies in (the colleges of) Évora and Coimbra, in 1583 he leaves for Brazil as secretary to the “Visiting Priest”, Cristóvão de Gouveia, a prestigious position that acknowledged his standing as a man of letters. His responsibility was to follow the order’s top representative in his apostolic travels and visits to the colleges and villages in which the brothers evangelized. The record of the information collected at the locations, of the life conditions for the religious and the missions’ progress was made through letters, sent to the Province Priest, installed in the kingdom. Of his written production I will only speak on that treaty which, by his own initiative, alias, by impulse of his humanist nature reader of other classic and/or medieval reports describing unknown worlds, he felt compelled to write, the abovementioned *On weather*

and land of Brazil and some remarkable things that can be found on land and in the sea. This Jesuit's high culture would have surely contributed towards the high position he has occupied in the province's hierarchy, as testified his position as dean, attorney of the province of Rome and Province Priest.^{xli} Finally, as Rubiés explained (2006: 140), missionaries are "arguably the most 'educated' of those primary travel writers".

On the other hand, regarding the colonist-conqueror Gabriel Soares de Sousa, I cannot (until now) prove his humanistic training in any particular university or religious school, but I can, nevertheless, spot a 'humanist flair' in his work, because of the presence in it of some classical *topoi*. Sousa was a layman, an explorer who arrived in Brazil in 1569, who owned two sugar cane mills in the Bahia surroundings and has been nominated "governor and captain of the discovery and conquest of the St. Francis River" (by king's charter from 18.12.1590)^{xlii}.

Due to being an archetypal work of all subsequent descriptions, and notwithstanding the high regard that Pliny-the-Elder's *Natural History* was eventually to reach, Herodotus' *Histories* lays down, in the prologue, the foundations for the development and increasing complexity (or diversity) of the type of humanist descriptions – whether scholarly or popular – that the present texts exemplify^{xliii}. Although too well known, I shall present once again the *Histories*' prologue translation as it helps to an easier understanding of the intertextuality between the historical proposals of Herodotus and Portuguese writers on the New (Brazilian) World.

Here are presented the results of the inquiry (ἀπόδειξις) carried out by Herodotus of Halicarnassus. The purpose is to prevent the traces of human events from being erased by time, and to preserve the fame of the great (μεγάλια) and admirable (θωυμαστά) achievements produced by both Greeks and non-Greeks; among the matters covered, in particular, the case of the hostilities between Greeks and non-Greeks.

The first conclusion to draw from this prologue is that to make history is to *disclose* (Gr. ἀπόδειξις: from ἀπο-δείνυμι)^{xliv} what was previously hidden, meaning that what is about to be revealed is *news* for the listener or the reader. Moreover, this (written) presentation is meant to preserve the memory of what is being described, underlying those aspects that are thought to be *great* (Gr. μεγάλα) and *admirable* (Gr. θωυμαστά). In his descriptions of places and peoples, Herodotus details many aspects that would from then on be seen as characteristics of this historiographical discourse, based on relating

what is great and admirable (lands nature included): the relief, hydrographic resources, distance, climate, fauna, flora and mineral resources of the land, the physical and cultural description of the people.

In other words, in the days of the Portuguese colonial writers under analysis, history is viewed as a discourse in which an author presents his findings in matters which not only in Antiquity, but also in Renaissance and Modern Era, could easily coexist in the same literary register: geography, climate, botany, zoology, diet, concepts and practices in the realm of politics, economy, society and culture. To sum it up, from its origin and for over twenty centuries, history would remain an eminently holistic discourse^{xlv}.

I will structure my reflection on the reception of the scientific-historiographic discourse's method of Herodotean matrix in the writings of Portuguese settlers in two parts. In a first moment, it is considered what can be called as the level of "work conception" (title, presentation to the reader/patron, structure); followed by the level of "work execution" (treatment of the narrated subjects).

2.1. Markers of the Herodotean scientific-historiographic discourse in the conception of Portuguese narratives on the New World of Portuguese America

All three above-mentioned texts clearly exhibit on their titles one or another of the principles of classical historiographical discourse sealed by Herodotus work. The earliest of them, by P.M. Gândavo, displays the keyword and concept of the genre: *The history of the Province of Santa Cruz*. Perhaps this explicit affiliation of the work in a line of many *Histories* (classic, medieval and modern) may be explained for being Gândavo, from among the three authors-settlers, the one that seems to have had a more thorough humanistic training. The other two authors opted for titles that refer to the genre by resorting to other foundational methodological principles, such as truth, novelty, greatness and memory; thus in G.S. Sousa's work: *News from Brazil: The true description of the coast ...; Memorial and declaration of the greatness of Bahia de Todos os Santos, of its fertility and famous lands*; or, in Cardim's work, the object of study (a place with conditions for human settlement) and its remarkable elements: *On the weather and land of Brazil and some remarkable things that can be found on land and in the sea*.

