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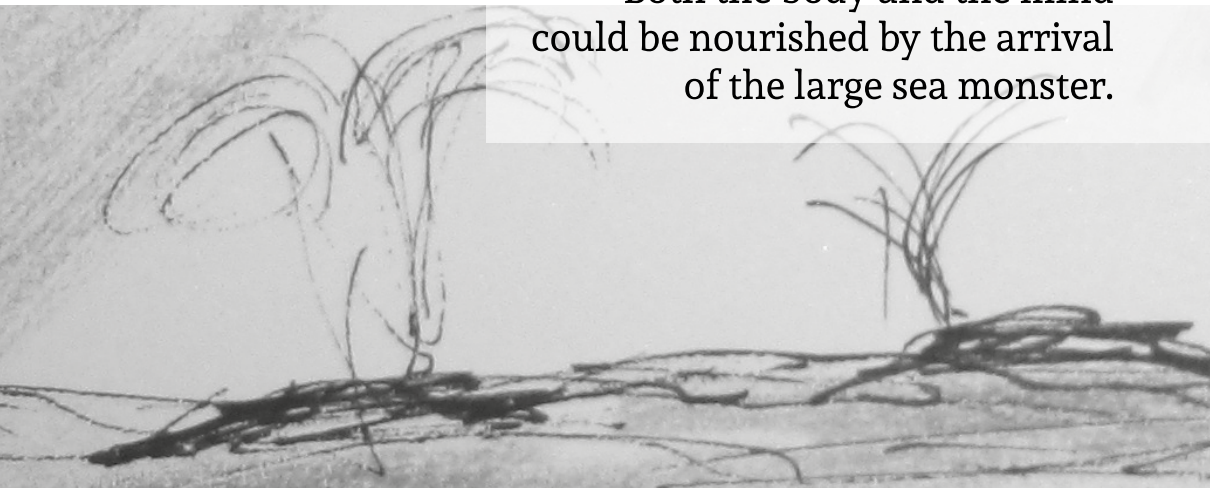
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Both the body and the mind  
could be nourished by the arrival  
of the large sea monster.








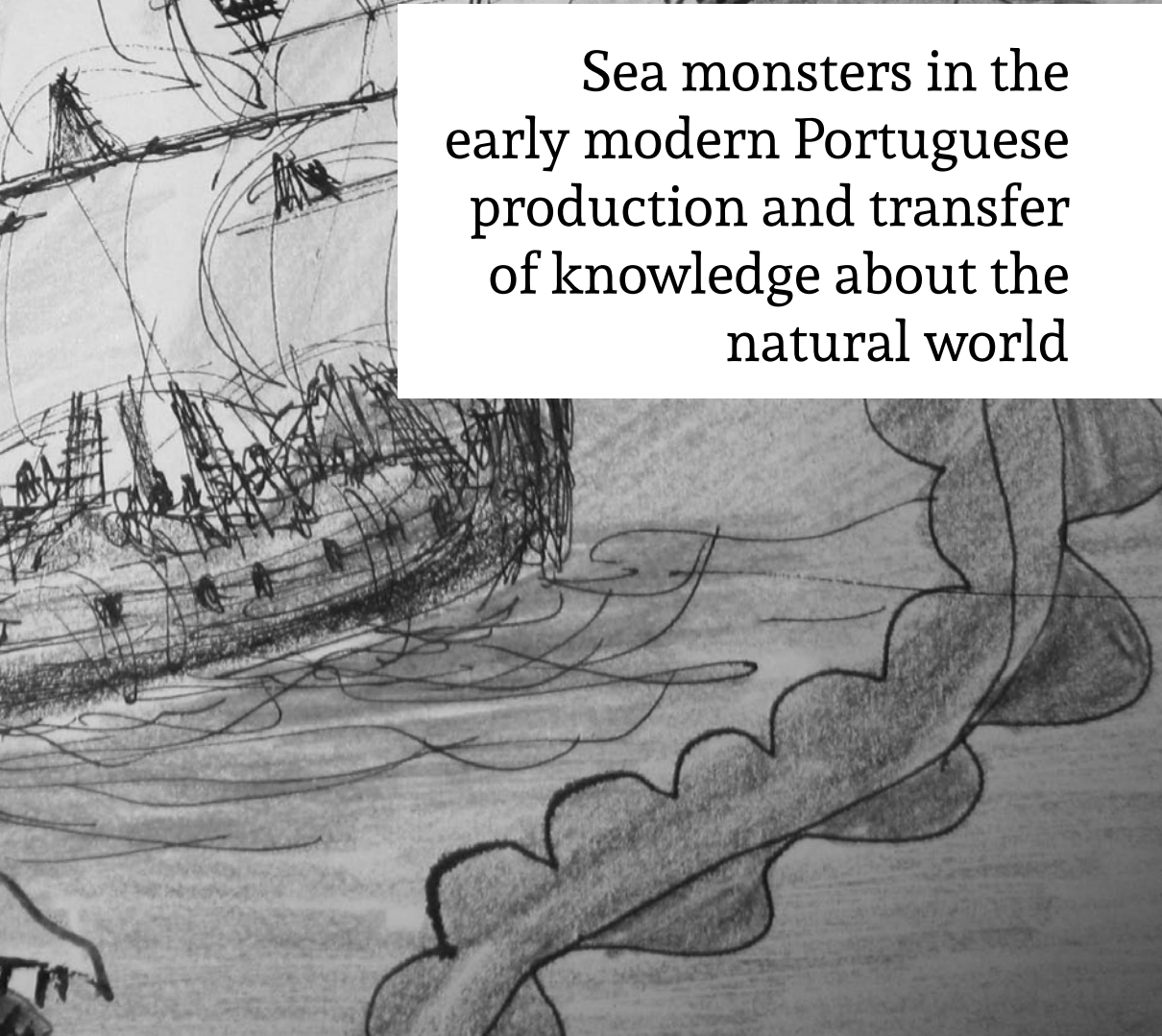
# NEW SCIENCE FROM OLD NEWS

Cristina Brito





Sea monsters in the  
early modern Portuguese  
production and transfer  
of knowledge about the  
natural world







## **To Rafaela, the Sea.**

“The sea is everything. It covers seven tenths of the terrestrial globe. Its breath is pure and healthy. It is an immense desert, where man is never lonely, for he feels life stirring on all sides. The sea is only the embodiment of a supernatural and wonderful existence. It is nothing but love and emotion; it is the Living Infinite.”

Jules Verne, *Twenty Thousand Leagues Under the Sea*



*“Prodigiosa é a natureza na criação de seus indivíduos, assim terrestres como aquáticos, sendo tanta a sua variedade que por mais que os naturalistas se empenharam na sua descrição, foi esta matéria muito superior às suas forças.”*

“Nature is prodigious when creating its individuals, both terrestrial and aquatic, offering such a wide variety that, no matter how much naturalists engaged in its description, it was a far greater task than they could perform.”

In the introduction of a Portuguese leaflet, 18th century

*“Relação Verdadeira da Espantosa Fera, que Há Tempos a Esta Parte Tem Aparecido nas Vizinhanças de Chaves”*

“True Account of the Astonishing Beast That has been appearing in the Neighborhood of Chaves”



# FOREWORD

Throughout history, monsters were often seen as being double-edged creatures. They inhabited a crossroads between the real and the fantastic, they provoked both attraction and repulsion in their viewers as well as a combination of fear and unavoidable curiosity. They occupied a unique position at the margins of nature but also at the centre of culture. They challenged the order of nature but they could also be used to re-establish the moral order of society. Monsters were unusual beings but with the advent of print culture in the middle of the fifteenth century, they acquired a new and increasing vis-

ibility for audiences from different educational and social backgrounds. This enabled their descriptions and images to travel between broadsides, leaflets and books and to acquire, in the process, slightly different shapes and meanings. Monstrosity lied, and still lies, in the eye of the beholder but it was from the perspective of a collective body that throughout history it acquired cultural, political, religious and scientific significance.

Not unexpectedly, for a very significant period of time the unpredictable, frightening and largely unknown seas were seen as a fertile location for the presence of monsters of many

shapes and forms. The sea has also played a crucial role in Portuguese history and the expansion of its Empire. In her book, Cristina Brito leads us on an engaging journey into the history of sea monsters in the early modern period by paying special attention to Portuguese sources hitherto unknown or underexplored. Her analysis covers a variety of formats including books, broadsides and newspapers and attention is given to textual and visual information.

Case studies usually attract readers and “Gândavo’s sea monster” as well as “Whales in Pamphlets” are no exception. They expose the appeal of

curious and strange news to a large European audience besides the amazing speed of their circulation in diverse media and languages. Moreover, as the author of the book emphasizes, they reveal that during the early modern period Portugal had an important role in the production and extended flow of news and natural historical information to various parts of Europe.

Another relevant message of the book is that the ongoing con-

struction of a natural history of the seas requires inclusiveness in terms of actors and disciplinary fields. The history of the seas has mainly been considered in relation to humankind but there were, and still are, a vast array of sea creatures who intrinsically deserve historical attention. Moreover, it was less important whether these beings had a more or less mythical, fantastic or real nature but rather that they mattered for historical actors and

for a better understanding of the past. It is with some of the passion that runs through her book that in the conclusion Cristina Brito emphasizes the linked importance of the history of Natural History, Environmental History, History of Science and even contemporary Biology in the development of an Atlantic history of marine animals in Portugal during the early modern period.

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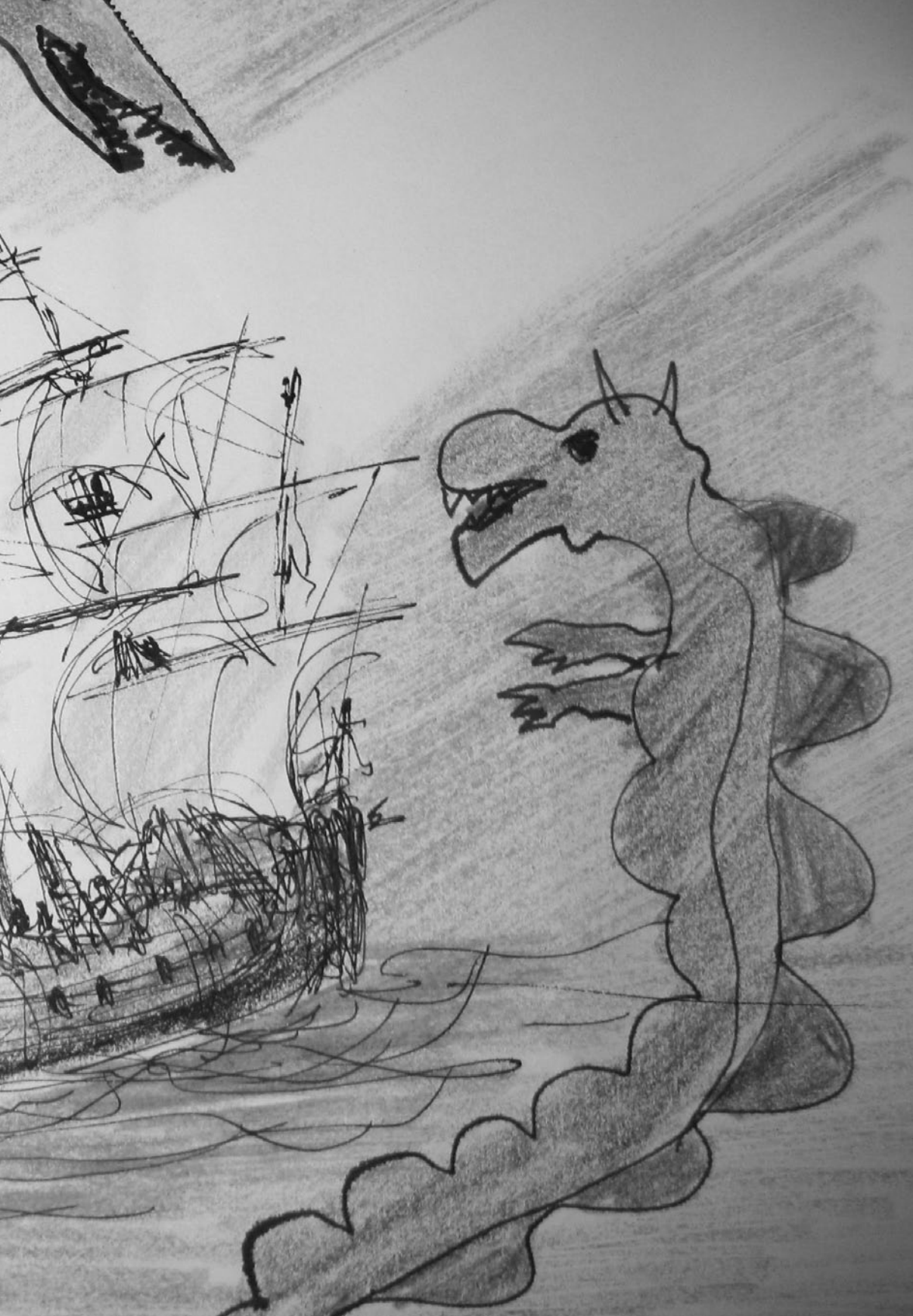
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# 1. PRESENTATION



Capture, trade and collection of marine animals – specimens, remains and products, stories and illustrations – has a documented history that changed dramatically with the European overseas expansion. Since the 15th and 16th centuries, many exotic<sup>1</sup> animals and several accounts, descriptions and representations were brought back to Europe, opening up a new period in the global economy of nature and in the

making of the natural history. Most European naturalists, and other practitioners, showed an ability to observe and comprehend the new (local and distant) natural world. Naturalists in their cabinets, through their contacts with one another or local journeys, greatly enlarged the knowledge about nature. But accounts from pilots, travelers, traders, missionaries and other, offered a significant contribution to the writing of a new global natural history. Moreover, local people in different parts of the world visited or colonized by Europeans also affected the way

these new evidences and accounts of the natural world were perceived, used and disseminated.

We know now that many Portuguese travelers' accounts detailing their geographic discoveries, newly found natural curiosities and all kinds of eccentricities were retold, written, published, translated, and disseminated throughout Europe. European *literati* and humanists shared a common interest in all novelties from overseas and the Portuguese maritime journeys, and the mariners' accomplishments were a common theme amongst them.

1. Here, the word "exotic" is associated to the idea of an animal, or object, with an exterior provenance. It is connected with the concept of marvellous, and evokes fantastic and idealized perceptions of the Other and of the unknown Nature. Even though the term "exotic" was only used in the 16th century, the concept is part of a medieval cultural phenomenon. So, the concept indicated where certain objects did not come from rather than a specific origin, as even the best informed Europeans should have had just a vague notion of the geographical origins of exotic naturalia that arrived in Europe. See Simões CS (2014) The symbolic importance of the "Exotic" in the Portuguese court in the late middle ages. *Anales de Historia del Arte*, 24 (Nov): 517-525. See Egmond F & Dupré S (2016) Collecting and circulating exotic naturalia in the Spanish Netherlands. In S. Dupré, B.D. Munck, W. Thomas & G. Vanpaemel (eds.) *Embattled Territory: The circulation of knowledge in the Spanish Netherlands*. Academia Press, Ghent: 199-227.

Dialogues, correspondence, exchanges and networks of contact were established early on, and several aspects of the maritime enterprise were themes within the European press<sup>2</sup>. Meanwhile, new ideas and discoveries from the ocean itself and its inhabitants were not so widespread. On the contrary, many stories and accounts remained unpublished, and unknown until very recently.

Within these stories and accounts were tales of marine mammals – whales, dolphins, seals and sea lions, manatees and dugongs – whose products (Figure 1.1) were typically valuable

goods. Marine mammals soon became more than commodities, and transformed into narrative subjects that changed over time from portents to curiosities and then to the focus of scientific inquiry. However, Portuguese contributions to whaling as an economic activity and subsequently to the creation of a natural history of the exotic marine species in Europe are still neglected and lack a proper discussion in the new historiography<sup>3</sup>.

Most of Portuguese accounts about the exotic marine fauna did not make their way into the European natural history, treaties and en-

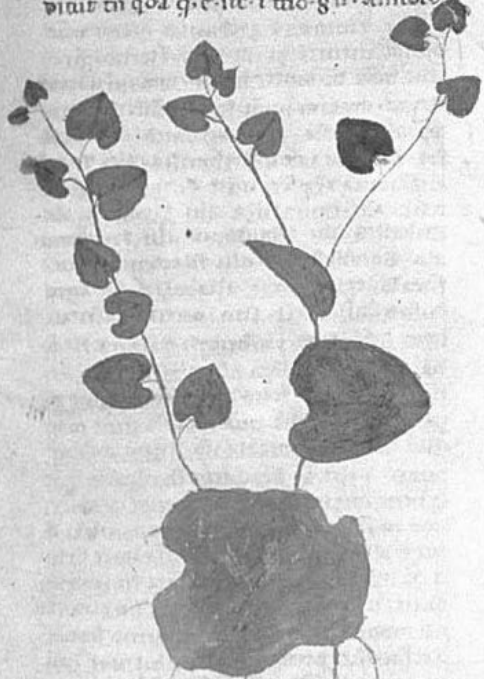
cyclopedia. Pierre Belon, Guillaume Rondelet, Conrad Gesner, and Ulisses Aldrovandi, among others, do not include Portuguese sources, quotations or authors' references<sup>4</sup>. However, some exceptions did occur, as will be discussed here.

Fundamentally, the sea itself is quite different from land, as marine animals are distinct from terrestrial animals. This may be the central argument for all the differences found when we are dealing accounts of with past environments and natural populations. The sea still has a lot to enrich our understanding of the story of human life in early

2. See Marília dos Santos Lopes: *Coisas maravilhosas e até agora nunca vistas – Para uma iconografia dos Descobrimientos*. Comissão Nacional para as Comemorações dos Descobrimientos Portugueses. Quetzal editores, 1998; *Da descoberta ao saber – Os conhecimentos sobre África na Europa dos séculos XVI e XVII*. Passagem Editores, 2002.

3. See Barrera-Osorio A (2006) *Experiencing nature: The Spanish American empire and the early scientific revolution*. University of Texas Press, Austin. Canizares-Esguerra J (2006) *Nature, Empire and Nation: Explorations of the history of science in the Iberian World*. Stanford, California: Stanford University Press.

4. See author's PhD thesis: Brito C (2010). *Os Mamíferos marinhos nas viagens marítimas pelo Atlântico entre os séculos XV e XVIII: A Evolução da ciência e do Conhecimento*. Dissertação de Doutoramento em História. Faculdade de Ciências Sociais e Humanas da Universidade Nova de Lisboa.