Both Gândavo and Sousa have composed presentation letters for their treaties, containing elements on the level of work conception.^{xlvi} The first insists in the identification of his text's genre as *history*, although the insistency with which, in this

letter and throughout the work, he mentions that his *History* has the particularity of being a *brief* writing seems to indicate that, in mind, he and his readers must have the literary *exemplum* that distinguishes it from the extensive classic writings of the genre (the 9 books of *Histories* by Herodotus and the 37 of *Natural History* by Pliny). Likewise, Gândavo does not forget the classic *topos* of novelty, when he says about his work “ser cousa nova” [to be a novelty]. Also the criterion in the autopsy is a mandatory presence in a narration that is to be trustworthy; therefore the author is careful to mention, still in his letter of presentation, that he is a direct witness of what he narrates (“eu a escrever como testemunha de vista” [me writing as eye witness]). He proceeds, in the “Prologo ao leitor” [Prologue to the reader], with another “founding principle” of the Herodotean *historiē*: the unusual/marvellous character of what he narrates (and calls “cousas dignas de grande admiração, & tam notaveis” [such remarkable and admirable things]). In fact, as he clarifies further ahead, in chap. 1, it has been on behalf of the report’s briefness that he has restrained “as cousas mais notaveis & principaes da terra” [the land’s more remarkable and main things] (Gândavo 1576: 10). Of course that many of the “remarkable things” of that New World, due to the strangeness they would originate to the readers, could cause disbelief; therefore, another classic historic *topos* in which Gândavo insists is the true report. It is that insistency in the defense of a discourse based on truth, and not in the style tricks, which leads him to call his work as “historia tam verdadeira” [such true history]. As he clarifies, it has been that same criterion that has lead him to confine the report on Indian tribes to what he deems safe, despising what he considers as lacking in truth (such as the life of inland Indians).^{xlvii} Even when the subject could have been particularly interesting for his reader (the case of the gemstones), he inhibits from providing information on what he says to have no knowledge, ie, his market value.^{xlviii} The affiliation in the founding principle of preserving the memory, saving from oblivion, is of all the markers of the historiographic discourse, the one for which Gândavo openly declares the heritage of the classic *auctoritas*; which is expressly placed in the wake of the classics’ tradition, when he composes this memorial of admirable things, is what he clearly expresses in the following words: “dalas a perpetua memoria, como costumavam os Antigos: aos quaes nam escapava cousa alguma que por extenso nam reduzissem a historia” [giving the perpetual memory, as the Ancient used to do: to which nothing escaped that they could not reduce history].

No less imbued with the classic principles (Herodotean-Hippocratic-Plinian) for the description of place and people, Gabriel Soares de Sousa shows – both in the presentation letter of his *Notícia do Brasil* to D. Cristóvão de Moura, member of the Council of Portugal, and in chapter 1 to the second treaty comprehended in it (the *Memorial and declaration of the greatness of Bahia de Todos os Santos*) – identic palette of historic narrative fundamentals. Let us focus on two steps revealing that affiliation. In the mentioned letter he implies, firstly, the affiliation of his report, *ipsis verbis*, in the Herodotean matrix of the *megala kai thaomasta* (“as I deeply regret the little notice this reign of ours has taken of the greatness and singularity of this [Brazil] province”). Following, he continues with statements that clarify the inclusion of his writing in the classic genre of holistic history, particularly attentive to the geoclimatic coordinates of locations and living beings that compose them, as it is understood from the following words: “As my intention has not been to write history that delighted with style and good language, I do not expect to take praise from this writing and brief relation (containing what I could achieve in cosmography and description of this State), that I offer to Your Lordship”.

Also in chapter 1 of the *Memorial*, when presenting the subject of the second part of his treaty, Sousa defines it clearly according to the classic motifs of *raising awareness* (Gr. *apodexis*): the *greatnesses* (Gr. *megala*) and the *weirdnesses* (Gr. *thaumasta*) of the territory of the ‘Other’ (the Bahia de Todos-os-Santos). According to the method established since Herodotus, that description is based on the “explanation” (implying the presentation of the *aitiai*, ie, the “causes” of why things are how they are) and on truth. At this moment of his narration, the author evokes the criterion of veracity to, as we can infer, distance him from other fictional reports, made by whom, differently from him, would speak of what one did not see. Sousa compensates the lack of rhetorical artifices (of what he names “grave style”, different from his “simple style”) with a speech he claims to be “all based on truth”.

Yet another classical matrix – Hippocratic in this case – can be seen in the introduction to (the numerous chapters of) Sousa’s work, when, in regard to the royal settlement policy for the province, the salubriousness of the land is explained on the grounds of the Hippocratic trio of “airs, waters and places”: “His Majesty John III (...) having knowledge the great extension of the Bay, and of the fertility of the land, the healthy air, the wonderful waters, of the bounty of its provisions (...)”.

It must be noted that the strong praise for the conquered New World translates the patriotic pride of Portuguese settlers, not only for belonging to a European kingdom combining two of the greatest labourers of overseas expansion under the same crown, Portugal and Spain (under the same crown of the Philippine dynasty, between 1580-1640), but also due to the colony's magnificent economic potential^{xlix}.

As follows, I will consider how the work's own structure – that is, the approached subjects in the several chapters and the order in which they are presented – is linked to the Greek-Latin models. From this analysis we have intentionally discarded the first treaty of the *Notícia do Brasil* by G. S. Sousa (ie, *The true description of the coast of the state of Bahia de Todos-os-Santos*), given that in here, due to making the whole Brazil province's cosmography treatment and description, the classic subjects of the 'customs and life modes' (Gr. *diaitai*) of the people living in those places is dealt more superficially. In the second treaty (i.e. *Memorial and declaration of the greatness of Bahia de Todos os Santos*), the author is focused in one single place, precisely on the geography and the people of the region where he settled in - the Bahia de Todos-os-Santos – being the subject and the constituting chapter sequencing more revealing of the classic reference models.

In accordance with Herodotean historiography, the narrative of the New World is preceded by an account of how this unknown (to the writer's culture) land came to be known¹. Both Gândavo (*History*, chap. 1) and Sousa (*Memorial*, chap. 1-5), who expressly describe themselves as writers of "history", introduce their treatises with a more or less brief account of the events regarding the discovery of this land and the political and administrative management of the settlers. Only after that "introduction" do the Portuguese writers describe the natural environment (Gr. *physis*) and culture (Gr. *nomoi*) of the Other (the indigenous people from Brazil). Given that the classic doctrine (thriving among 5th century BC Greek authors) of climatic and geographic determinism in the physical build and way of life of peoples and individuals (common to Herodotus and *Corpus Hippocraticum*) continued in force during the 16th century, it is no surprise to us that, following those models, all author-settlers begin their descriptions with the presentation of the virtues of the place's climate and geography, before moving on to the food offering and, at the same time, pharmacology of the assets it produces (autochthon or imported from the settlers' lands). As it is known, in Herodotean narrative there are concerns with the climate and geography. But it is mostly in the aforementioned Hippocratic text *Airs, Waters, Places* that the subject is developed. As

follows, I will stress elements that, in the works of Portuguese writers, converge in that dietetic matrix, because they are one more evidence of their “humanistic flair”. Rebecca Earle (2012: 21), in her study dedicated to Spanish America, has already left quite clear that classic scientific matrix, when underlining that “Since the time of Hippocrates European writers had drawn connections between the environment in which individuals lived and their characters, and during the sixteenth and seventeenth centuries the influence of climate on the human constitution was universally acknowledged”. My innovative contribution consists in proving that this classic and humanist tendency is also verified in Portuguese writings.

Because these writers’ goal is to captivate the State’s and private’s good will to invest in the colony, since the Portuguese kingdom was under the Spanish dual crown of the Filipines (which might mean a slowing down from the central power in betting in Brazil, the America of Portuguese colonization), all the authors under analysis are unanimous in praising the health conditions of the New World. And they do it according to the Hippocratic criteria of air, water and healing places, standards that the medieval hygiene treaties (the *regimina sanitatis*) spread.ⁱⁱ Since any change in environment represents endangering the balance of the subject’s organism (given it is porous and suffers the consequence of all that may enter: air, temperature, water), the environmental qualities stressed by the writer settlers are a health assurance in the New World.

Concretely, Gândavo, in order to attest the “good airs” from the Province, indicates the directions from which the wind usually blows (contemplating on the deemed best: from North and East). The mild climate and the abundance of water (from the three types considered in the Hippocratic matrix: rain, spring and lake) are responsible for an eternally spring nature. Being spring the season less subject to climate changes, it was also the more favourable to the individuals’ health.