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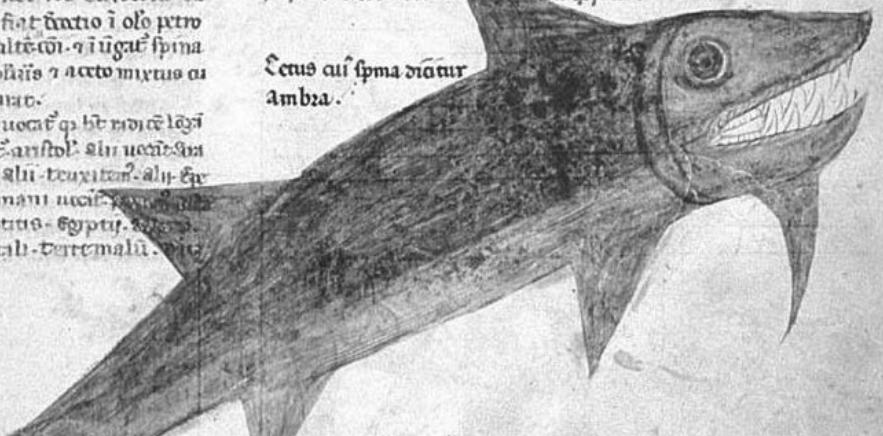


Figure 1.1. A miniature of a sperm whale, to illustrate a discussion about ambergris; Bartholomaei Mini de Senis (Birthwort and Ambergris from BL Eg 747, f. 7). British Library, Public Domain.

modern Europe, Africa and the Americas. While historians have written extensively about human cultures of the Pacific, and less so for the Atlantic, they have rarely considered other species, particularly marine mammals, as significant actors in the creation of oceanic histories<sup>5</sup>.

The purpose of this book is to address past relationship of humans and marine mammals, analyzing their common environmental, scientific and socio-cultural history in the early modern Atlantic, using overlooked Portuguese sources<sup>6</sup>. This book represents a first approach to understand-

ing how these authors and sources contributed to the development and establishment of early discourses regarding nature and the sea, monstrosities and curiosities, and to the creation of a brand new history of the exotic natural history. Many accounts of sea mammals and other large marine animals from this period offer up significant, but previously ignored, observations on marine species and environments, as well as on people's perceptions about them and the reception and dissemination of such new and exotic knowledge.

The chapters that follow will offer new and

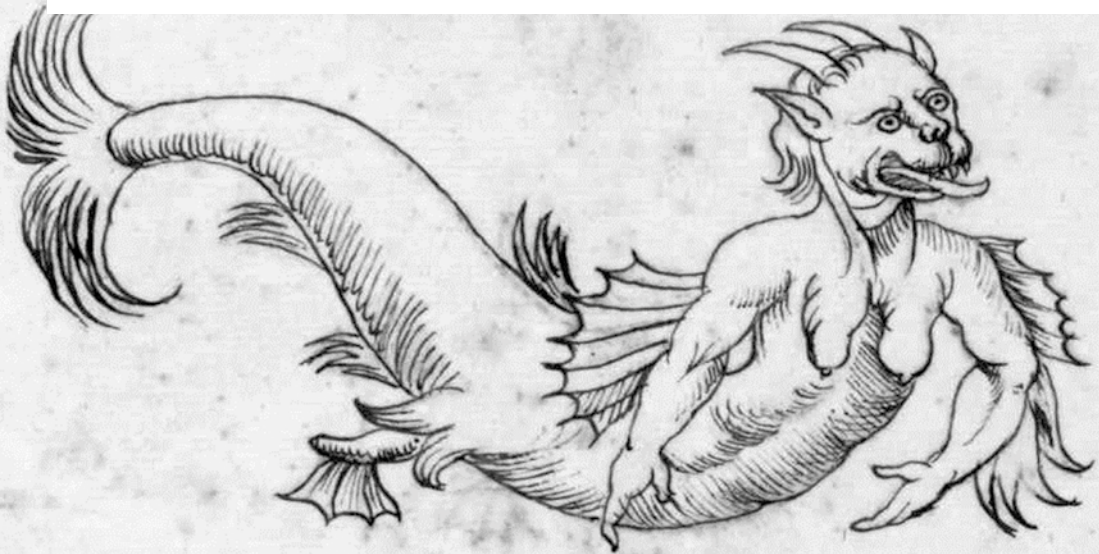
striking instances of Portuguese natural information about sea monsters that were disseminated in some early modern European channels of transmission of exotic news. I expect to show, within the context of today's historiography, that Iberian contributions were more active and essential within early modern scientific society than we have hitherto appreciated. This information was disseminated both in traditional scientific communities but also to specific audiences at different levels of European society, outside the sphere of natural science.

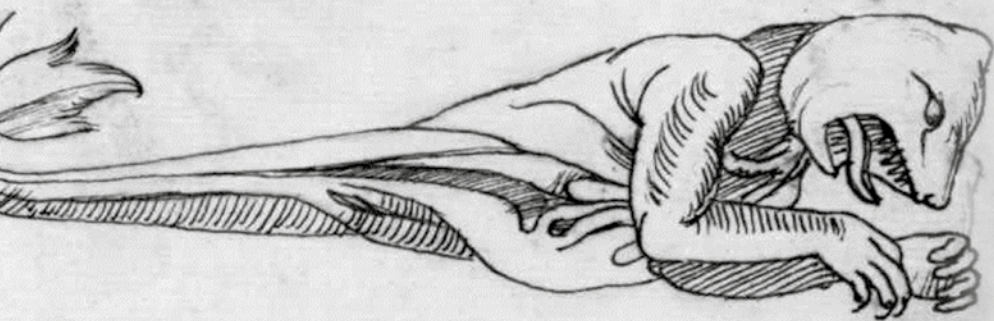
5. See Jones RT (2013) Running into whales: The history of the North Pacific from below the waves. *American Historical Review*: 349-377.

6. This book is an outcome of a post-doctoral research project developed by the author at CHAM – Portuguese Center for Global History, Lisbon, and funded by a Portuguese Foundation for Science and Technology grant (SFRH/BPD/63433/2009).



## 2. INTRODUCTION: MONSTERS IN THE EARLY MODERN AGE







In the early modern age (here considered as from c. 1500 to c. 1800, and including relevant aspects of modernity such as the Renaissance, Reformation and Age of Science), naturalists across Europe spent time in their cabinets while others – travelers and explorers – collected direct information and experience on the natural world. Oceanic travelers used commercial networks connecting Europe, Africa and the Americas. These people circulated information about natural entities and collected samples

from the New World, and through these activities, some of these mariners and travelers developed a set of rules and practices for the collection, organization and dissemination of information regarding these new discoveries [1]. Most of these travelers, however, acted on behalf of metropolitan patrons who were their superiors, both social and institutionally, and usually did not use their travels as opportunities to construct novel theories of nature. Moreover, neither their itineraries nor their methods for recording New World natures [2] and the natural subjects of their interest were exactly pre-

cise. From their records, naturalists and humanists would pick up “interesting” pieces, trying to construct from this information a completed puzzle of the natural world. When describing new species, most early modern observers would rely on their preconceptions and previously acquired knowledge founded on ancient and medieval ways of thinking and describing. This was the primary means of how the exotic and the monstrous come onto the stage of natural history development in 16th-century Europe.

In those times, the monstrous created a sense of cultural or intellectual vertigo, and

called into question epistemological worldviews, highlighting fragmentary and inadequate understandings of nature, and, thereby, demanded acknowledgement of the failures of the systems of categorization. Throughout history, monsters are human constructions, even those clearly linked to real, scientifically known beings. This is consequence of the process by which we construct and reconstruct, categorize, name and define them, or even grant them some anthropomorphic meaning [3]. Typically, the monstrous shapes a negative category, meant to confirm boundaries and to warn people to stay within them, but also revealing

the very superficial and shallow nature of these imposed limits, and the uncomfortable ways in which we all fit (or not) into them [4].

Traditionally, discussions about monsters evolved around three separate lines of reasoning: prodigy; natural history; and monstrous people. All three categories were usually looked at as signs of bad fortune and peoples' errors. In the late 15th century and early years of the Reformation there was a shift in the interpretation of monsters. They were no longer considered portents of general misfortune, but rather signs of particular crimes and divine answer to a diverse range of failings. Thus,

at the turn of the 16th century, popular and educated people shared the belief that monsters were signs from God<sup>7</sup>. Not only did a plurality of interpretations co-exist in the medieval period, such as supernatural, divine, portentous, and natural, but also these categories continued in many ways in the early modern period [5].

By the late 16th century there was already a range of specialized writings on the causes of monsters. Initially this literature was made up of sections of treatises on topics like the wonders of nature and human generation; it later came to include whole monographs devoted to the topic, both in Latin

7. In classical imagination, the monster was used to invoke the heroism of a champion, who would have to fight and defeat it, in order to prevent the occurrence of a catastrophe. Still in the 16th century, men knew that monsters announced cataclysms and would use the Bible to find an explanation or prophecy. Anyway, monsters always preceded the emergence of collapse. This explanation is given by different authors (see Soares D (2012) *Compêndio de segredos sombrios e factos arrepiantes. Saída de Emergência*) and allows for the justification of many beliefs about the various "monsters" we present and discuss here.

8. Ambroise Paré was the chief surgeon to the king of France and wrote and published in Paris a treatise on monsters and prodigies.

and vernacular languages [6]. For most authors of this time, and we may quote the example of Ambroise Paré<sup>8</sup>, many monsters merely demonstrated nature's curious mechanisms and variety, and were neither portents, nor signs, nor errors (Figure 2.1). By then, monsters evoked curiosity and wonder rather than fear or horror [5, 6, 7]. For instance, when producing his "Description of the Whale", Paré revealed having included land and marine animals and birds into the enlarged category of "monsters", thus turning the monstrous into a phenomenon that was part of a broader body of

natural history [8]:

*«We are stretching the word Monster somewhat for the greater enrichment of this treatise; we shall put the Whale in this category and we shall say it is the largest monster-fish that is found in the sea (...).»*

Naturalists and philosophers actively collected and traded such descriptions, plus objects and specimens, no longer clear demonstrations of the mysterious ways in which God's manifested itself in the world<sup>9</sup>, but increasingly

as desirable items for cabinets of curiosities [7]. The alleged remains of legendary creatures took their place next to the real, yet puzzling, phenomena, previously unknown creatures, and a plethora of ordinary artifacts that filled in the gaps between one paradox and the next [9]. Here, Ulisses Aldrovandi<sup>10</sup> emerges as a respected figure. Generally, for both exotic and common animals, Renaissance natural history attempted to provide an exhaustive account of each species [10]. But Aldrovandi's interest went beyond the simple identification and categorization of animals.

9. Although typically early modern scholars thought that God best revealed his omnipotence and artistry through nature's play rather than through its regularities [6]; and this fact also allowed for drawing the connection between natural wonders (or monsters) and the sacredness of a certain region.

10. Aldrovandi has worked on and published several massive volumes on Natural History. One of them is particularly devoted to monsters of different kind. See Aldrovandi, U. 1642. *Monstrorum Historia. Cum Paralipomenis Historiae Omnium Animalium... Cum Indice copiosissimo*. Bartholomaeus Ambrosinus Studio volumen composuit; Marcus Antonius Bernia in lucem eddidit Propriis sumptibus, Bononiae: 1 V., Fol..



*Hicro-*

Figure 2.1. One of Ambroise Paré's sea monsters: "Figure of a marine monster resembling a Bishop dressed in his pontifical garments" [8].

In Aldrovandi, we find traditional transition zones between well-defined groups of beings: non-life and life; plants and animals; animals and monsters; fish and cetaceans. But for him, both biological and fabulous or monstrous species (real or not) are

considered as having real existence in nature (Figure 2.2). Aldrovandi shows an ability to construct nature through a system of categorization but he also keeps monsters, fabulous beings and even fake animals within this system. Moreover, he includes a variety of fake specimens to illustrate the result of nature's work towards the exotic and monstrous [11]. Al-

drovandi was aware of human-made changes to real elements of nature, but attracting the interest of the general public to the wonders of nature was actually one of his motivations [11]. He was keen about obtaining and disseminating information on exciting and attractive specimens through his written work, and his own collections and museum.



Figure 2.2. A panoply of marine monsters. From the “*Tavole di animali*”, Tavole vol. 006-2  
Animali - Fondo Ulisse Aldrovandi - Università di Bologna.  
<http://www.filosofia.unibo.it/aldrovandi/pinakesweb/main.asp>

What was, during the 18th century, an Enlightenment practice of attaching biological and cultural existence and significance to the various monstrous forms [11], either humans or animals, is mirrored in the work of this great naturalist. He is also able, in this way, to minimize the significance of these monsters as supernatural omens and portents of nature.

With Aldrovandi, and others, we see a progressive shift, from the medieval period to the Enlightenment, from explanations of the monstrous as supernatural portents and punishments, to objects of wonder and then to natural phenomena subject to scientific inquiry [6]. There is a clear principal line of development from monsters as prodigies to monsters as examples of medical pathologies, or

as examples of wonders produced by nature [12]. Consequently, during the Renaissance and the early modern period, the issue of monsters began to converge in several different discourses, but particularly in the context of natural history. In addition, what was new about monsters in this period was the nature of their march and dissemination across the globe. Contemporary travel literature became an important new source of monsters. A key question in the minds of these travelers and writers, and their readers, was the relationship between the monsters they expected to see and the new beings observed in the field [5]. In fact, the move, during the 16th century, of human perceptions and acknowledgement of monsters and marvels to the realm of natural

news and curiosities, reflects one of the central components of the scientific revolution [13].

Monsters and other exotic elements also become part of daily life as they appear in publications aimed at audiences larger than just scholars, encompassing their inclusion as decorative elements in books, leaflets and cartography. Clients buying nautical charts could opt for many decorative elements that the cartographer, or specialized artists working in the cartographer's workshop, added to the foundation, as it were, of a basic map. These optional elements included, among many others, sea monsters [13, 14]. In several cartographical works, side by side with maps with correct geographical representations, mysterious or mythical monsters could be represented

as exotic inhabitants of distant lands and seas [15], as dangers to sailor, or as data points in the geography of the marvelous [16]. These more elaborate and expensive charts were not used for navigation, owned by sea captains or used on-board ships, but rather collected and displayed by royalty and nobles [13]. These maps are part of the wide matrix of collections in which the possession of nature was the crux [13].

To medieval and Renaissance beholders, the sea monsters on European maps represented real dangers [14]. Together with the European voyages of exploration to Africa, Asia, and the New World of America, yielding won-

der on top of wonder, there emerges a whole new set of beliefs and practices about nature [6, 11]. These changing beliefs are reflected in the early modern European Natural History of the exotic from the 16th to 18th centuries, as we hope to show in the following pages.

From classical, medieval and Renaissance sources, sea monsters, whether real or mythical, were considered here, as Van Duzer argues [14, 16], to be astonishing or exotic. However, the sea monsters from many of the sources analysed so far were, in fact, actual animals living in real environments. These were presented to European audiences through mythical or embellished

words, real observations, and a range of illustrations, perceptions or intentions. Marine mammals could be difficult to appropriate in whole for collectors, although elements like bone or skin could be kept, but in most cases their pictorial evidence would replace the real element. As we will see, illustrations – the visual counterpart of otherwise immaterial and inaccessible sea monsters – were an important way of describing, understanding and categorizing these exotic elements of nature. In this work, we will show how images or illustrations functioned in the study of natural history, namely as substitutes or proxies for an object [17].



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3. GÂNDAVO'S SEA MONSTER  
AND TRANSFER OF NATURE  
KNOWLEDGE IN  
16TH-CENTURY EUROPE





## Preamble

Lisbon, second half of the 16th century. In his printed edition of “*História da província Santa Cruz a que vulgarmente chamamos Brasil*” (History of the province of Santa Cruz vulgarly called Brazil), Pêro Magalhães de Gândavo describes a terrible sea monster:

*«It was fifteen span long; with hair all throughout his body, and in his muzzle he had very large silks like a moustache. The indigenous call it Hipupiára, which means demon of the water. Some, like this one, have already been seen around these parts: but they are rarely found. And so, other different monsters, no less strange or*

*admirable, must be hiding in the chasm of this large and amazing sea. And as difficult as it seems, everything can be believed. Because the secrets of nature were not all revealed to men, so they can deny and consider impossible things which they have not seen, and have never had information about.» [1]*

Gândavo's work [1] was written in Portuguese and published in Lisbon in 1576. Part of it was then translated and copied into several European languages and print formats; in particular, his story and illustration of the Brazilian sea monster were disseminated throughout Europe. Following its first appearance in Lisbon, several leaflets were produced, including at least one in Italian and another in German,

and in 1585, his story was retold and illustrated in Adriaen Coenen's Whale Book [2]. This is an extraordinary and rare event, as most of the coeval Portuguese works about exotic marine fauna or resources were neither translated nor reproduced for many years.

Portugal was an important mediator in the exchange of information relating to natural historical knowledge in the early modern period but, at the same time, even if clearly open to new worlds, it was also often closed within itself [3]. As argued for many medieval historical figures [4], most of the early modern Portuguese contributions were ignored and dismissed “since they were a product of individual efforts with no connection to others or without any continu-

ity beyond their times". So, were really Portuguese writers of the Atlantic world locked up in medieval systems of knowledge construction though using a predominantly modern empirical mentality? Both attitudes are compatible, and for a long time these two views of the world, the classic and the empirical perspective, co-existed in several European humanists' works.

The present case study, where a Portuguese natural history account reached a wider audience in Europe, is truly exceptional. It clearly shows how these accounts contributed to a slow transformation from a medieval worldview into a modern experience based on a tradition of observing and describing the world beyond Europe frontiers [4]. Therefore, and following other authors [3], it is important to seriously reflect on the Portuguese contribution to a new sense

of the experience and meaning of nature, as these accounts were crucial mediators in access to new knowledge and new ways of using and representing the natural world during the early modern period.

Gândavo's sea monster is an uncommon instance of Portuguese overseas natural history production adding information and novelty to broader European natural history and to the collections of natural curiosities. It is an exception of knowledge transfer about marine natural wonders from Brazil to Lisbon and then to the rest of Europe during the late 16th and 17th centuries. Here, we will discuss the description of the Brazilian sea monster and the intents of its author. We will argue that this description fits into early modern natural history, and we will also address the process of its dissemination in European folk circles and circuits of science.

## Early modern knowledge about the natural world

Early Atlantic descriptions in the 15th century were sagas of seafaring and explorations in new territories, punctuated by incidental comments on indigenous customs and natural singularities. Later, writers of New World natural history started collecting and making comparisons motivated mostly by curiosity, economics or by sheer aesthetics. Most authors in the 16th and 17th centuries demonstrated an ability to observe and describe the natural world [5, 6] and, during this period, nature was subjected to an intensive inquiry in ways that had not been seen since the times of Pliny or Albert Magnus

[6]. In the development of natural history as a discipline, observation and collection became widespread practices, especially through the possession of all types of remnants [4], whether material, written or iconographic. Furthermore, the process of inventing nature fascinated the early modern naturalists, and they had the ability to look critically to the anatomy and behaviors of several forms of exotic animals and monsters. This reflected the shifting religious and intellectual environment of early modern Europe [7].