In the case of the Bahia de Todos-os-Santos, described by Gabriel Soares de Sousa in his *Memorial*, there are indications on wind directions (varying according to the seasons), the abundance of water and air purity (generalized to the whole day, given it is always bright). The water was also always clear, ie, not turbid.

Already the opening chapter of the treaty by the Jesuit Cardim *On the weather and land of Brazil* offers, regarding others, the advantage of explaining the main virtues behind the properties pointed to the climate and the land. The first of them is the cause-effect relation between “good, delicate and healthy airs” and the health of those who breathe

them, translated in an extraordinary population longevity (“where men live until ninety, one hundred and more years, and the land is filled with elders”, p. 63). It is insisted in the advantage of a clear sky, in which the sun shines from daybreak until night (because only so, states the author, the “morning is healthy”, ie, without morning or evening twilights). In this reference it is implicit the direct relation between the stars and the people’s well-being; therefore it is important for the skies to be clear, allowing its clear observation.^{lii} That is, the *aer* from Brazil (as air, wind, water, climate and stars) is an assurance of a healthy life for settlers.

When the Jesuit Cardim describes the gentle climate and the green, well irrigated and of diverse relief land of Brazil lies he knows those being the causes for the main effect assessed by his readers: the healthy life of the people embracing the adventure, always unsure, of travel and living in a new location. And the healthy life depends, firstly, of the human being having quality food and drink available, a need which Cardim assures with a sentence which I reproduce, given it shows the key role of digestion in health, one more heritage of the classic Hippocratic (and Gaelenic) medical-dietetic thought: “The supplies and water are generally healthy and of easy digestion”. These supplies are the fruits from a land which is necessary to describe only in its geomorphological characterization (as Cardim makes) or also in terms of implantation and territorial administration (detailing data on villages’ and cities’ architecture and planning and life conditions of the populations, as done by Gândavo and Sousa^{liii}).

After the three initial subject blocks (history of the settlers’s implantation in the New World, description of the place’s climate and geography, conquerors’ lifestyle in the colony), in the case of Gândavo and Sousa, or right after the geoclimatic portrait of Brazil, in the case of Cardim, there are three new subject axis, concerning the three nature realms: animal, vegetable and mineral. Given it is from those fauna, flora and mineral resources that man takes the necessary ingredients for its food and health, using them in the preparation of recipes and medicine, the story writers, from Herodotus to Pliny, mandatorily included them in their report information about these main assurances of humanity’s survival.

If we compare the order in which they appear in the Roman model by Pliny the Elder (the more organized and influent since the Middle Ages) and in the texts by Portuguese settlers, we conclude that Sousa and Cardim present a perfect decal of the classic

sequence (Animals-Plants-Minerals), whereas Gândavo inverts the order of the first two groups (presenting them in the sequence Plants-Animals-Minerals). This difference must not be interpreted as much as a deviation to the Plinian canon, but as an approximation to the Herodotean principle of privileging the narration of “marvelous” aspects. Truthfully, in light of the food norms of the narrator’s culture, the basic element of the European diet (again, of classic matrix) was bread (particularly, for the more privileged classes, wheat bread). Therefore the inexistence of the plant which produces the grain that makes the flour (wheat) in local flora, alongside a substitute of it, shaped like a root – cassava - deserves opening chapter 5 dedicated to plants (creeping, bushes and trees) that produce supplies and produce-medicine.

I end the references to the formal debts of the texts from Portuguese settlers on the land of Brazil as to the classic discursive model mentioning the fact that Sousa, the only of the three authors treating with detail the introduction of European fauna in Brazil, followed the sequence established in the Hippocratic treaty *Regimen* (chap. 46) for meats, namely: bovine, sheep, goat, pork and poultry (*Memorial*, chap. 33).

Conclusion

I have verified, through my analysis centred in Book II of *Histories*, that the scientific discourse has been placed by Herodotus at the service of the construction of the Nile lands’ *identity*. As I sought to demonstrate, both in the work of the Greek author and in the work of the 16th century Portuguese settler-writers, the scientific nature discourse is a formal brand of the *identity* of “investigation” (*historiē*) on New Worlds, whose novelty and marvelous aspects, for those who do not know them (the readers), is of the narrator’s competence to reveal.

From a narrative construction point of view, the *identity* of the scientific discourse is based, as in any case of identity formation process, in the distinction/confrontation with the ‘other’ (in this case ‘the non-scientific’, Gr. ἀνεπιστήμων). A fundamental characteristic of the scientific discourse consists in guiding the ‘investigation’ (*historiē*) towards the revelation (*apodexis*) which was hidden, even if the researcher must be aware that there are limits restraining the inquiring impulse.

For Herodotus, the essential research methodologies are observation (*opsis*, preferably direct observation or autopsy), critics of sources (*gnomē*) and reasoning (*logos*). From

those three knowledge production instruments, the author ends up emphasizing the latter, mostly when used by the investigator as complementary to *opsis*. In summary, we can infer that, for the historian from Halicarnassus, the formulation of theories based on the reasoning ability is what truly distinguishes the man of science from those who appear to have such knowledge. Analogic reasoning (patent in the comparison with thesis by others) and deductive reasoning (created by his own logic reasoning) are two of the investigation methods Herodotus uses.

As for the reflexion carried in the second part of my study – on the influence of the classic historic-scientific matrix (mostly Herodotean and Hippocratic) in the Portuguese narratives on the people and lands of Brazil – I sought to demonstrate that that influence is clear at the level of genre conception and investigation methods. In fact, in the analysis made to the works, it has been possible to detect references, explicit and implicit, to the respective affiliation in the historiographic genre of classic inspiration. That is the case of the presence of many classic *topoi* (originarily Herodotean), such as novelty, marvelous and truth of the narrated; direct observation of the described; design for preservation of past memory; holistic character of the genre. A natural consequence of the confluence of several knowledge areas in classic historic narrative's construction (and its revitalization during the Age of Discoveries) is the presence of the dietetic speech in the narratives of Portuguese settlers. In the settlers' texts, again I have evidenced the presence of the reuse of Greek origin *topoi*, in this case Hippocratic, such as air, water and place salubrity; food properties; environmental determinism in the (good) health of the individuals who dwell in certain locations.

With this quest of the text marks, in the vernacular writings of Portuguese settlers, of the principles of historic-scientific discourse, originarily established by 5th century BC Greek authors, I intended to reveal that, also in Portuguese written works on the New World of the Portuguese America, there is a 'humanistic flair' already studied for other geographies and cultures of the Early Modern Era.

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ⁱ On the conception and evolution of historiography from Antiquity to Modern Era, vd. Grafton 2007 and 2010b, Foley 2016.

ⁱⁱ Note that in the *Brill's Companion to the Reception of Herodotus in Antiquity and Beyond*, edited by J. Priestley and V. Zali, appearing in the series *Brill's Companions to Classical Reception*, the authors and geographical contexts taken into account are French and Italian. Cf. Earley 2016, Looney 2016 and Foley 2016.

ⁱⁱⁱ The importance of the scientific discourse in Herodotus' work has already been studied in detail by Thomas 2000 and 2006, and, more recently, by Luraghi 2006.

^{iv} Lloyd (2002: 418) precisely argues that Book II was originally a separate piece written as an independent ethnographic inquiry, only imported into the account of the Persian Wars when it became relevant to clear the discussion.

^v On *sophistes* used in the sense of 'wise man', see 2.49.1.

^{vi} The "natural" relationship in Herodotus' world between lands' and people's *physeis* (the current Greek doctrine of environmental determinism, a concept virtually explicitly stated at 2.35.2 and unequivocal at 2.77.3) results from the narrow bound that since Homer, at least, the Greek writers established between geographical and anthropological speculation (Lloyd 2002: 415, 433).

^{vii} See Lloyd (1976), Lateiner (1986 and 1989), Fowler (2006), and Thomas (2000 and 2006).

^{viii} Cf. Thomas 2000: 28-74, 86-98.

^{ix} Here are the titles of the travel narratives published in Portuguese translation by Valentim Fernandes de Morávia: *Livro de Marco Polo* (= Marco Polo's Book), *Livro de Nicolau Venetto* (=Nicolau Venetto's Book) and *Carta de Jerónimo de Santo Estevão* (=Jerome of Saint Stephen's Letter).

^x Francisco López de Gómara, *Historia de las Indias y Conquista de Mexico* (1552), Pedro Cieza de León, *Parte primera de la crónica del Perú* (1553), Agustín de Zárate, *Historia del descubrimiento y conquista del Perú* (1555), Fernão Lopes de Castanheda, *História do descobrimento et conquista da Índia pelos Portugueses* (1551-1561), João de Barros, *Decadas da Ásia* (1552-1563).

^{xi} Rubiés (1996: 172) has assertively drawn attention to the confluence of classic, medieval and modern sources at the disposal of travel report Renaissance authors.

^{xii} In fact, there are no rigid boundaries between scientific or teaching literature and fiction literature. It will be necessary to wait for the 18th century to witness a thus far unusual phenomenon: the separation between aesthetical creation and scientific creation. Moreover, that separation is contemporaneous with the specialization of the term "science", which only at this time is used for strictly objective knowledge (Cristóvão 2002: 18).