From overseas, abounding stories, news, novelties, and wonder on top of wonder were reaching Europe, and they were changing the course of history. Live animals that were easily captured and trans-

ported were regularly shipped to Portugal, such as monkeys<sup>11</sup>, parrots, and other animals never before seen in Europe.

Together with the arrival in Europe of these exotic animals and their products, narratives and illustrations describing the new regions encountered by the Portuguese also reached Lisbon [3].

The encounter and exploration of new lands provided opportunities for Portugal and other European nations to find and explore new routes of commerce and commodities trade for the European market, with the main purpose of finding revenue for the state. During these explorations, some European notions of nature were displaced from their traditional literary contexts as well as from classical sources

[4, 8] through the work of humanists.

The establishment of an early modern natural history began to take shape not only by the hands of humanists and scholars, but mostly by the hands and eyes of practitioners drawn from all social strata, occupying a middle ground between university-trained scholars, immersed in texts, and workshop-trained artisans, immersed in a world of technique [5, 9]. Knowledge about exotic nature was making its way into Europe through the new flows of commerce, and nature became a commodity to this new global world [9]. In this way, during this period, few nations had preceded or surpassed the Portuguese. But most of these works did not seem to reach the mainstream circuits of infor-

11. See Masseti M & Veracini C (2014) Early European knowledge and trade of Neotropical mammals: a review of literary sources between 1492 and the first two decades of the 16th century. *British Arqueological Review*. 2662: 129-138. Veracini C (2011) Non-human primates in the work of Ulisse Aldrovandi (1522-1605). *Journal of Biological Research*, 1:308-309.

mation dissemination of monsters and marvels from the overseas.

So, what was the contribution of the Portuguese to the natural history and philosophy of the Atlantic in the 16th century Europe? Until recently, the historiography<sup>12</sup> seemed to indicate that Portugal was far away from natural sciences and that the Portuguese had not contributed much to the knowledge on the natural world of the Atlantic [3, 9].

Portuguese writings, with just a few exceptions, were not dedicated works to the natural sciences or devoted only to elements of fauna or flora. The Portuguese con-

tribution corresponds to a large number of works dedicated mainly to themes such as navigation, geography, culture and economics, but also abounding in excellent descriptions of natural beings and phenomena. Unlike Italy and some northern European countries, Portugal was not a country of naturalists. Yet, merchants, travelers, soldiers, missionaries and all sorts of voyagers who, in many informal ways, collected and exchanged information about nature, would permanently cross the Portuguese empire, mostly a sea empire [3]. Clearly, Portuguese interests were mainly economic and, in certain

cases, the production of treatises and the printed material resulted from a commercial motivation [11].

Moreover, it is also true that most of early modern Portuguese accounts on nature were not readily available for the European audiences. In fact, their writings were almost never translated from the Portuguese, or only translated in editions that were not extensively or well publicized, and thus were unknown to contemporary scholars as well as being unknown to historians of science even today [4]. But they were part, even though mainly in the context of travel, trade, and exchange

12. For centuries, the Portuguese imperial science only refers to the Portuguese nautical science, and only recently researchers started looking at the possible ramifications of early modern records of exotic natural history in the coeval European natural history. It is important to mention that the majority of sources with original and valuable information on medicine and natural history in the context of the Portuguese colonial enterprise were never or only recently published. Others were destroyed by human agents or by natural disasters such as the 1755 Lisbon earthquake and still a significant number remain uncatalogued in the Archives. One of the recurrent and crucial problems in the study of this subject has been the insufficient diffusion of sources and of scholarly work in the Portuguese-speaking countries as well as abroad [10].



[3], of a convergence of traditions, initiatives, or contributions which fostered the emergence of an empirical mentality [4] and the establishment of a natural history of the exotic in the 16th-century Europe [3].

At the same time, in this period, and serving different purposes and audiences, all types of natural wonders and monstrosities were of great interest in Europe, and stories and illustrations were circulating abundantly [7]. Curiosities as well as commodities shaped the emerging strategies for the empirical study of nature. Curiosities were in themselves a sort of commodity, a

natural product with either commercial or ornamental value. The second half of the 16th century witnessed an increased interest in curiosities that resulted in the institutionalization of empirical practices, including the collection and description of oddities [12]. Paths taken by modern scholars reflect the three separate traditions through which odd natural beings and monsters had long been discussed. But during Renaissance and the Enlightenment, while the classical typology of prodigious, natural, and distant monsters continued to inform expectations, the three above-mentioned cate-

gories – prodigy, natural history and monstrous people - overlapped and intersected in practice<sup>13</sup>. Therefore, although a particular text might appear to deal with one type of monster, its author would have been aware of other types and, in some cases, drew on these traditions.

Gândavo's sea monster description fits all the above-mentioned traditions about the new emerging natural world; it uncovers the monstrous in nature and is depicted as a nature wonder and novelty.

13. See previous chapter and Park K & Daston L (1981) *Unnatural conceptions: the study of monsters in sixteenth- and seventeenth-century France and England*. *Past & Present*, 92: 20-54.

## Gândavo's work and his sea monster

Pêro Magalhães de Gândavo (?-1576), a humanist, teacher and scholar, was born in Braga (Portugal). He was D. Sebastião's chamberlain, a secretary at Torre do Tombo, and lived in Brazil probably between 1558 and 1572 [13], or between 1560 and 1565 [14], gathering information

about this Portuguese colony whilst working for the kingdom. Gândavo, during his stay in Brazil, was naturally attracted to the new world that he encountered in its striking exoticism and, also driven by his vocation as a writer, took note of all relevant cultural, social and environmental aspects with the dream of one day putting it all together in a book. Back to Portugal, he wrote his first manuscript, entitled "*Tratado da Província do Brasil*", which he dedicated to the Queen Mother D. Catarina. He then revised, expanded and enhanced that text, which he entitled "*Tratado da Terra do Brasil*", consecrating it

in dedication to Cardeal Infante D. Henrique (this work remained unpublished until 1826).

These two works included information of vital and strategic importance from the point of view of the geographical and economic potential of the Brazilian Territory, which the Portuguese Crown was not interested in disclosing. In any case the works were disseminated, mainly due to repeated attacks by the French occupation of part of the land of Brazil [15]. Gândavo then updated again his work, made other improvements, and gave it a new title "*História da Província de Santa Cruz*", dedicating it to D. Lionis

Pereira, a former governor of Malacca [14, 15]. The proofread manuscript of "*História da Província de Santa Cruz*" represents the final and decisive moment of a creative elaboration that, having gone through defined phases, developed over successive essays. During his rewriting, the author reorganized chapters, added details, and sought further information on natural elements and curiosities that he considered real and important but hitherto poorly described [14]. Furthermore, he suppressed from his last manuscript fantastic or questionable elements, and omitted uncertain information or details

that should be kept secret [15]. António Gonçalves printed the book in 1576 in Lisbon (Figure 3.1). It was soon after translated into Castilian, French and English, and has been repeatedly republished until the present day. "*História da Província de Santa Cruz*" is considered the first historical description of the Portuguese expansion in Brazil [16]. It started the Brazilian historiography but its meaning is still debated today. Some authors read it as a "natural history" written strictly for descriptive purposes, while others characterize the text as informative and propagandistic, written to at-

tract the attention of the Portuguese Crown to the New World [13]. Even if there is a propagandistic quality to the text in its attempt to attract settlers to the New World, Gândavo also portrays Brazil in terms of the medieval paradise legend, contributing to the early chronicles' process of its mythification [13]. Not simply an inventory of the natural richness aiming to attract new settlers, his discourse also allows an understanding of his "science and art" and writing style [15, 16].



Figure 3.1. Frontispiece of the work by Gândavo “*História da província Santa Cruz a que vulgarmente chamamos Brasil*” (History of the province of Santa Cruz vulgarly called Brazil), Lisbon 1576 [1].

*that was killed in the captaincy of São Vicente in the year of 1564»:*

The author described in detail the new environments, landscapes, fauna and flora of Brazil, giving a thorough geographic overview of the discovered lands. This is the attitude of a scholar, a person who privileged experience and the contact with the real world, as well as the dissemination of new knowledge, which is coherent with the worldview of coeval authors [4]. He intended to produce a summary of all available information on the Brazilian territory [15].

Gândavo included in his work several references to marine mammals. He described in detail the whales, sometimes also referred to as sea monsters, occurring in the region [1]. Gândavo's best-known and most widely disseminated passage is his description of the «*sea monster*

*«One of the captain's indigenous slave went out of the house: casting her eyes towards the plain, which was surrounded by the sea and by the settlement of the same captaincy, she saw this monster, moving up and down, with strange steps and movements, and howling from time to time such ugly sound, that astonished her and nearly made her beside herself, she ran to the captain's son, whose name was Baltazar Ferreira and told him what she saw, which in her understanding was some sort of a diabolical vision.(...) Looking at where she was pointing, he saw, bewildered, the figure of the monster on the beach, without being able to understand what it was, because the night prevented it and such monster had never been seen, nor was it similar to other animals. As*

*he brought himself closer to it, so he could better see it, his presence was sensed by the monster: raising its head, acknowledging him, the monster started walking towards the sea, from where it came from. Then the boy knew that it came from the sea, and before it emerged, he quickly ran towards it to take its lead. And when the monster saw the boy blocking its way, it stood up like a man, on the fins of its tail and, being side by side with him, he stroke it in its stomach (...). The image of this monster is shown in the present chapter, taken from the natural.»<sup>14</sup>*

Here, Gândavo describes the moment when the son of Baltazar Ferreira killed a terrible sea monster on the coast of São Vicente (currently Santos in the state of São Paulo, Brazil) in 1564. The written description is accompanied by an illustration of the sea monster (Figure 3.2).

14. See the original in Gândavo, *História da Província Santa Cruz* [1]. This is our translation from Portuguese.



Figure 3.2. Drawing of the Brazilian sea monster by Gândavo in “*História da província de Santa Cruz a que vulgarmente chamamos Brasil*” (History of the province of Santa Cruz vulgarly called Brazil), Lisbon 1576 [1].

This episode must have been truly remarkable at the time. It was repeated by several other Portuguese chroniclers of the Atlantic natural history, such as Vicente do Salvador (1627):

*«In the captainship of S. Vicente, in the year of fifteen hundred sixty four, at night, a sea monster emerged on the beach and was seen by a boy called Balthazar Ferreira, son of the Captain, who turned toward it with a sword. The fish rose as a man in his back fins, and the boy stabbed him in the stomach, which threw him down, and it rose again with its open mouth to swallow him*

*and he slapped it in the head, confusing it and then his slaves killed it, the boy was unconscious and almost dead after so much joy. This monstrous fish fifteen spans long did not have scale or fur.» [17].*

Gândavo, as well as other authors, is thought to have followed the Indians' belief in the existence of "sea demons"<sup>15</sup>, probably also influenced by medieval legends spread by wonder books and bestiaries. This reference to a sea monster seems puzzling at first. However, if we view the inclusion of this story and the appearance of other seemingly supernatural creatures as elements in the completion of the paradise myth within the text, their role becomes clearer [13]. Gândavo creates the im-

pression, all throughout his work, that the Garden of Eden is located in the Portuguese New World, and he completes the paradise metaphor by pointing out that Brazil is also surrounded by demoniacal dangers. This legend belongs to the same framework of medieval ideas that produced and disseminated the phenomenon of tritons, mermaids, water mothers and other fantastic marine beings.

Gândavo's sea monster follows other known and repeated descriptions of the igpupiára or hipupiára - the tupi word for any type of sea monster or large marine animal - the first of which by father José de Anchieta in his 1560 letter [18]. Different authors for the Portuguese America<sup>16</sup> similarly refer to sea monsters, mer-

15. Even though local people have been using some large marine animals as food source (e.g. manatees, river and marine fish, turtles), several other animals – in particular those potentially dangerous to humans – were considered as monsters from nature. Portuguese were not always true to endemic themes, but this belief on sea demons was assimilated and is sometimes flagrant in descriptions of fauna. Usually, pragmatism takes over local traditions and imagination, but from this time on indigenous stories about nature, although facing Classical European notions, began to be systematized. See Holanda SB (1977) [1958]. *Visão do Paraíso: Os motivos edênicos no descobrimento e colonização do Brasil*. São Paulo, Cia. Editora Nacional, 3a. Ed. See also Cunha MC (1990) *Imagens de índios do Brasil: século XVI. Estudos Avançados*, 4 (10): 91-110.

16. Several authors were responsible for this type of empirical gathering and compiling of Atlantic information, such as José Anchieta, Fernão Cardim, Gabriel Soares de Sousa, Vicente Salvador and Frei Cristóvão Lisboa. They contributed to the European knowledge about America and, to some extent, to the development of communication between the two continents.

men, and other strange half-human half-marine beings, merging the traditional with innovative descriptions for that period. This resulted from observations of real animals together with European medieval notions and indigenous signs:

*«There are also marine men, who have been seen getting out of the water soon after the Indians, and in the water they killed some that were fishing, but they do not eat more than their eyes and nose (...).» [17].*

The word monster as Gândavo uses it is not necessarily related to a frightening mythical or imaginary creature. It is related to the occurrence of a new, gigantic and strange (or rarely seen) marine creature. In this particular case, based on current biological knowledge, and contrary to what some authors have speculated<sup>17</sup>, we could say that the reported animal was a sea lion from the Otariidae family. They are also known as eared seals, because they possess an external ear, unlike

the so-called true seals. This feature is clearly represented in the picture that follows the description. The image also shows the animal in an upright position, over his back fins.

The reported animal must have been a South American sea lion (*Otaria flavescens*) (Figure 3.3) or a South American fur seal (*Arctocephalus australis*). This verification confirms what Egmond & Mason<sup>18</sup>, Papavero & Teixeira [18] or Almaça [21] had already concluded. These authors mention that the *hipupiára*

17. See, for the suggestion of the sea monster being a manatee, the work by Faust [19]. Almaça [21, 22], in earlier works, had first suggested that this animal could be a manatee (Almaça, Carlos (S.D.). Guaraguás, hipupiaras, baleias e âmbar: Os portugueses e a natureza brasileira. Atalaia, Revista do Centro Interdisciplinar de Ciência, Tecnologia e Sociedade da Universidade de Lisboa. <http://www.triplov.com/atalaia/almaca.html> a 28 de Julho de 2009). This idea is followed by other Portuguese researchers such as R.M. Rosado Fernandes in his work "André de Resende e o seu Asturjão Africano (O Angulo Mazi do De Antiquitatibus Lusitaniae)".

18. As above-mentioned, it has been suggested that the creature in question is a sea cow or manatee, but a sea cow cannot leave the water and stand upright. Fur seals, however, can stand upright and their flippers could be described as the feet of a goose. Given the size of the creature, it may have been a South American fur seal, or sea lion, which can still be found today in Brazil. The male of both species has a thickly matted fur, which is extremely soft and velvety. See the comments by Egmond & Mason [20].



or water devil from Gândavo would probably be a seal. The description indicates that this sea monster could move on shore and could easily stand on his feet vertically. This is a typical behaviour of these species when they intend to scan their environment or when they feel threatened. This same aspect contradicts the hypothesis of the so-called monster being a manatee (*Trichechus manatus*), as previously reported by several authors [19, 22]. Manatees do not move on land or stand upright. Moreover, elsewhere in his work,

Gândavo gives a distinct description of the manatee, naming it as ox-fish [1], and he makes no mistake between these two large marine animals.

Gândavo was a humanist and a man of new horizons. In his accounts, descriptions of the exploration of territory and the collection of textual and material information, as well as the production of geographical and cultural knowledge<sup>19</sup>, are based on empirical observation and experiences on site. Therefore, this story reveals the European curiosity and interest in unveiling the unknown

and (re)telling adventures beyond the known natural world. This marine monster existed, as would a whale in the Middle Ages, in a multiplicity of meanings. These types of animals could be good to eat but bad to encounter, and both fascinating and frightening even when dead. Following the numerous and varied entries in his work, we can assume that it was his intention to offer his readers detailed information about all the new natural singularities of Brazil. But was this Gândavo's only intention?

19. The practice of colonial empiricism led to abundant encounters with native knowledge. It is in this sense that empiricism in the Atlantic (as opposed to within Europe) involved and required extended interactions with native cultures [23].



Figure 3.3. South American sea lions (*Otaria flavescens*), females and male. Animals photographed by Raimundo Lucas Bustos at Rio Negro province, Northern Patagonia, Argentina.

Gândavo understood the world from a 16th-century Eurocentric perspective, supporting his account on selected classical, medieval, and coeval stories, legends and myths. He was educated and well versed in pan-European texts and clearly relates to the literary tradition and natural erudition of oth-

er Portuguese authors, such as João de Barros, André de Resende, Damião de Góis, and Luís de Camões [15]. Damião de Góis, who also wrote about sea monsters or other aquatic beings, also based his stories in testimonies from others as well as broader mythologies and encyclopedic descriptions, which is an obvious parallel between the two authors. He was probably well acquainted, as

were other writers of the time, with the variety of monstrous beings he might expect to encounter in his travels, and their values as portents of virtue, vice, wealth, or divine intention. Gândavo's work represents a serious attempt by the author to apprehend the news of the New World, but it is also a rhetorical work, designed as much for convincing as for informing [13].

Gândavo follows a

tradition of colonial rhetoric and description of what the New World may offer to Europe and to Europeans who might settle there. The colonization and control of a new space are represented in the event of Gândavo's sea monster. Man overcoming nature, and specifically the control over the Monster (and consequently over all the new and exotic dangers) is shown. This is an extremely important aspect from both classical and medieval perspectives, which posit that order in nature always needs to be present or restored whenever necessary. These types of descriptions and collections were not simply for pleasure or willingness to learn; they were also a physical manifestation of the reach of

empire and a reminder of political affiliations. Therefore, this episode can be read as the authority of Portugal, and more broadly Europe, over the New World and the unknown, as well as the supremacy of the old continent and its wisdom over the monstrous marvels from across the Atlantic. It is the picture of the natural world bending to the power of the human sword. In fact, several visual representations of the 15th and 16th centuries, both illustrations and maps, show humans exerting some kind of control over sea monsters, which are among the most potent symbols of the wilderness and dangers of the ocean [24].

In any land that the Portuguese reached, either in the Atlantic

islands, or the African or Brazilian coasts, the domination over nature through the capture of animals was essential. This was, for instance, the case of monk seal captures in the Madeira archipelago and West African coast in the middle 15th century [25]. In the present example, the sea monster, despite its large size, is clearly depicted as subdued while man is the hero [26]. Moreover, it is said that a skin is expected to arrive in Europe, which is comparable to the trophy of the knight<sup>20</sup>. But this trophy is in fact a highly perishable natural product that may or may not reach its final destination namely the eyes of the King of Portugal. Therefore, the event and its illustration<sup>21</sup> are disseminated as the tro-

20. This may be a narrative category of the romance for, in an effective way, setting up monsters as threats to civil society, which are to be fought by gallant knights. Gândavo's Sea Monster in Coenen's book is given as an example of this in Swanepoel [27].

21. See Kusakawa S (2011) The role of images in the development of Renaissance natural history. *Archives of natural history* 38 (2): 189-213.

phy itself<sup>22</sup>, intended for royalty, the scientific elite, and the general public.

Whatever the interpretation given, printing this information in Portugal, using textual

description reinforced by the use of imagery, shows the interests in disseminating the Portuguese power and control over the unfamiliar and strange new world. Here, the new natural world,

its exotic singularities and its story within the Portuguese history are all mixed together in a tale both erudite and mundane. And the tale is retold many times.

## Gândavo's sea monster story across Europe

The account and image of Gandavo's monster were widely published. This episode seems to be one of the few Portuguese discoveries of exotic marine fauna to be reproduced in European natural history or natural wonders' circles. The first known mention is the small

book by Brochado published in Coimbra (Portugal) in 1569<sup>23</sup> where, under the chapter "*Capítulo quarto de dois meninos monstruos, e outras espantosas visões que nasceram*"<sup>24</sup>, he describes abnormal births of humans and animals, and also includes a passage about the portrait of the monster that was killed in Brazil. Besides briefly describing the encounter with the monster, he stated that its printed and captioned illustration was being sold in

Lisbon and was bought by many. Since the first publication<sup>25</sup>, several leaflets must have been produced.

Two illustrated broadsides were printed in Europe, outside Portugal: one was German (Figure 3.4) and the other was Italian (Figure 3.5). In fact, the culture of monsters and prodigies exploded in late-15th-century Germany and Italy, in connection with specific political, religious and military events. In both contexts,

22. Besides the oral stories and the written reports, dried animal remains were highly sought after by many collectors of naturalia throughout Europe. But collections of naturalia often included albums of drawings or single images of flora and fauna that served to complement preserved remains or as substitutes of these [26]. In the home metropolis, collections were accumulated, housed, and preserved, inventories were taken and sometimes published, and redistribution of the value-added information and objects was initiated. Material progress and utility became the watchwords of contemporary naturalists even when they reveled in curiosities [28]. This animal description and drawing, by being sent to Portugal and a physical specimen being expected (in this case, the skin) to arrive in the kingdom [2], may indicate the spirit of a natural historian, seeking an opportunity to show and expose the novelty.

23. The original publication was consulted in London, in the British Library. See Brochado I (1569) *Obra Chamada Primavera dos Mininos*, Coimbra: João de Barreira.

24. "Chapter four of two monster child, and other astonishing visions that were born". Our translation from Portuguese.

25. We are not sure of what the original source was; could have been one of the first printed versions of the work by Gândavo, or the Portuguese leaflet that might have originated from (or independently of) the same work.

imperial and papal publicists produced a spate of pamphlets and broadsides. The most widely disseminated vectors of this culture, drew on, and in turn fuelled, the widespread culture of prodigies, while turning it to particular political ends. In neither society was this culture of prodigies exclusive to a single class or group. It was rather shared by erudite humanist scholars, literate urban merchants and artisans, and by peasants, labourers, and others without direct access to the written world. The reproduction of Gândavo's sea monster emerges in line with these cultural movements. These new monsters of an exotic nature, rather than being seen as omens of errors or misfortunes, were also used as mirrors to the

cultural and social errors.

The German leaflet comes from Augsburg sometime in the 1560s, and was printed by Mattheo Francken. The German printing describes the happening with fewer details than other versions, both in text and image [12]. The title of the illustration is as follows:

*«New paper on a strange sea monster which appeared around year 64 in Brazil near the city of Santos, it was taken from the waters and right there was killed by the population and was seen by many.»*<sup>26</sup>

Nicollo Nelli printed the Italian leaflet in Venice in 1565 with the following accompanying text:

*«Close to San Vincenzo in the city of Santes, next to the house of Giorgio Fernando, this monster appeared coming out of the water on the sea shore where, crying and making a lot of noise, it was turning over the grass; the son of the mentioned Giorgio, being at home, ran against the monster and bravely faced it with a sword and injured it; he was also injured by the monster so both of them fell to the ground; the young boy died, so the people of the city ran towards all that noise and killed it with the bows. The size of the monster is 17 feet, the skin is green and pulpy like velvet and soft, its legs and feet yellow, the male organ made of human-like flesh, the eyes and the tongue like fire.»*<sup>27</sup>

Both the Venetian and the Augsburg flyers men-

26. Our translation from the German, in Faust [19]. The legend of the German picture, which is a similar description of what we have seen before, is available in German and Portuguese in the work by Papavero & Teixeira with a brief review on this topic [17].

27. Our translation from Italian, in Faust [19]. Also in Papavero & Teixeira [17]. Again in the work by Papavero & Teixeira (2014). *Zoonímia tupi nos escritos quinhentistas Europeus*. NEHILP/FFLCH/USP, São Paulo.

tion the month December 1564 and were published during the late 1560s. The influence of these leaflets produced in vernacular languages must have gone far beyond the learned readers and humanists who could afford and appreciate large and highly priced illustrated Latin volumes. Therefore, through these publications, exotic monsters would make their way both into the European discourses of natural history and wonders, as well as into parallel circuits of communication aiming wider and less educated audiences.

Not long after, by 1573, Ambroise Paré [29] published his assemblage of monsters and prodigies. It could be expected to find the Brazilian sea monster in the

treatise by Paré, given his network of contacts within European natural history circles and his interest in different types of singularities and monstrosities<sup>28</sup>. In Paré's work, monsters are treated as eminently natural. They are not portents, neither prodigies; it is nature who speaks through such creations, not God. In fact, Paré booted the marvels right into the arms of natural history [30]. However, no reference is found to the Gândavo's sea monster or any other New World singularity. No explanation could be found for this omission, but we find it odd as Paré cites other European authors including the Portuguese scholar Amatus Lusitano [29].

Similarly, we could not find any copy of the

Brazilian sea monster in 16th- and 17th-century maps or globes, even though, for instance, Mercator concentrated his representations of sea monsters and *exotica*, copied from Belon's books, in South America thus suggesting that this region is one of the realms of marvels [24].

However, following the reproduction of the sea monster story across Europe, it was again retold and illustrated in Adriaen Coenens' *Whale Book* in 1585 (Figure 3.6). In his encyclopedic volumes about whales, Coenen referred specifically to the Brazilian sea monster<sup>29</sup>. His description is not as detailed as the original, but it is complemented by a visual representation which is based on the first drawing.

28. Ambroise Paré was familiar with the work by Amatus Lusitano, the 16th century Portuguese erudite physician, including in his book about monsters a citation of a strange event reported in first-hand by the Portuguese doctor.

29. Adriaen Coenen's albums focus almost exclusively on animals living in and near the sea and some river. He painted his watercolors and accompanied them with texts describing the depicted marine creatures, anecdotes, quotations and anything else considered relevant. Here, texts and pictures are closely linked [31].

Although his source is said to have been the German pamphlet [20], the original information had not been completely lost. Coenen obtained the illustration from the magistrate Simon van der Does from the Hague, who had in turn received it from acquaintances in Antwerp<sup>30</sup>. It is even said that he did not follow the original Portuguese book edition as he depicted the happening on grassland, in front of a landscape rich in detail. In view of the detailed text and somehow deviated illustration from the other two previous leaflets, some authors agree in the existence of a missing leaflet<sup>31</sup> as above mentioned, probably Portuguese [19]. Unfortunately, there is no known copy of such Por-

tuguese leaflet. Gândavo himself mentions that there were different oral versions of the event circulating at the time [1, 20], and possibly this was also the case with the printings [19].

Coenen also adds the following to his description:

*«(...) its skin was as smooth as the smoothest velvet, in a way that can't be described. The appearance of this monster has been sent to the King of Portugal and its skin is also to be sent.» [2]*

A representation of the animal was said to be sent to the Portuguese governor and the skin was soon to be received in Portugal [2]. Such shipments of marine mammals' remains (bones and skins) were

not strange and became common from the 18th century onwards. The assumption that the specimen may have been exhibited is surely not to be dismissed, considering the widely distributed reception of Brazilian marine mammals in Italy, southern Germany, Holland and Portugal, and in this case its lurid representation in the leaflet [19]. Also, the existence of these woodcuts and pamphlets and their reprinting, even if not fully understood, strongly suggests that this sea monster was one of the earliest and most famous natural curiosities from overseas of its time to have deserved a special pamphlet [31].

30. Adriean Coenen must have had access to several manuscripts and leaflets, as well as to a network of connections and friends sharing interests for the same intellectual and curiosities' subjects, that kept him informed and updated about natural novelties around the world. See Egmond [30] for this discussion on routes of sources and natural knowledge transfer.

31. The same discussion is also found in Papavero & Teixeira [18].

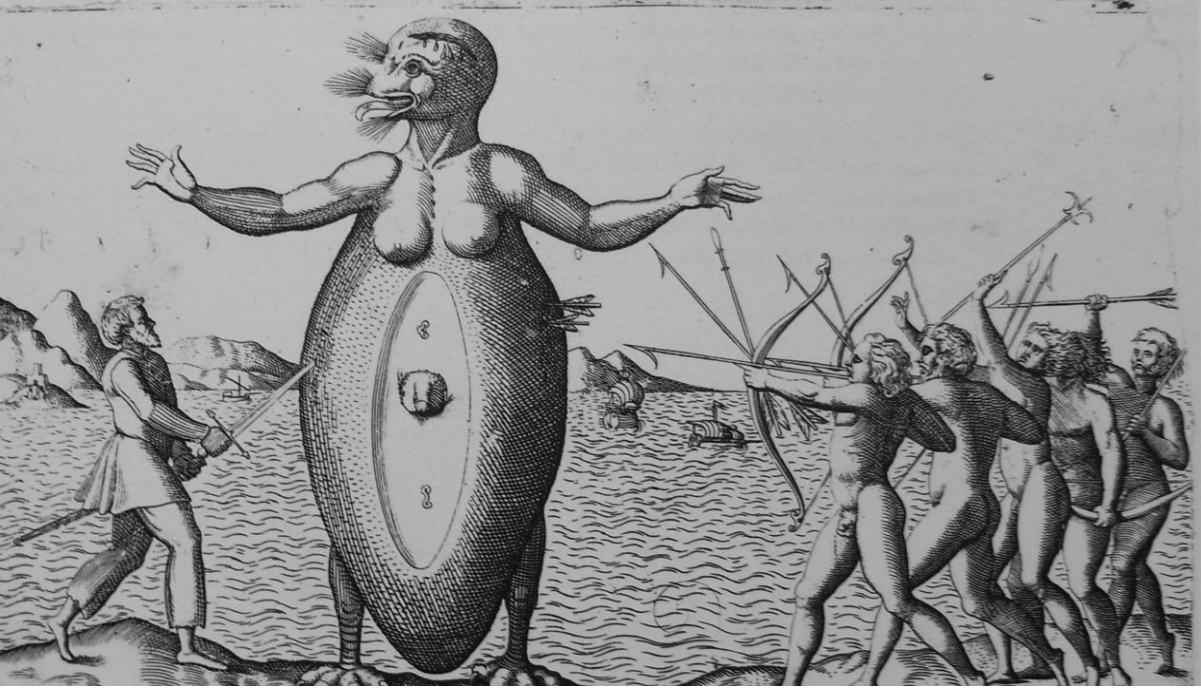


Figure 3.4. German illustrated broadside (1560s) describing the 1564 event in Brazil and illustrating Gândavo's sea monster. From Klaus Barthelmess's † private collection, and also in the work by Faust [19].



Figure 3.5. Italian illustrated broadside (1565) describing the 1564 event in Brazil and illustrating Gândavo's sea monster. From Klaus Barthelmess's † private collection, and also in the work by Faust [19].



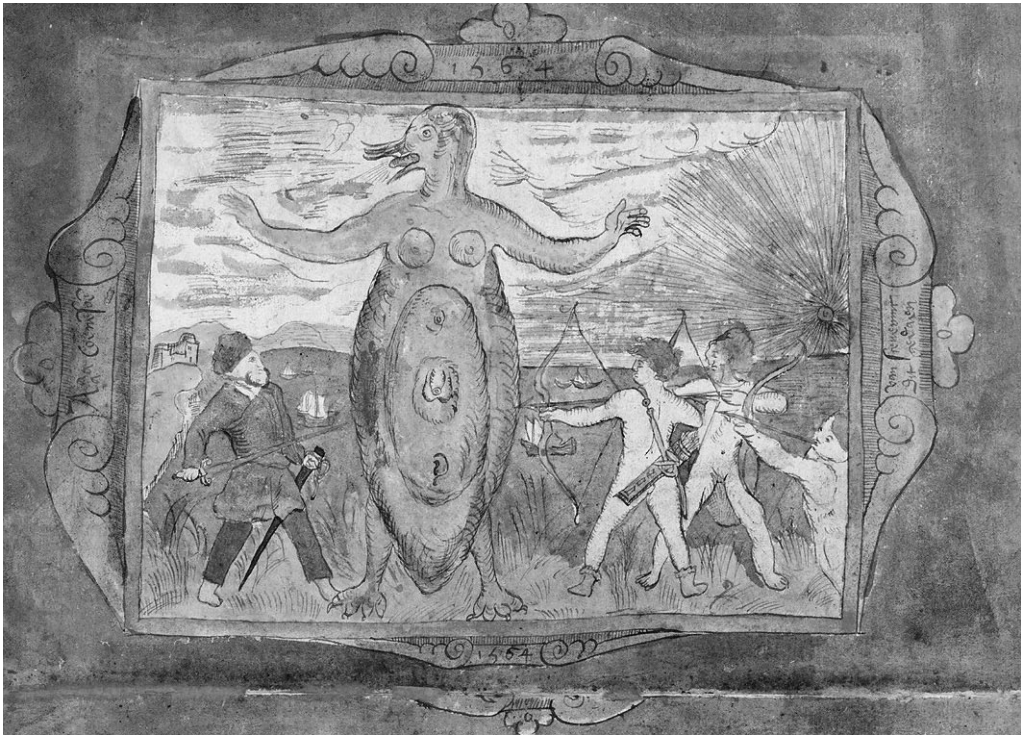


Figure 3.6. Drawing of the Brazilian sea monster and description of the encounter in the work by Coenen, *The Fish Book*, 1580. National Library of the Netherlands. Also published in his *Whale Book* [2].

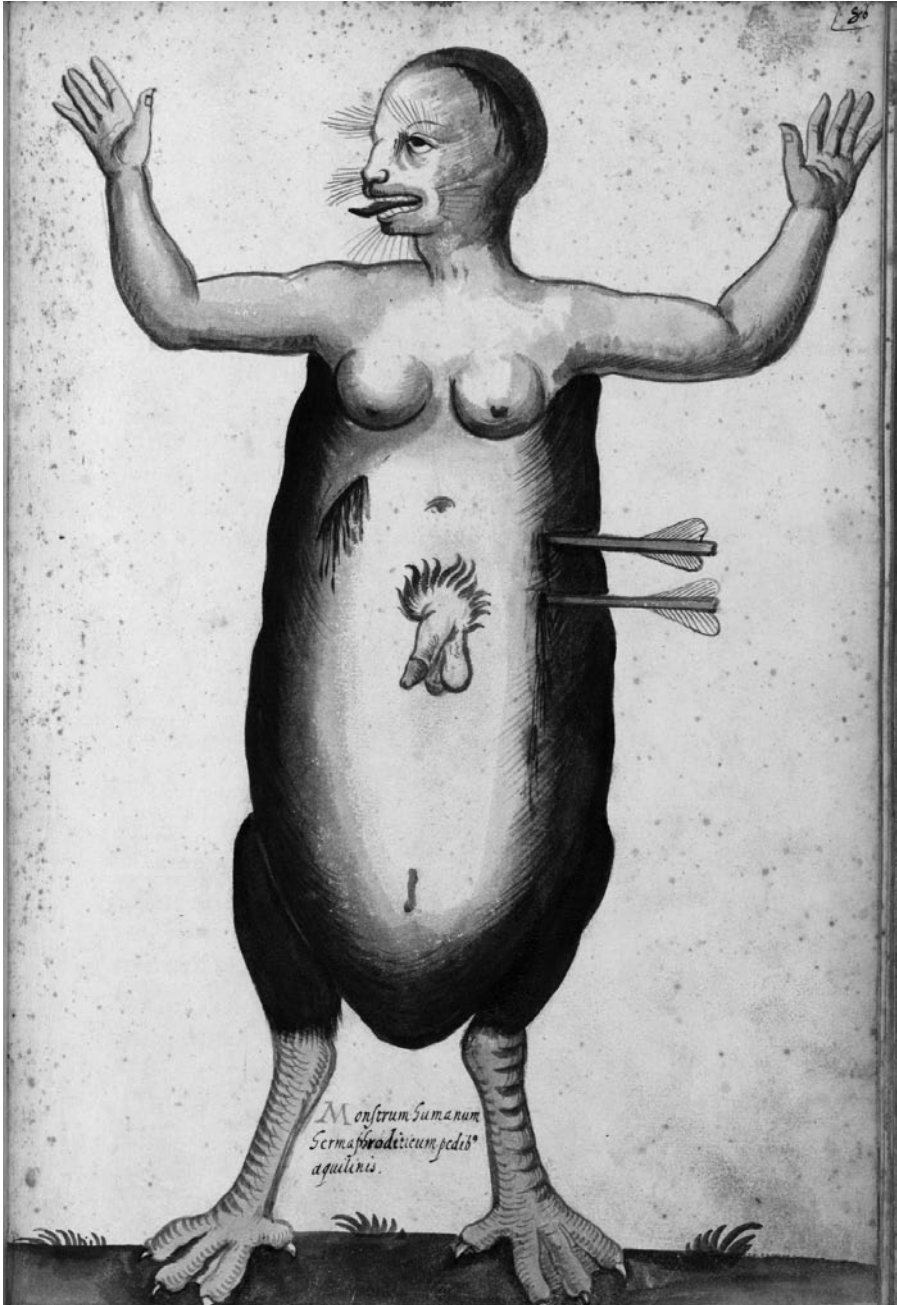


Figure 3.7. Illustration of Gândavo's sea monster in Aldrovandi's work. It is present in the *Monstrorum Historia*, 1642 [25] as well as in the non-published "*Tavole di Animale*" (The *Tavole* are unpublished in print, but photos of the entire collection are available online: <http://www.filosofia.unibo.it/aldrovandi/pinakesweb/main.asp>).

Another illustration of a monster resembling Gândavo's sea monster (Figure 3.7) exists in the work by Aldrovandi [32], who managed to find space in his encyclopedic volumes to include every animal marvel discovered anywhere in the world by 1600<sup>32</sup>. This author included the Brazilian sea monster in his volume dedicated to the natural history of monsters. This illustration must follow the German and Italian leaflets as the monster shows the similar bird-like feet. The language and imagery used by Aldrovandi, with its invocation of wonders and singularities mixed together with

detailed descriptions of real animals, shows the continuing force of discourse of the marvelous, now revived by the exploration of previously unimagined lands.