^{xiii} Varotti (2012: 99), before Foley, underlined the non-interest of the humanistic writers on Herodotus, considering his reputation of *mendax* or *fabulosus*: "(...) la cultura umanistico-rinascimentale per lungo tempo non sembra avere fatto dello storico di Alicarnasso né un tema centrale di ricerca, né un modelo attraente ed exemplare di scrittura storiografica".

^{xiv} The translation by Valla, finished in 1455, had a wide manuscript circulation and had its *editio princeps* in 1474. As clarified by Pagliaroli (2007: 126), the printed edition in Venice was followed, in the next year (1475), by a printed edition in Rome. From the reedition, in 1494, of the *editio princeps* it are witnessed subsequent and numerous editions of the text by Valla, works that are in the origin of what can be reasonably considered a true *vulgata*, with four centuries in duration, of the Latin translation made by the Italian humanist for Herodotus' *Histories*.

^{xv} As stated by Pagliaroli (2012: 37), the translation by Valla "renderà fruibile Erodoto ad un larghissimo pubblico di lettori occidentale, fino ad un'epoca non molto lontana da noi".

^{xvi} Vd. *Herodoti Halicarnassei Historiographi libri novem, musarum nominibus inscripti/interprete Laurentio Valla; Item de genere vitaeque Homeri libellus, jam primum ab...Heresbachio e graeco in latinum conversus*. Coloniae, apud Eucharium Cervicornum, 1537; *Herodoti Halicarnassei historiarum lib. IX, IX Musarum nominibus inscripti. Eiusdem*

narratio de vita Homeri. Cum Vallae interpret. latina historiarum Herodoti, ab Henr. Stephano recognita ... Editio secunda. Genevae: excudebat Henricus Stephanus, 1592; *Herodoti Halicarnassei Historia, siue, historiarum Libri IX...Apologia Henr. Stephani pro Herodoto.* Genevae. Excudebat Henricus Stephanus, 1570;

^{xvii} Of which the Library of the University of Coimbra has the following copy: *Herodoto Alicarnaseo Historico delle guerre de Greci et Persi/tradotto di greco un lingua italiana per il Conte Mattheo Maria Boiardo, di novo ristampato, et con summa diligentia revisto et corretto.* In Venetia: per Bernardino de Bindoni, ad instantia de M. Marchio Sessa, 1539.

^{xviii} On the plausibility of Herodotus writings on that context, see also Grafton 2010a.

^{xix} On the importance of the Greek authors on the noble and court's milieu and on the education of the major Portuguese humanists, see: Ramalho (2000: 171-193) and Pinho (2006: 297-322).

^{xx} The editorial activity by the monks of the Monastery of Santa Cruz was already studied (Meirinhos 2001), being known that from the around 30 works published between 1530 and 1563, they focused on the following subjects: spiritual training and internal organization of the congregation, literature and studies.

^{xxi} Cf. Pinho 2006: 9-12.

^{xxii} Cf. Morais 2009: 121.

^{xxiii} A clarification must be added concerning the fact that criticising the scientific validity of a given account does not mean that it should not be recorded. That is what Herodotus sometimes, though not always, does. If, in the case of his explanation of why the Phrygians should be considered a more ancient people than the Egyptians on the basis of their language, the historian records for posterity what he deems to be a naïve version (2.15.2, a passage where he calls it a 'experiment with the infants': ἐξ διάπειραν τῶν παιδίων), in other cases he simply mentions the existence of unreliable accounts, which, for that reason, are not included in his writing (an example of these is the explanation concerning the use of sacrificial pigs in Egypt, which, although known to the historian, he chooses not to reveal, cf. 2.47.2).

^{xxiv} For quotations of passages in Book II, I use Waterfield's translation (1998), although in some passages I introduced more literally translations (of my one responsibility).

^{xxv} On the importance of analysing Herodotus' conception of truth in connection with fiction and polarity, see Cartledge and Greenwood 2002.

^{xxvi} Cf. just an example, from *Corpus Hippocraticum*, of intellectual humility in medical texts: *Regimen 67*.

^{xxvii} Luraghi (2006) studies the importance of meta-*historie* (that is, the information provided by the author on his use of sources, especially oral sources, as well as on the research methods adopted) for a definition of the new genre of historiography. Those are the only two aspects that enable Herodotus to create distinctive boundaries between his work and other genres dealing with the past (epic, tragedy, elegiac and encomiastic poetry). As for his mention of collective testimonies ('the Egyptians', in this case) this is a strategy used by the historian to grant credibility to his narrative, since, according to his readers' expectations, communities were responsible for the preservation and dissemination of their own collective memory. At the time, written texts were not acknowledged as having the same authority as collective oral testimonies and therefore the strong presence of *akoē* (accounts heard from a third party) in Herodotus serves to legitimise the historian's narrative.