But this language of wonder and the use of ample imagery also served the purpose of attracting the attention of wealthy patrons and the common readers who might find it a little hard to engage in volumes of more matter-of-fact and scientific prose. The rise of printing created a large and growing audience for literature of this sort, which accounts for the growing importance of woodcut illustrations in such works, as well as the growing number of vernacular editions and translations.

The image of this sea monster is afterwards used regularly and for different purposes. For instance, in the work by León Pinelo (1645-50) [33], a monster from Peru is depicted amongst the list of wonders that he offered the readers.

This monster (Figure 3.8) is positively a copy of Gândavo's sea monster and must have been obtained by the author through the reading of, or contact with, other published leaflets on this topic. The author intended to produce a catalog of the wonders and curiosities of the Andes as a proof of its wealthy nature and to reconcile the location of Paradise in such an ecologically diverse region [34], a similar paradigm as in

32. Aldrovandi's *Natural History*, which appeared in twelve volumes, from 1599 to 1648, was one of the greatest zoological compendiums of the early 17th century. In his massive tomes, he attempted to encompass the entire natural world, both the singular and the normative, and in doing so he took another giant step, as Paré before him, toward normalizing the marvelous by "swallowing them up" [30].

Gândavo's work. And for that reason León Pine-lo included all known natural curiosities. In fact, he turned to the description of curiosities, believing that the more wonders brought forth by the land, the more likely it had once been the location of Eden [34].

In the 1677 work by Gi-oseffo Petrucci [35], there is yet another depiction, this time of a man, maybe a Native American, attacking a sea monster or merman with an axe or hatchet (Figure 3.9). The monster has a fish-like tail, webbed hands and a bristling mous-tache. The drawing in-cludes a settlement, fortifications and a fish. The text accompanying the drawing discusses a sea monster that was encountered near Espirito Santo in Brazil,

and once more follows the work by Gândavo. Petrucci was a disciple of Athanasius Kircher and his work was an ec-lectic assembly of vari-ous marvels of culture and nature in which this description and associ-ated illustration would fit very well.

According to Findlen [6], the activities of col-lecting and interro-gation of nature met in the studies of natural-ists such as Aldrovandi and Kircher, resulting in new attitudes toward na-ture as a collectible en-tity, and generating new techniques of investiga-tion that subsequently transformed natural history. These attitudes towards the new natural world are also found in the works of several Por-tuguese "naturalists" of the New World, such as

Gândavo. Several Portu-guese explorers, traders, missionaries and writ-ers left important traces about zoology, botany and tropical medicine, creating a significant corpus for the estab-lishment of a natural history of the exotic in Europe, similar to what happened in the Span-ish empire [5]. Descrip-tions such as the one being discussed were conducted by practition-ers and were based on empirical knowledge, but nevertheless they hold amongst much of the information about natural environments and marine fauna. Here we can find an example of how the Portuguese contributed to the trans-fer of knowledge on the natural world from the New World to Europe.



Figure 3.8. Illustration of a monster in Peru by León Pinelo in his “*El paraíso en el Nuevo Mundo*” (1645-50), clearly based on Gândavo’s sea monster [33].

## Transfer of exotic nature knowledge in late 16th-century Portugal

In the historiography about the early modern European circles of

natural history, the stories and publications of Portuguese (as well as of Spanish<sup>33</sup>) report-

ing the natural history of the “*East and West Indies*” were usually considered unsatisfactory

33. In his book, Barrera-Osorio [5] offers a very good review of the history of scientific experience and examines various aspects of its development through the study of the Spanish empire.

[36] or not considered at all. Iberian authors were not members of the Renaissance community of naturalists but, rather, they were explorers, merchants, adventurers, pilots or friars, typically with distinct interests from scholars [5]. Also, their natural histories remained in manuscripts locked away by cautious bureaucrats worried about revealing commercial secrets and state interests.

This attitude, in the early stages of the Atlantic explorations, was typical of the Portuguese nation as it aimed to appropriate, monopolize, and control a new and potentially powerful and rich sea empire. If, on one hand, trade contributed to Portugal's global expansion, on the other, the secrecy associated

with trade and military interests seems to have hindered the publication of literature related with the Portuguese discoveries written before the middle of the 16th century [3]. In addition, the Portuguese press of the period did not enjoy the same achievements and development as those of other European countries. On the whole, and although copies of Portuguese manuscripts circulated in that period, the lack of certain types of publications had a negative influence on the transmission of knowledge concerning exotic animals seldom seen or completely unknown in Europe [3].

However, in Portugal, there was a new mentality firmly instilled in a small elite that elaborated notable theories

about the epistemological superiority of empirical knowledge. Of this elite set, the names Duarte Pacheco Pereira, André de Resende, Damião de Góis, Fernando de Oliveira, and Garcia de Orta stand out for having written largely about the importance of experience [4, 36]. But Portugal was rather a country of practical men who also, in their own particular ways, contributed to the writing of a natural history of the New World. So, many others, through the written works they produced, revealed this same inherent value when observing and describing nature. Practitioners, informants and traders also had a significant role in the circulation of knowledge about nature in the Portuguese

world [3]. There was a variety and richness of media in which exotic animals were depicted in 16th-century Portugal. The various tapestries, charts, and illuminated manuscript books that were commissioned by the nobility become treasured possessions with a special material, cultural, and social meaning. Some of them were probably seen as a visual metaphor for the success of the Portuguese discoveries [3].

Nevertheless, most of the rich and important panoply of Portuguese information about the natural world created during the 16th and 17th centuries, including the few printed information, did not reach the European scientific institutions of that period. They were lost and

neglected for centuries [3, 10, 36] and they enlarged the knowledge of colonization, population and voyage-related institutions rather than science-related institutions [5, 37].

We are left with the proposals for the absence of Portuguese reports in the European mainstream natural history traditions. Hypothesis for this absence are that: the works were manuscripts and only a few had been printed in their time; instead of using Latin, the lingua franca among the scholars, Portuguese was the main language used; neither copies, nor translations of the vast majority of the chronicles and narrations from overseas have been made; there was neither sharing nor promotion of

this knowledge through the regular scientific channels or; there was no interest in these exotic discoveries among the Renaissance scientists. Adding to this, the fact that most of the so-called Portuguese natural histories were produced not by scholars but rather missionaries, merchants or even adventurers, may have influenced its acceptance – or interest – by the humanistic and erudite circles.

Therefore, if Portugal did not make the most of its unique position in bringing news and animals from overseas [3], this is particularly true with marine mammals. While other Brazilian terrestrial animals, and even birds and some fish, are included in the works of several Euro-

pean authors writing about the Americas<sup>34</sup>, the only two marine mammals that are mentioned (and sometimes repeated) are Gândavo's sea monster – the *Tupi igpupiára* – and the manatee – the *Tupi igoarágoa*. Whales and dolphins, in generic terms, are also mentioned in some authors' works. Marine mammals were not easily transported, either alive or even in parts or remains, and for that reason oral stories, written details and illustrations<sup>35</sup> became an important replacement in this trade for material information and knowledge on the natural world.

Most of the animals of the world beyond Europe were only known to European naturalists through travelers' tales or odd, fragmentary specimens, and not

through the typical 16th-century European technology of observation, description and communication [37]. Faced with this problem, Renaissance naturalists did their best when describing exotics. They were willing to publish incomplete, even potentially misleading descriptions when they could do no better as they aimed to describe the world as fully as possible [37]. Most Renaissance naturalists had been skeptical of monsters and mythical creatures, but they were willing to follow trustworthy authorities if their report was plausible, as was the case of Gândavo's descriptions. The anecdote of the sea monster, either describing an animal or a fantastic being, could have called Gândavo's testimony and credibility into question

as he recounts an event for which he could have not been present. But he stresses that extremely trustworthy friends confirmed his report at the time [13], and by being so it became believable for some audiences. It could be considered by coeval European authors as a true story with a real description, reliable enough to be again retold.

Here, we are discussing not only sea monsters and natural singularities, but also the power of the Sea itself over Man. Generally, in iconography, the gigantic monster emerges to control the destinies of men and master their oceanic expectations [24]. In Gândavo's work, we find a reconstruction of the concept of the frightening ocean in a clear reversal of power, in which men control

34. See Papavero & Teixeira (2014) *Zoonímia tupi nos escritos quinhentistas Europeus*. NEHiLP/FFLCH/USP, São Paulo, where the authors mention about 1330 Tupi names of animals that were registered by European authors in the 16th century.

35. Illustrations were, in fact, a proxy of the animals. See Kusakawa S (2011) The role of images in the development of Renaissance natural history. *Archives of natural history* 38 (2): 189-213.



the monster. It may be a representation of the heroism and strength to kill the monster and the assurance that, people both control the new space and show, dominance over a vast unexplored territory. It is a guarantee that, in a new geographical and natural space, all that is strange and dangerous can be contained by human force and courage. Also, it shows that relevant information is released to fulfill the need for knowledge of those who will arrive to the new territory or whose curiosity about it is bustling. Thus, some news on the natural world rapidly spread throughout Portugal and, from there, some accounts found their own routes of dispersion throughout Europe [23].

As mentioned earlier, the creation of a ground-

work, through which the natural concepts evolve, gained from the contributions of scholars, but also from simple curious people or collectors. In fact, several amateur naturalists kept networks of contacts in order to be informed about naturalia and to collect or exchange them. Humble collectors and practical experts, such as Adriean Coenen, either unintentionally or self-consciously, acted as key actors in a chain of transmission of knowledge about the natural world [31]. All these authors were supported by the discoveries and descriptions of seamen, clerics, travelers, doctors and others who, with all their empirical knowledge based on their own experience, created a body of knowledge of nature that had grown significantly since the

16th century [5]. Gândavo's story must have been included in some networks of contacts established between men from different backgrounds and motivations, but we should not forget that Gândavo lived in a very unique time period – the middle 16th century.

Alongside the sea routes, the routes for a new natural history and philosophy were starting to be drawn in the early 16th century [5, 6]. There is no doubt that some knowledge was disseminated through Europe; nevertheless, it may not have been through traditional or expected *vias*<sup>36</sup> or even reaching participants equally. Gândavo's work follows the works from the turn of the 15th to the 16th century, when symptoms of change in the Portuguese cul-

36. There was a regular and vigorous exchange of ideas and empirical knowledge between Portugal and the rest of Europe [23], but a key element in the development of these practices is that they were institutionalized in new sites of knowledge production outside the traditional ones, such as universities and humanist circles [5].

tural life began to be observed – the emergence of a humanist interest and the endeavor of overseas journeys [38]. As previous authors, he was drawn to the new experiences together with the desire to report the novelty by means of the traditional systems [38], but he was not yet a 17th-century *literati* [39]. His work, however, generated European interest and emerged into early flows of information despite Portugal's well-established traditions of independence, language and geography [39]. In the first half of the 16th century, a few erudite men in Portugal, and Spain, were already gathering a great deal of information about the world and sharing it with a vast network of correspondents in Europe and all over the globe [38]. But, typically, there were no such activities before this time.

In terms of dissemination of a natural his-

tory of exotic fauna, Gândavo's story worked as a pioneering one. He was a man ahead of his time in many aspects. As other scholars after him [39], the main goal of Gândavo's intellectual efforts was to preserve memories that contributed to the Portuguese imperial project. "*História da Província de Santa Cruz*", as other Portuguese chronicles, reveals a commitment to collect information accurately, but also aspirations to produce an analytical and ideological discourse on the maritime endeavors and its consequences [5, 38]. Through its several vernacular translations, it contributes to early modern natural history, emerging as a product of the new material abundance and eccentricities that flowed into European cities from all corners of the world [5].

Gândavo's work and its diffusion showed that new animals from

new lands and seas were motifs of coeval interest. They were acknowledged and recognized, and their existence was inserted in the annals of the natural histories of a new global world. And, as a result, even though some of the work of other contemporary Portuguese authors has been lost, both because it were written in Portuguese and has never been translated, or because it were never printed, Gândavo's sea monster prevailed. The monstrous marine animal gained significant and rapid attention in some European circles of science and natural history, mostly due to its wonder, the power display of men over nature, and also its simultaneously fantastic and realistic characteristics.

Could this be the one exception, or do other sea monsters await discovery in old Portuguese accounts of the New World?

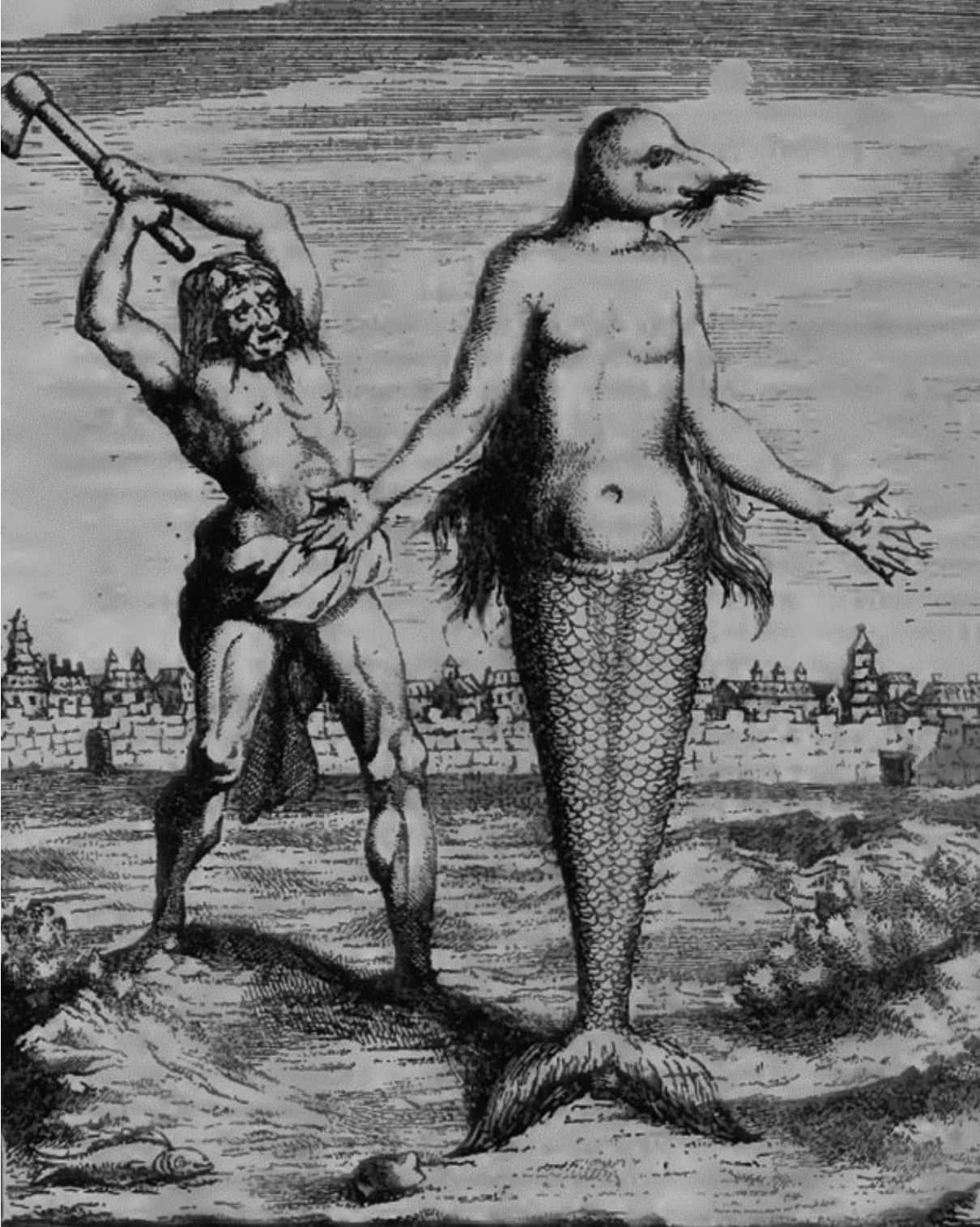


Figure 3.9. Illustration of Gândavo 's sea monster. Drawing in the work by Petrucci, *Prodomo apologetico*, 1677 [35].

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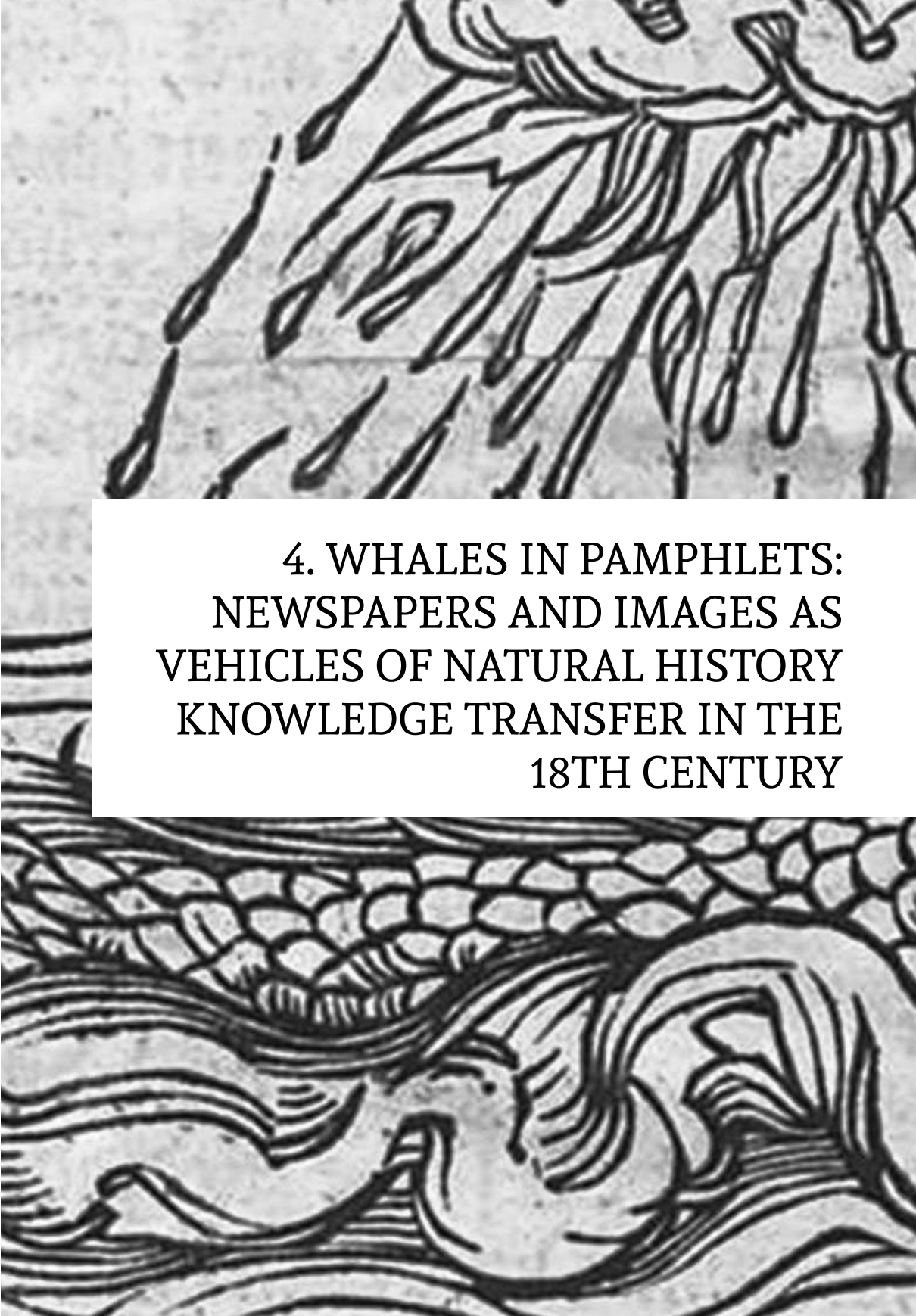
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The image features two woodcut-style illustrations. The top illustration shows the tail of a whale, with several large, pointed, and slightly curved tail flukes. The bottom illustration shows the head of a whale, likely a sperm whale, with its characteristic large, curved, and pointed teeth (spermacete) protruding from its mouth. The whale is depicted swimming in the water, with stylized, wavy lines representing the surface and the water below. The entire scene is rendered in a high-contrast, black-and-white line-art style.

4. WHALES IN PAMPHLETS:  
NEWSPAPERS AND IMAGES AS  
VEHICLES OF NATURAL HISTORY  
KNOWLEDGE TRANSFER IN THE  
18TH CENTURY





## Opening

*«In the year 1582, 8 days before Christmas, so strong were the storms and the winds that people got terribly frightened and scared and the old men said more than 30 years no such thing have been seen (...) in this time a whale came to the shore, a very large whale, that seem to be 60 hands long or more (...)»*<sup>37</sup>

News about exotic or strange, large marine animals started to spread in different printed formats around Europe since the second half of the 16th century. Newspaper reports, usually containing both written and visual information, were included in encyclopedias, compendia and treatises, but

also published in leaflets and journals. These would move from hand to hand more easily, disseminating the available information through distinct means of communication and to different readers.

Whales – the monstrous Leviathan – that represented simultaneously a natural and supernatural phenomenon of God and nature, were usually the most referred or represented in such printed layouts. They were perceived as nature's errors, signs of misfortune or advents of tragedies. Their appearance in certain regions in connection with certain harmful events of Biblical proportions (Figure 4.1) created a feeling of danger that was typically related to them and was perpetuated in oral and written accounts.

According to Portu-

guese accounts, whales (or different types of large fish) were a recurrent topic in records, witnessed from the shores of Portugal and the Portuguese journeys in the Atlantic and other world oceans<sup>38</sup>. Moreover, from the middle of the 16th century, up to the end of the 18th century, information about strange natural events and animals was broadly printed and translated in several vernacular languages, through newspapers, pamphlets, encyclopedias, letters or other printed formats. These narratives became increasingly interesting to scholars, naturalists and collectors, but also to common people, practitioners and craftsmen. Printed news included records and rare occurrences of local or exotic fauna.

37. Our translation from Portuguese. In *Cartório antigo do convento de Nossa Senhora da Insua de Caminha* (ADB - Braga District Archive).

38. See author's PhD thesis: Brito C (2010) *Os Mamíferos marinhos nas viagens marítimas pelo Atlântico entre os séculos XV e XVIII: A Evolução da ciência e do Conhecimento*. Dissertação de Doutoramento em História. Faculdade de Ciências Sociais e Humanas da Universidade Nova de Lisboa. An example of a source where such accounts of whales can be found is: Anónimo (1940) *Roteiros portugueses inéditos da carreira da Índia do século XVI*. Agência Geral das Colónias, Lisboa.

In addition, particularly strange or uncommon natural events could have a visual representation as part of the description.

This was an efficient way of communicating

new evidence and concepts from the natural world but also a way to allow the persistence of given systems of myths or rules in the society. The publications, as much as the whales, served different purposes and were both mythi-

cal and mundane. The dissemination of Portuguese accounts was conducted from the periphery (of the world or of Europe) to the center of knowledge and interest and it was directed to distinct audiences.



Figure 4.1. Representation of a whale in the Tagus estuary (Lisbon, Portugal) sighted in the advent of the 1531 Earthquake. In *The Book of Miracles* (Augsburg, 1550)<sup>39</sup>.

39. The consulted edition was the fac-simile reproduction of Taschen (2014) by Borchert TH & Waterman JP.

Wunderbarliche geschicht anzeyg-  
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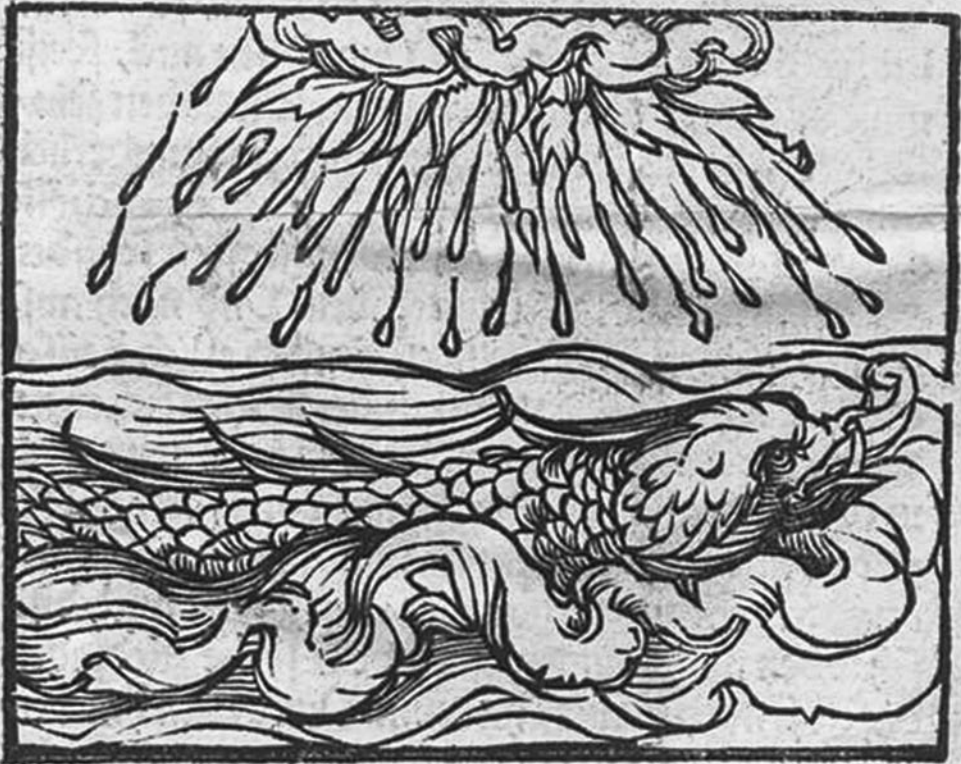


Figure 4.2. First page of a German leaflet showing the so-called Whale of Augsburg, 1531. (<http://daten.digital-sammlungen.de/~db/bsb00008463/images>).

An example of such is the leaflet printed in Germany around the same time as its appearance in the Book of Miracles with the so-called Whale of Augsburg, 1531 (Figure 4.1 and Figure 4.2):

*«It came to the knowledge of lords Fugger [Fucker], from Augsburg, the whale spotted the 18th January and the signs of fire in the sky the 26th January and a great earthquake in Lisbon. They spoke from Mister King's Cardinal who witnessed the destruction of their monasteries and churches. The King, himself, was three miles away from the city, where they also heard the earthquake that lasted until the third day of February.»*

This event, in particular, was noticed not only in Lisbon but also across Europe.

In the *Memorial* of Pero Roiz Soares<sup>40</sup>, which is simultaneously a rich repository of memorable cases that happened in Portugal and of many other records from abroad (compiled and written between 1565-1628), the author offers the readers an impressive number of natural curiosities in a chronological order. But in all the work, there are only a few images, including monstrous human Siamese twins, comets, and the monstrous fish (Figure 4.3). This monstrous aquatic animal could be a whale, a dolphin, a large shark or another fish, a distinction that is not easily

understood through the reading and interpretation of the event. In any case, the event itself was worthy not only of the written description but also of a visual depiction.

Besides the case above, there is also the case of the famous whale stranded in the Tagus estuary (Lisbon) reported in the "*Gazeta de Lisboa Occidental*" in 1723 with a detailed description and illustration of the specimen. It was afterwards translated and printed in a German pamphlet. Both reports have similar titles, although the German illustration is rather different from the Lisbon illustration, as will be seen. Other descriptions of large marine animals stranding on the Portu-

40. A printed version of this work can be consulted in the National Library in Lisbon: *Memorial* de Pero Roiz Soares (1953) Acta Universitatis Conimbrigensis.

foy tomado este peixe que abaxo se uera em Mostranda de Alemanha o qual foy trazido a lubeca e tinha as letras q̄ nelle uerão de huã banda e da outra as quais letras eram de cor douro e tinha Coroa e depois de o peixe se lhe gastar a carne delle ficaram as letras matizadas na espinha de huã banda e da outra ueyo isto empremido Como digo ao Cardeal Alberto o qual peixe he o abaxo pintado.



de man<sup>ra</sup> que este he o peixe e letras que trazia de huã e outra parte escritas e naõ menos espanto fez outro synal que neste mesmo tempo aconteeo no nosso Portugal q̄ foy em Alenteio aparesserem huã menham no ar dous passaros nũca prodigio uistos nem conhecidos nẽ nomeados e tam grandes en cantidade que metiam espanto e toda a menham andarão peleijando no ar

Figure 4.3. Visual representation with a brief description of a prodigious fish that appeared in Germany in the year of 1587, in *Memorial* of Pero Roiz Soares.

guese shore and respective illustrations were also produced from the 18th century onwards. Taken together they seem to show the interest of all levels of the society in such rare and strange events. Furthermore, these “whales” in pamphlets and in other publications contribute to the construction of a modern European

concept of the natural world.

In this chapter, we will draw upon the analysis of Portuguese sources in order to show how several publications contributed examples of such rare and bizarre events, firstly published in Portugal, and then copied and translated into other vernacular languages.

Here, the transfer

of natural history accounts and communication of new concepts of the natural world made their way through networks of curiosities and knowledge exchange. Throughout this process, these new accounts and concepts saw contributions from various actors; the accounts served different purposes and aimed several audiences.

## ‘Gazeta de Lisboa’ and its whale

The tagline of an account published in the newspaper “*Gazeta de Lisboa Occidental*” in the late 18th century was: “A big fish unlike any known species was caught in the Tagus, near Cassilhas”. Although at the time, great whales were already known to at least a part of the society – sailors, fishermen, explorers, naturalists – the general public would not have known that much about them. Thus, the stranding<sup>41</sup> of a large whale in the Tagus estuary (Lisbon) would certainly be newsworthy and of public interest. This interest started building

up centuries earlier with the discovery of new and exotic marine animals from all over the world.

In the 16th century news of strange, rare and monstrous animals started spreading across Europe. These reports, containing both written and visual information, were published and disseminated in various ways. Sometimes they would be included in chapters of encyclopedias and treatises of general and natural history, but they could also be published as leaflets. In this way, they passed easily from hand to hand, spreading the available information to different networks of knowledge and audiences. Common people as well as professionals and craftsmen were becoming increasingly interested in these events, once only

of interest to academics, naturalists or collectors. Much of this printed news, which also included records of rare occurrences concerning local and exotic wildlife, became widely known and enriched natural history knowledge.

Furthermore, the 16th century in Europe was a time of coexistence of diverse printed journalistic media, all feeding public curiosity and interest in what was happening on both sides of the sea, thus creating a market for reporting news. Around the 18th century, information about strange natural events was commonly printed and translated into many vernacular languages, both in newspapers and brochures.

At first isolated publications appeared, known in Portugal un-

41. Stranding refers to an event when an alive, dying or dead marine animal comes ashore or beaches.

der several contemporary names – leaflets, occasional pamphlets and flyers. Other designations from the time of their printing also remained – accounts, news, letters, manifestos and copies. Following an initial phase of production, this type of printed material became popular, and a common way to disseminate information from different sources and subjects.

Another emerging literary genre was trivial literature [2]<sup>42</sup>. The ethnologist Viegas Guerreiro defined this genre as “loose sheets, flyers or brochures, with a popular or semi-popular character, which were sold hanging from a cord or string: plays, slogans, novels, serials” [2]. It addressed and reached a broad audience, so its

production and sales were always intense. The handwritten letters and brochures were products of a circuit of informers, in fact a network of correspondents, designed to deliver information to a certain point. From here they could be integrated in another chain of knowledge production which in turn would feed a new type of informative medium.

The leaflet, usually periodic, displayed some type of order in its composition, under a title and single copy, followed by a succession of information [1]. We are using the term leaflet to describe one-off brochures and flyers that were physically loose, and thus, easily lost. The leaflets had usually a few pages, were a cheap pub-

lication, and served to promote literary works but also fanciful stories about monsters [4].

At this moment, we are only aware of two Portuguese newspaper reports containing descriptions of “big fishes” never seen before in Lisbon, one of them from the “*Gazeta de Lisboa*”. The flyers on marine environment could be grouped into two types, one including marine men and the other monstrous fishes [3], both very common throughout Europe and found in different types of publications. But in Portugal we only found the “monstrous fishes”, and we will therefore analyze, in those cases, the way the news is constructed, along with its content and dissemination.

The “*Gazeta de Lisboa*”

42. The word “*cordel*” (string) in “*literatura de cordel*” (trivial literature) refers to the existence of booklets and leaflets that were attached to strings. This type of literature was mostly poetry rather than prose and was a popular, and very informal, form of poetry [3].

was one of the sources first selected to build our documentary body, as it was one of the most important and long-lasting newspapers in Portuguese history [5]. When "*Gazeta de Lisboa*" first was published in 1715, expressions of journalistic or pre-journalistic character were to be found in Portugal and Europe for over a century beforehand. For instance, one-off publications, some of them "single-issued", such as the famous accounts of shipwrecks of the 16th and 17th centuries, were in a way the ancestors of the report-books. This was the first official Portuguese journal and the main regular publication printed from August 1715 to January 1760 [6]. The birth of this pub-

lication has been seen as a stepping-stone in Portuguese history and its reach is largely underestimated.

The word "*Gazeta*" has been used to name periodicals presenting political, literary, scientific, artistic and religious news, which began to spread across Europe since the 16th century [7]. This particular publication sought to impart, on a regular basis and through a quick reading, the news coming from the Courts, their social, diplomatic and military moves, allowing the Crown to keep under its control the content of the printed news [6]. On the whole, the type of discourse of these publications was informative, even if sometimes also dramatized and

directed to an objective, and its distribution may be considered "massive", considering the context of the time, since the first newspapers and occasional flyers were often read aloud in public places for various listeners. The "*Gazeta de Lisboa*" turned periodic the publication of information that up until then had been irregular. Initially it contained information with a political character, having the Court members as its main readers, and quickly broadened its horizons and began to spread economic, social and cultural news, reaching all across members of society. News on natural history or environment and animals was not, however, very common in this type of



publication.

The account of the large whale stranded in the Tagus estuary (Lisbon) (Figure 4.4) is then, unique and, important to discuss:

*«There is no certain knowledge on the species of the Big Fish, which entered this port last week. Some say it is a Bufalina, which the French call Soufler, id est, Blower, others say it is a type of whale called Kapeku by the Dutch; but as its shape is different from the Whale, and any other known fish, we print it here for the curious, with the measurements of all its limbs, and a short description of its structure, more accurate than last week's. This fish was 87 spans*

*long, and at its greatest girth 43 in circumference (...) The head was remarkably big. Its mouth was 15 spans wide, and its whole circumference was 60. Six men tucked standing within its concavity seemed to occupy a small part of it; the upper chin ended like a nail of an anchor, and had 644 beards instead of teeth, starting with the size of half a span and ending with two and a half next to the corner of the mouth. (...) The lower part was straight and had the same color as the Fish. On the top of the head there were suction cups, or holes through which it breathed, two and a half spans long. Each of the eyes had the diameter of a span and you could count*

*around 13. On the back, it had a span-and-a-half-tall fin, two and three quarters long, and from this until the tail there was a distance of 17 and a half. In its sides it had two wings 11 spans long each (...) It is said that, having come into this river, it slid until the place of the Mother of God, from where it went back to the neighborhood of Cassilhas, and it went so close to the land that it got stuck between two big rocks and could not set itself free and, during the low tide, it found itself on dry land, and its roars were so huge, that it scared away the inhabitants of that district.»<sup>43</sup>*

43. According to "Gazeta de Lisboa Occidental" (the name of the newspaper in 1723). Digital Newspaper Library (Hemeroteca Digital, Lisbon: <http://hemerotecadigital.cm-lisboa.pt/>)

mesmo; e todos os Senhores, e Damas da Corte vestidos de luto apertado lhe beijarão a mão. A 16. fizeram o mesmo o Parlamento, Universidade, e Tribunaes. Tinha S. Mag. ordenado que se fizessem a esta Princeza todas as honras funebres que se deviaõ à sua peilõa; porém como ella pediu exprellamente que se lhe não abrisse o seu corpo, ordenou ElRey que se comprisse a sua vontade; e assim foy logo conduzido a 10. do Palacio de Saint Cloud para a Igreja da Abbadia Real de S. Diniz, sem nenhuma demonstração de luto; indo diante, e junto ao coche, em que hia o seu corpo, os pagens da Cavalharia graude, e pequena delRey, as guardas do corpo do Duque de Orleans; os 100. Esquizaros de Sua Alt. Real, os pagens, e homens de pé da mesma defunta, do Duque, e Duqueza de Orleans, todos com tochas acetas nas mãos, Madamoyse de Charolois, Princeza de sangue nomeada por ElRey para a conduzir, hia acompanhada das Duquezas de Humieres, e Tallard, da Marqueza de Chalteauthier, Dama da mesma Senhora defunta, da Marqueza de Flamarin, e da Vicondessa de Tavanéz; os principaes Officiaes de Madama defunta, e os do Duque, e Duqueza de Orleans se seguiaõ em outros coches, como tambem o Abbad de Saint Gery de Maignas, primeiro Etmoler, ou Capellaõ mór de Madama, o qual acompanhado dos mais Capellães, e do P. dre de Lignieres seu Confellor, appresentou o corpo da mesma Senhora ao Prior da Abbadia de S. Diniz, que com a sua Communidade o veyo receber à porta da Igreja, onde depois das preces ordinarias foy metida na sepultura dos Principes da Casa Real.