^{xxviii} So I agree with Dewald (2008: 51-2) statement: "Herodotus' reasoning is not technical and is never encapsulated into a chapter of self-conscious methodology". This does not mean that Herodotus' readers do not find and identify evidences of a methodological discourse in his writings. Book II is where this comes more flagrant (Cartledge and Greenwood 2002: 365).

^{xxix} Lloyd (2002: 419), in his analysis of Herodotus' methods of Book II, identifies that the historian uses each of these scientific strategies in different contexts: the autopsy (*opsis*) mainly when discussing geography, geology, botany, zoology, customs and sites (archaeological and inhabited); 'opinion' (*gnome*) in matters of religion and tradition; inquiry or hearsay (for him taken as equivalents, *historiē*, *akoē*) in his stock-in-trade for history and traditions.

^{xxx} Thomas (2006: 61) reminds us that this peripatetic element in Herodotus, on the basis of which some scholars before her had identified the historian as a 'tourist' (Redfield 1985), is

common also to other coeval intellectuals (writers, Sophists, philosophers, and doctors), with whom Herodotus has ‘scientific’ affinities. On Herodotus and foreign lands, see also Rood 2006.

^{xxx}ⁱ In this passage I prefer to present my own translation, more literal than Waterfield’s.

^{xxx}ⁱⁱ Experimentations may be valid or not. The former type is illustrated through the episode of casting a lead line into the waters of the Nile delta area to measure its depth (2. 5, 1); the latter type is exemplified through doing the same sounding experiment to prove that the Nile sources are of such depth as cannot be fathomed by using the rope method (2. 28, 4-5). According to the historian, this experiment is not valid because behind it there is a misinterpretation that has simply to do with the fact that the place where the line is dropped is a whirlpool area, which prevents it from reaching the bottom.

^{xxx}ⁱⁱⁱ In this passage I prefer to present my own translation.

^{xxx}^{iv} In the case of Asia Minor, it refers to the Troy, Theutrania and Ephesus plains, and in the case of central Greece, it refers to Acarnania (under the Achelous effect).

^{xxx}^v I adopted the following edition: Gândavo, Pêro de Magalhães de (1576), *História da Província de Santa Cruz a que vulgarmente chamamos Brasil*. Dirigida ao muito ilustre senhor Dom Leonis Pereira, governador que foi de Malaca e das mais partes do Sul da India. Lisboa, na typographia da Academia Real das Sciencias. Nota prévia de Francisco Leite de Faria, Lisboa, Biblioteca Nacional, 1ª edição fac-similada, Biblioteca Nacional, Lisboa 1984.

^{xxx}^{vi} This text and another one on the Indians’ way of life was first published in London, in 1625 by Samuel Purchas. The book was named *A Treatise of Brasil, Written by a Portugall Which Had Long Lived There*. The Portuguese edition I adopted was: Cardim, Fernão (1583-1601), *Tratados da Terra e Gente do Brasil*. Transcrição do texto, introdução e notas por Ana Maria Azevedo. Comissão Nacional para as Comemorações dos descobrimentos Portugueses. Lisboa, 1997.

^{xxx}^{vii} I adopted the following edition: Sousa, Gabriel Soares de (1587), *Notícia do Brasil*. Direcção e comentário de Luís de Albuquerque. Transcrição em português actual de Maria da Graça Pericão. Alfa, Lisboa 1989.

^{xxx}^{viii} The literature theorist Cristóvão considers (2002: 37-52), apart from this category, to be four others: Pilgrimage Travel Writing; Commerce Travel Writing; Erudite Travel Writing, of training and service; Imaginary Travel Writing. As advocated by Rubiés (2000: 36), the “Travel Writing” genre is a genre with many genres, of which “Discoveries and Expansion literature” is only one case. On the literary genre of “Travel Writing”, vd. Hulme-Youngs (2002), Bassnett (2002) and Rubiés (2000, particularly on the ethnographic impulse that characterized the “Travel Writing” genre).

^{xxx}^{ix} On this teaching establishment (in Northern Portugal), contender with the Jesuit teaching poles in force at the time (in the Centre Region, in Coimbra, and to the South, in Évora), as well as its alignment with the European humanista teaching, see Miranda 2010.