#### H E S P A N H A. Madrid 7. de Janeiro.

**E**lRey assistio a 30. do mez passado pela manhã na sua Real Capella, como Graõ Mestre da Ordem de Santiago, acompanhado de hũ grande numero de Cavalleiros della, à festa da Trasladação do glorioso Apostolo seu Protector; a cujas Vesperas assistio tambem na tarde antecedente. No mesmo dia 30. de tarde deu Sua Mag. audiencia ao Embaxador de França, que lhe entregou cartas delRey Christianissimo, nas quaes lhe dava parte da morte da Senhora Duqueza de Orleans viuva; e logo no mesmo dia se expedirão ordens para que as Casas Reaes se vestissem de luto por quatro mezes.

Ao Graõ Mestre de Malta que representou as razoes, que tinha para entender que os apreltos dos Turcos se destinaõ a sitiar a ilha, em que a Religião faz a sua residencia; pedindo soccorro a esta Coroa contra os mesmos infieis, prometteo S. Mag. mandar hum refreco de 3U. homens com fuzidos, e pagos à sua custa.

Aqui se diz que a Corte de Vienna não quer contentir que a Coroa de Hespanha tenha a Praça que pede em Italia, para segurança da succellaõ de Toscana; attendendo à execução do artigo quinto do tratado da Quadruple aliança; e assegura-te que o Marquez Corsini Plenipotenciario do Graõ Duque de Toscana deu Memoriaes a todos os Plenipotenciarios das Potencias, que entraraõ nella, nos quaes protesta em nome de seu amo contra tudo o que se estipular no futuro tratado sobre a succellaõ dos seus Estados sem a sua participação.

#### P O R T U G A L. Lisboa 21. de Janeiro.

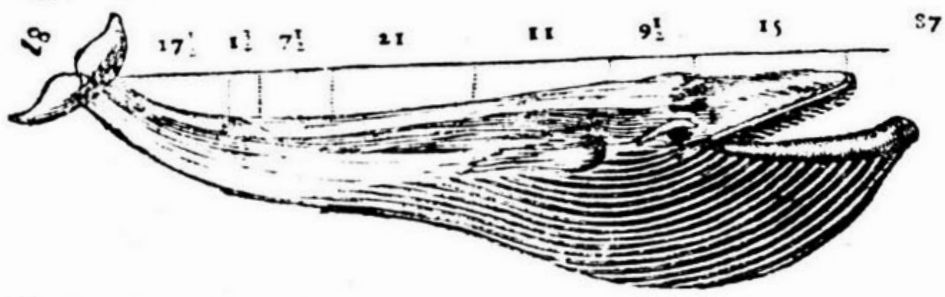
**N**A Igreja do Real Mosteiro de S. Vicente de fóra desta Cidade se celebrou Sabbatho, Domingo, e segunda teira a festa do Desaggravo do Santissimo Sacramento da Freguesia de Santa Engracia com a tolemnidade costumada; ElRey nollo Senhor, que Deos guar-te, assistio nella no primeiro, e no ultimo dia; neste pegou em huma das varas do pallio com Suas Altezas, e com alguns Grandes da Corte. A Rainha nolla Senhora assistio a mesma festa no segundo dia.

Em 12. do corrente entrou neste porto huma nao de guerra da Grãa Bretanha, chamada *Lime*, capitaneada por Mylord Vere; e no dia seguinte partio para o Estreito ( donde esta veyo) outra, que aqui se achava por nome *Dorsety-Galley*, mandada pelo Capitaõ George Turvis.

O grande Peixe, que entrou neste porto a semana passada; se não tem certo conhecimento da sua especie. Alguns entendem ter huma Butalina, a que os Francezes daõ o nome de *Souffeur*, id est, Alloprador, outros que seja certa especie de Balea, a que os Hollandezes chamaõ *Kapeku*; mas como a sua figura he diferente da Balea, e de qualquer outro peixe conhecido, se expõem aqui em estampa aos curiosos com as medidas de todos os seus membros.

breve, e huma breve descripção da sua estrutura com mais certeza, que a semana passada.

Tinha este Peixe 87. palmos de comprimento, e na sua mayor proflura 43. de circunferencia, que por ser pertreitamente redondo, teria de alto 14. e hum terço. Na parte onde acaba a barbatana do ripinhaço tinha 14. de circunferencia. Desde ali hia diminuindo com figura clara até grossura de 2. palmos e meyo fômente, e na parte mais delgada começava o rabo, deitado, e uão ao alto como os outros peixes com 4. palmos de comprido, e 7. em circunferencia, acabando em duas pontas como os das Andorinhas com extenção de 18. palmos. A cabeça era de notavel grandeza. O rasgado da boca tinha 15. palmos, e toda a circunferencia della 60. Seis homens metidos em pé deatros na tua concavidade parecia occuparem huma pequena parte della, to queixo de cima acabava como unha de ancora, e era guarnecido em lugar de dentes de 644. barbas, que principiavaõ com meyo palmo, e acabavaõ em dous e meyo junto ao canto da boca. As de diante occupavaõ 5. palmos de cada lado, e eraõ brancas em numero de 294. As que occupavaõ os dez palmos até a junta dos queixos, eraõ 350. e tiravaõ a cor de chumbo, como a do mesmo Peixe. A parte superior da concavidade da boca tinha hũa especie de sedas como de Javali, quasi brancas, com hum terço de palmo de comprimento, e no meyo huma fôrma de quilha, que continuava da ponta da boca até a guela, branca, e liza, com meyo palmo de largo, e outro tanto de grosso, mas adelgacou to no meyo acabava com dous palmos de largura. A parte de baixo era liza, e da cor do mesmo Peixe. No alto da cabeça tinha duas ventras, ou buracos por onde se respirava de dous palmos e meyo de comprido. Cada hum dos olhos tinha hum palmo de diametro, e contavaõ-se 13. entre hum, e outro. Sobre o lombo tinha huma barbatana de palmo e meyo de alto, com dous e tres quartos de comprido, e desta até o rabo havia 17. e meyo de distancia. Tinha nas ilhargas duas azas de 11. palmos de extenção cada huma, as quaes distavaõ 9. e meyo do canto da boca. Desde os queixos pela parte da barriga tinha 53. listras brancas, e entre ellas outras tantas meyas canas cor de chumbo, com que faziaõ 66. as quaes acabavaõ todas em fôrma pyramidal no embigo, que se distinguia com huma concavidade de meyo palmo, e havia sete e meyo até a via da propagação, a qual mostrava fer teima, e tinha dous palmos e meyo de comprimento, e de cada parte huma maneira, a certa de palmo com seu bico no meyo. A via do excremento tinha hum palmo. A guela hum quarto de palmo de diametro, e desta para a boca lhe cahiaõ sobre o queixo de baixo humas palles como redinhos de perto de dous palmos e meyo brancas, encarnadas, e vermelhas, ou tirantes a roxo. A pelle era delgada, e tão mimosa, que com pouca força, que se lhe applicava, a destaziaõ.



Dizem que havendo entrado neste rio discurrera por elle até o sitio da Madre de Deos, de onde voltára para a vizinhança de Castilhas, e que se lhe á estinto a terra, que entrando se entre huns grandes penedos, não pudera sair dellas, e vafando a mare, se achara em seco, e foraõ tão grandes os urros, que dava de se ver fóra da agua, que atemorizou os moradores do rio de dentro.

Na Officina de PASCOAL DA SILVA, Impressor de Sua Magestade.  
Com todas as licenças necessarias.

Figure 4.4. Two pages of "Gazeta de Lisboa" (1723) showing the representation of a stranded whale in Cacilhas in the 18th century, which accompanies the newspaper report of the event described in detail. Images obtained from of the Digital Newspaper Library.

This newspaper account was later published in a German pamphlet (Picture 4.5), sharing the same event, reproducing its text, and presenting a new picture of the stranding based on the one displayed in the “*Gazeta de Lisboa*”. Again, this is the case of an extraordinary natural event that took place in Portugal and was spread across Europe.

On the title page of the German newspaper “*Der Europäische Postillion*” we see that, despite hav-

ing been provided with a detailed description and a visual representation of the event (news and image published in Lisbon), the new artist modified several aspects of the external morphology of the stranded whale and its environment. It becomes clear that the initial visual information was distorted, very likely with the aim of achieving a visual enrichment of the content, or eventually an adaptation to the local context. Still, both images report

the same event, in which the animal is identified as a large fish. The German brochure assumes the animal got lost in the Tagus estuary, having been carried away by currents to a village near Cacilhas. It follows the original report and we can find a very accurate description of the animal’s condition, its length and color, the number of “fins” and the existence of mammary glands, which identify the whale as female.



Image 4.5. Title page of “*Der Europäische Postillion*”, Augsburg 1723. Representation of the same stranded whale in Cacilhas in 1723. Image is courtesy of the private collection of Klaus Barthelmess †<sup>44</sup>.

44 . See Barthelmess K (2009) Basque whaling in pictures, 16th-18th century. *Itsas Memoria. Revista de estudios marítimos del País Vasco* 6: 643-667.

At this point it should be highlighted that many descriptions and drawings of stranded animals, although based on in situ observations, are the result of observations from dead animals sometimes in an advanced state of decomposition and with their morphological appearance deeply altered. This means that the represented aspect may be quite different from the live animal (Figure 4.6).

As it happens in numerous images, the whales are represented with the tongue or the penis outside the body (internal members during the animal's life), which was a result of the animal's death and not of their biology. Their exaggerated size does not reflect solely the artist's enthusiasm, but also decomposition causing a general swelling of the body due to gas accumulation. Other aspects modified

are described or represented, such as the skin color, due to discoloration or because of having fallen. Marks or cuts on the animals' bodies, due to fights or attacks from other animals, to their cause of death or more commonly to having been dragged onto a beach, result in erroneous descriptions of external features (Figure 4.7).



Picture 4.6. Fin Whale (*Balaenoptera physalus*) coming to the surface to breathe, with its double blowhole visible. Animal photographed off the Azores Archipelago (Portugal) by Mónica Silva.

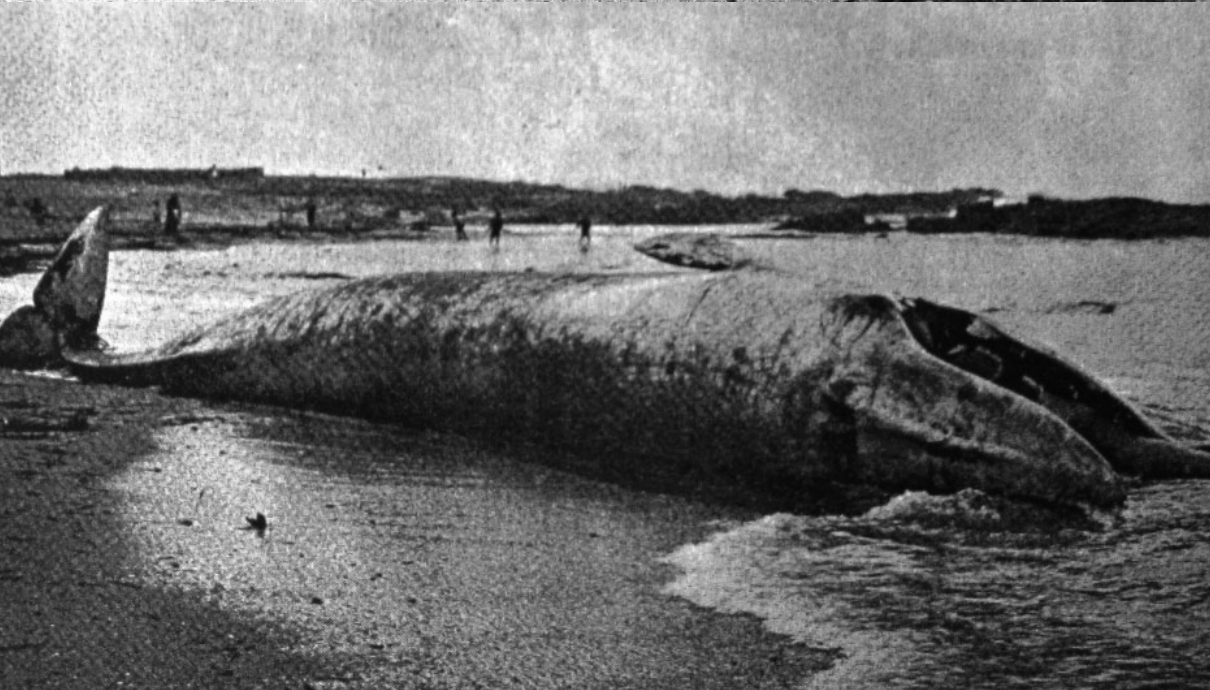
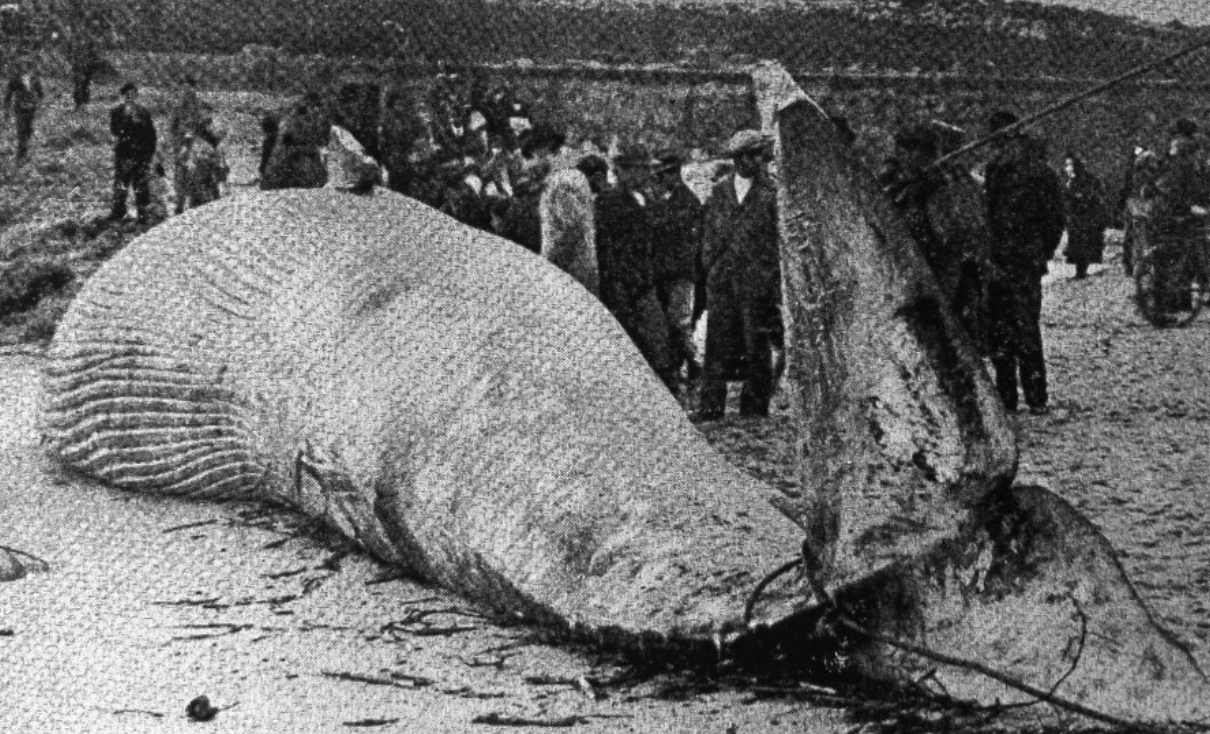


Figure 4.7. Two photographs of a stranding of a baleen whale in the 20th century, with visible folds on the ventral area (the animal is turned sideways) in *Praia do Paraíso* (mainland Portugal). Image taken from the Braga article [8].

## More marine animals in Portuguese leaflets

A second report of a stranded monstrous fish, also with an image attached<sup>45</sup>, appears in a separate booklet dated 1748. The brochure itself is titled “*Account of the monstrous fish, which appeared on Tagus beaches the 16th May of this year of 1748*” (Figure 4.8). This leaflet comprises eight pages and makes references to strange fish with disproportionate dimensions, such as whales. The narrator mentions cases of monstrous fishes, such as a shark, and other descriptions of fishes with strange dimensions captured in the Bay of Cascais, as well as other fishing accounts, calling the captured species “sea monsters”. This term is used due to their unusual dimensions, evoking the naturalist Pliny’s

characterizations<sup>46</sup>. However, the main issue of this pamphlet is the appearance of a large fish in the mid-18th-century on the river Tagus. Here the monstrous creature is seen as a monstrous fish and not a sea monster or marine man. In the narrative a real animal or monster that usually do not harm men is described [3, 9] with a focus on its exceptional character [3].

Taking this description into account, we believe this stranded animal was possibly a shark, specifically the basking shark (*Cetorhinus maximus*)<sup>47</sup>. In this case, the author states that the animal’s name was not known but it had gills, and a large amount of oil was obtained from its liver, which points to a shark. Its large size and unusual shape may lead to different possibilities,

but mistakes easily occur when trying to interpret old accounts of strange or rare animals. For instance, the illustration in the 1748 [9] leaflet is somehow visually similar to another existing representation of a stranded sperm whale in 1784 [10], although they are obviously different animals (Figure 4.9).

The iconography associated with the description of these stranded or captured animals (either based on observations, previous and preconceived knowledge, or both) hinders, to some extent, the interpretation of the leaflets. When the publication joins a visual representation with a detailed written description of the animal, as in the two leaflets above, it becomes easier to suggest species identification in light of current knowledge.

45. It should be noted that both leaflets herein, present the image of the monster at the end of the narrative; this is not a common option in this kind of publications in Portugal [3]. Despite the small size of the images, restricted to the space available at the end of the brochure, text and image complement and reinforce each other, building an accreditation strategy [3].

46. Gaius Plinius Secundus, also known as Pliny the Elder, was a Roman naturalist who wrote the work “*Naturalis Historia*”, in 77 AC.

47. As an informative note, the scientific name of this species of shark stems directly from the Latin *ketos* (sea monster or whale) and *rhinos* (nose).

na armação, que costumão fazer ás pescarias, observaõ este modo: Cada qual, segundo sua possibilidade, tem tres, quatro, cinco, e muitas vezes dez redes, e cada huma dellas de trinta, ou quarenta braças de comprido; por huma, e outra parte vay com laços de hum cordel, a q̃ huns chamaõ guita, outros barbante, enfiada huma cordinha da grossura de hum dedo, mas sumamente forte: em huma destas cordinhas de cinco palmos, vaõ atadas humas pedras de meyo arratel, pouco mais, ou menos; em a outra vaõ na mesma distancia enfiadas humas cortiças redondas, e taõ grandes como a superficie da copa de hum chapeo: cada pescador poem nas extremidades das suas redes humas boyas, que sendo de materia taõ leve, como he a cortiça, haõ de ter meya arroba de pezo: as redes de toda a companhia ficaõ unidas; agora vamos a mostrar o como estes grandes peixes ficaõ presos: topaõ elles na rede, ou vem a ella a comer o que nella está já prezo, e querendo passar avante, puxaõ pela rede, e fazendo esta alguma objecção, o peixe voltandose, e lutando, se vay prendendo nas tralhas, que assim se chamaõ as cordinhas das cortiças; e como sejaõ muitas, e o pezo das boyas pequenas, e grandes, e juntamente das pedras o embaracem, alli fica lutando até morrer nas mesmas redes embaracado: esta he a relação do peixe, que no dia 16. deste mez de Mayo appareceo nas prayas desta Cidade, e na ribeira della esteve por tempo de tres horas, donde sendo levado pelo pescador Antonio dos Santos o Saloyo, e sua companhia ao dito lugar do Barreiro, nelle foy feito em pedaços, donde emanou a noticia dada de suas internas, e externas partes pelo dito pescador a Manoel da Conceição Livreiro, morador na rua direita do Loreto, que agora a offerece ao publico.