^{xl} Although it is unknown the whole time that Gândavo remained in the province, we know that he has been appointed, for a period of six years, to the Finance Ombudsman of the Salvador da Bahia Province Captaincy by a decree of 29 August, 1576). Regarding the sparse information of his biography vd.: the beginning of the Capistrano de Abreu’s “Introdução” to the Author’s work (Gândavo 2008); Fonseca 2013: 236-237; Amorim 2015b.

^{xli} On his life and work, vd. Leite 1949: 132-7. He served as dean in two colleges: in Bahia initially for three years (1590-1593), and later for another 15 years (1607 to 1625); in the College of São Sebastião do Rio de Janeiro, between 1596 and 1598. He was in Rome for three years (1598-1601) as Procurator of the Province of Brazil. On his journey-back to Brazil he was captured by English corsairs and kept in a London prison between December 1601 and March 1603. Back in Brazil he assumed the role of Provincial of the Company of Jesus (1604-1609). On this subject see Azevedo 1997: 11-15, Amorim 2015a.

^{xlii} On the biographical data of this settler, vd. Varnhagem 1938: 13-14, Couto 2015.

^{xliii} Note that differently from Olivieri (2004), Pagliaroli (2006), Varotti (2012) and more recently Earley (2016) and Foley (2016), I do not approach the reception of the *Histories* while

work translated from the Greek, first into Latin and then into several modern languages, nor how the historians, since Antiquity (starting with Thucydides, responsible for the idea that historiography is made of facts, excludes fables and has its focus on contemporary political events) and until the 16th century (more exactly until the publishing by Henri Estienne's *Apologia Pro Herodoto*, in 1566), centred the debate on the issue of truth or fiction in the Halicarnassian historian's report. My perspective is very different. It focus on how Herodotus' model of writing history inspired Portuguese works on the New World of Brazil.

^{xliv} On the Herodotian conception of *apodexis*, see the detailed analysis of Bakker (2002). He argues against other scholars' understanding of the notion ('publication', 'public performance', 'proof/display'), preferring 'achievement' or 'accomplishment'. *Apodexis* has a complex meaning in Herodotus' work, only rightly understandable in relation with other nuclear concepts of the proem, like *historiē*. So he states (p. 28): "*apodexis* is not only *accomplishment* of great deeds, but also *recording*, which can not fail to become a great accomplishment itself, a *mega ergon*, in the process".

^{xlv} A methodological approach that had to wait for the 20th century to be recovered, due to the French historiography of the *Annales* School (Burke 1990).

^{xlvi} Only the letter by Gândavo follows the publishing of his work, being that the one by Sousa comprehends the Varnhagen edition (1938: 13-14).

^{xlvii} See chap. 12: "por me parecer que seria temeridade & falta de consideraçam escrever em historia tam verdadeira, cousas em que por ventura podia aver falsas informações, pola pouca noticia que ainda temos da mais gentildade que habita pela terra dentro" [for deeming to be temerity and lack of consideration to write such a true story, in which there might be false information, for the few notice that we still have of the more courtesy that dwells the land] (Gândavo 1587: 45).

^{xlviii} See chap. 12: "Do preço dellas nam rrato aqui, porque ao presente o nam pude saber" [their price I shall not tell because to this time I could not know it] (Gândavo 1587: 45).

^{xlix} The relief of the laudatory tone of these reports on the Portuguese America has led literature theorists to creating, for the texts written on 16th to 18th century Brazil, the subcategory of "boasting Writing" (Cristóvão 2009).

^l Book I starts by putting back the rivalry between Greeks and non-Greeks to the the first Phoenician expeditions through the Mediterranean area.

^{li} The regimens of health were heirs of the classical matrix, mostly through the *Canon of Medicine* from the Arabic physician Avicena, one of the most widely read books in medieval universities throughout the fourteenth century. On the regimens of health, see Nicoud 2007 and Sotres 1998, especially pp. 296-300 ("Hygiene in Works of Arabic Origin") and pp. 302-304 ("The Principles of Medieval Hygiene. The Environment").

^{lii} The case stressed by the author is the moon due to being, as he himself says, "mui prejudicial à saúde, e corrompe muito as coisas" [very harmful to the health and corrodes many things]. So a place with a clear sky was essential to see in what stage the moon was, in order to avoid the illness caused by her.

^{liii} Cf. chapters 3 and 4 of Gandavo's *História da Província de Santa Cruz* [The History of the Province of Santa Cruz] and, from Sousa's *Memorial*, chapters 7-32 (in which he writes on "the greatness of the Bahia de Todos-os-Santos and all its power") and chapters 33-196 (where presents its fertility).