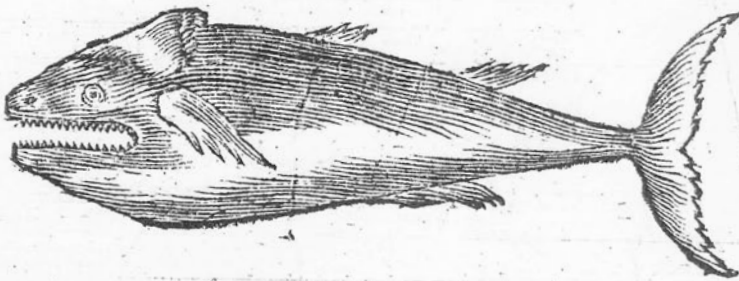


Figure 4.8. Page from the Account of the monstrous fish, which appeared on Tagus beaches “the 16th May of this year of 1748.” Microfilm copy, National Library Portugal (BN).



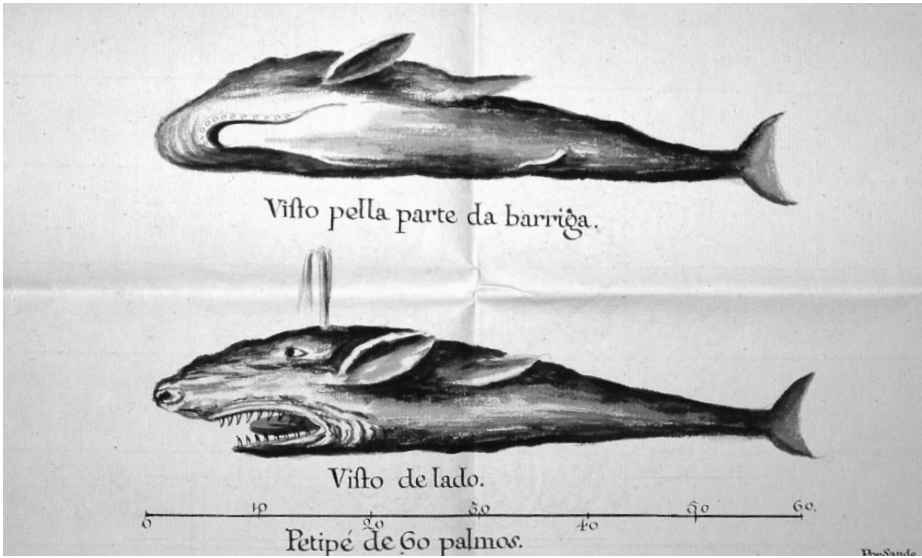


Figure 4.9. Drawing from the 18th century showing the stranding of sperm whales, presenting two views of the animal and its length [10]. Photography by the author; the original is part of the historical archive in *Aquário Vasco da Gama*, Lisbon.

In any case, it is difficult to identify the large and unknown marine animals that reached the Portuguese coast, usually rare events, as even today it is difficult to interpret these sources in the light of current biological knowledge. Rarely are we able to identify in the sources a stranded animal to the species level.

This description followed a series of publications about bizarre events of nature or occurrences of monstrous

beings (people and animals). To our knowledge, this account in particular was not published in other countries. But it is within the typical Portuguese 18th-century line of publishing in which different accounts of “foreign” monsters or prodigies of the natural world can be found.

In our investigation we found accounts for, “*the horrible and formidable monster that appeared in the Empire of Turkey*”, “*the terrible monster that appeared on the Kingdom of Castile*”, “*the prodigious monster that appeared in the Kingdom of Chile*”, or “*the new marvel of Nature,*

*or rare curious account of a marine man*” published in the 18th-century printers of Lisbon. Some of these, as the Portuguese monstrous fish, have images of the monsters but this is not the rule. The presence of a visual representation highlights the relevance and veracity of the event reported. And the proliferation of such news and reports in almost all types of printed publications, reveals the coeval interest on local, foreign or exotic monsters and singularities, which is common to all European nations.

## Production and diffusion of local nature knowledge in the 18th century

The analysis of Portuguese sources of different formats provides examples of rare and strange events concerning marine fauna that reached the shores of mainland Portugal, either physically or through hear-say. In this case, we found particular examples of brochures written and published in Portugal, some of them later copied and translated into other vernacular languages. This indicates the general interest of an Europe at the same time erudite and colloquial concerning these extraordinary subjects. While in the 16th century, literature became increasingly

popular, up to the end of the 17th century, newspapers and diverse “*quasi-literature*” [11] continued to be printed and eagerly consumed by the public. Almanacs, calendars, horoscopes and news’ sheets with varying degrees of veracity [11] abounded in Lisbon and other European cities.

This is, indeed, the case of the fin whale and the monstrous fish. Sometimes, the transfer of information on natural history and communication of new concepts from the natural world was conducted from the periphery to the center of Europe. This information transfer about sea monsters is rare in the 16th, as seen in the previous chapter, but becomes more frequent in the 17th and

18th centuries. In fact, the exchange of information between scientists and the merely curious gained momentum with the publication of the first scientific journals. Later on, by 1850, about a thousand titles were in circulation, increasing in 100 years to ten times that number [12], coincident with the development of science and, consequently, the amount of research.

Over the 16th to early 18th centuries, letters from travelers and naturalists are documents as valuable as the modern journals, especially because they allow for the reconstruction of the context of many expeditions [13]. Although the written evidence produced by travelers and naturalists has been widely recorded in

texts such as field diaries, mailings, books and published articles, we consider the use of images very significant to illustrate the collected information [14]. Either in encyclopedic format editions or in single printed sheets, images became increasingly important from the 16th century on (Figure 4.10), specially if the printed editions were produced for a broader market and more eager for news [e.g. 15]. The proliferation of publications and their formats also allowed for new information about the natural world to be shared among different sectors of civil society.

The various monsters, and their marvelous and rare events, became a recurring subject, where the reality of nature and simultaneously much

fantasy that revolved around it attracted everyone's curiosity [3, 11].

However, the inclusion of illustrative images in publications, brochures and newspapers was not very common at the time. In these cases, the fact they present illustrations alongside with the written content particularly draw attention to what these images represent – large and rare marine animals – a whale and a shark. The detailed descriptions contained in the brochures were apparently not sufficient to convey to the reader the monstrosity or rarity of these creatures that reached the Portuguese coast, captured or dead. The occurrence of these animals was such big news it seemed to justify the visual complement

to the narratives. Thus, some pictures appeared in the brochures of the 18th century, and were continually improved according to the growing knowledge about the animal species.

Large marine animals have always been a paradigmatic examples in terms of iconography about the natural world, particularly the more different, distant and exotic. Several animal groups can be included here, such as marine mammals, marine turtles, seabirds and large fish (including sharks, rays, sawfish, swordfish, and tuna). All these animals bore both a mystical and mundane importance, as they could represent the great Leviathan but were also consumed and used as a marine resource of high

economic value since the Middle Age. In the 18th century strandings or capture of large marine animals become very relevant to the collection and transmission of knowledge about the lives of these creatures, in addition to their economic and cultural importance. The arrival of a whale to a populated coast is an important source of resources but also a main source of knowledge about the morphology and anatomy of marine mammals. Both the body and the mind could be nourished by the arrival

of the large sea monster.

Curiosity was aroused in everyone who watched these events, which soon reached the scholars and intellectuals. Scholars began to produce descriptions and visual representations, ever more detailed and accurate. The strandings, or occasional captures, were the only real ways for some naturalists and other interested people to have contact with these animals since, except for fishermen and sailors, few would have direct contact with living marine creatures. By the end of the 19th cen-

tury these events continued to make headlines in the journals<sup>48</sup>. Even today, well into the 21st century, a stranded dead whale nearby the Tagus estuary (Lisbon) and the village of *Parede*, can attract hundreds of curious people to the location, cause traffic jams, and make headlines in journals<sup>49</sup> and television shows.

So in the premodern period, to analyze and describe strandings was a pioneering science and art, as to “dissect” the animals provided valuable information and data. Observations and

48. See newspaper report of “The Sea Monster” sighted and captured off Ericeira (Portugal) in 19 February 1896 in the chronicle “*Memórias do Tempo*” of the Portuguese journal “*Diário de Notícias*”.

49. See newspaper report of 4 February 2016 “*Mau tempo impede remoção de baleia*” in the journal “*Diário de Notícias*”. In the same month, 120 years later of the previous newspaper report (previous footnote), another whale hits the news and still is the source for comments and speculations from the public.

drawings of these animals, including measurements, including the animal as a whole and lengths of its body parts, descriptions of its physical condition, or descriptions of the location, indicate that the observer would have somehow a critical and scientific mind. Natural history curiosity and scientific inquiry quickly gained their own space, diminishing the realm of the unknown, as the exotic became ever closer to the common. All compiled information and representations, whether more or less detailed and correct, began to take shape within the European natural history. Whales and their representations in booklets and other publica-

tions began, gradually, to play their parts in the construction of modern European conceptions about the natural world.

Moreover, as we have just seen, an alternative body of literature also starts building, such as the newspaper records and leaflets that appeal to those less educated, but no lesser curious or interested in the eccentricities of nature. Thus, when we get to the middle of the 18th century, all accumulated knowledge about the natural world, animals and marine environments spills over into society.

Portuguese and foreign series on monsters, printed during the 18th century, represent a new phase in the evolution of nature-related

accounts since the medieval catalogs of wonders. In fact, these were transition narratives for those accustomed to the bestiary and the new reader, eager for strong and reliable information. And these works were now disseminated through broad distribution networks of contact and trans-national or global circuits [11]. Within these networks, the prodigious, terrible, marvelous, formidable, ferocious, stupendous, amazing sea monsters were looked at with admiration and caution [11], still subjects that best caught the attention of broad audiences.

And, among all monsters, always the whales!

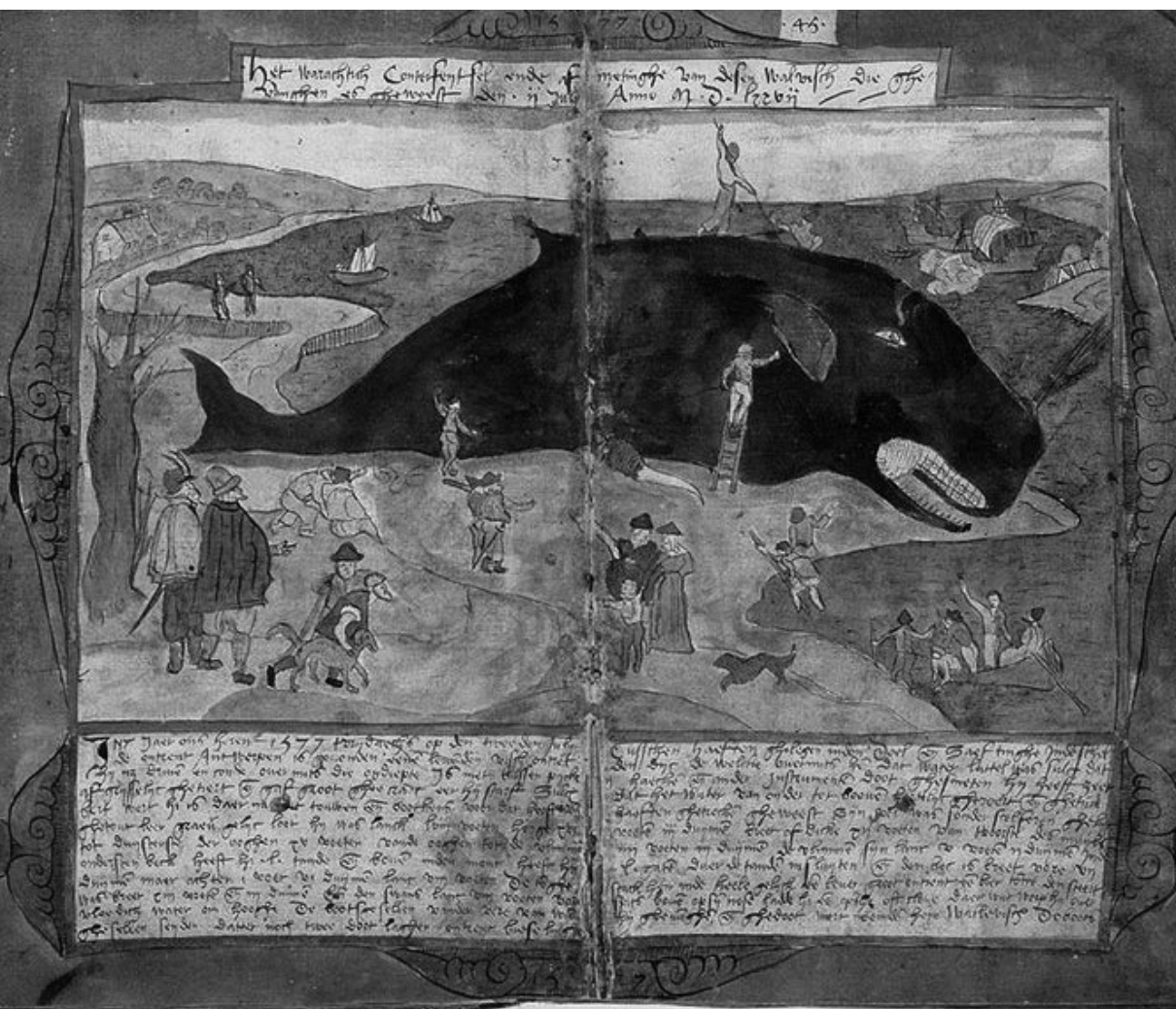


Figure 4.10. A sperm whale beached in 1577, by Coenen, *The Fish Book*, 1580 [16]. National Library of the Netherlands.

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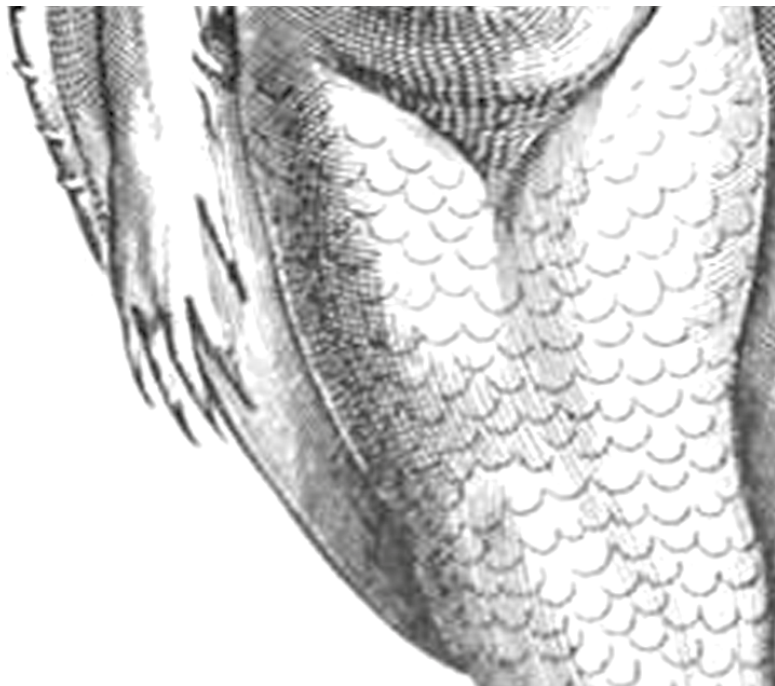
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5. MARINE MAMMALS IN  
EARLY MODERN PORTUGAL  
AND ATLANTIC: PAST AND  
FUTURE





## Introducing an Atlantic history

*«In the beginning there was no Atlantic Ocean».*<sup>50</sup>

The expression Atlantic Ocean, as we use it today would have been meaningless to people in the early centuries of regular transatlantic crossings. In fact, they did not think of the Atlantic as a body of water or a space on its own [1]. The first crossing of the ocean and the subsequent recrossings inaugurated the Atlantic as an integrated system of exchange for people, commodities, and ideas. Even though it was marked by great opportunities as well as great loss and suffering, modernity was born there. The intensive voyages and knowledge of other

people and lands that followed the earlier journeys led participants in all four continents to rethink their inherited lore about the world and its history [1]. Africans were the first to venture to Atlantic islands, followed by Iberian mariners. Portuguese sailors made their grand entrance into the world history as the pioneers in the Atlantic discoveries. Soon, ships from all over Europe crossed the ocean, and people moving in both directions assimilated the newly available knowledge [1].

The onset of the Portuguese maritime discoveries in the Atlantic during the 15th and 16th centuries marked Europe's history, culture, economy and even science. In this period, the sea was the center of the Portuguese activity and politics, consequently yielding rapid expansion of the economic trade and

scientific knowledge in various fields, such as nautical cartography, geography, ethnography and natural sciences. Through their settlement in Africa, Americas and India, Portuguese and other European authors left important traces of their passage in zoology, botany and tropical medicine, and created a significant corpus for the establishment and development of natural history in Europe. New views of the world started to take place over medieval conceptions, and changes in human societies started to emerge. Economic and political benefits of the historical focus on the ocean and coastline left an imprint in the great heritage, and created a place for several European nations, including Portugal, in the annals of history of science and maritime economy.

50. See Kupperman KO (2012) *The Atlantic in world history*. University Press, Oxford.

From the late 15th century to early 19th century, the pace and magnitude of change increased in human societies in every part of the world. In this period, human societies developed the largest, most complex and efficient state and private organizations known since classical antiquity. During the early modern centuries, humans established new links – primarily by sea – around the entire world. In large measure because of maritime improvements, a new, truly global economy coalesced [2]. The Atlantic became a new world for everyone [1]. And very different and far apart

environments composed this new Atlantic world, with ecosystems formed by distinct trophic nets of animals and plants. All the coasts were soon joined by trade [1] and the animals, more exotic or valuable, were regularly traded. Plants and animals, some brought deliberately, but many more unintentionally, dramatically changed life in lands and cultures bordering the ocean [1]. New commodities in increasing quantities and variety flowed to world markets [2]. Several species of marine mammals are examples of such commodities and exotic curiosities. Simultaneously, as seen before,

they offer examples of the new natural wonders reaching Europe from the newly discovered and explored Atlantic and are subject to an intense exploitation and use.

Historians have studied Atlantic human cultures, but rarely have they considered other actors, such as animals, environments or landscapes in the creation of such Atlantic histories [3]. While some authors [e.g. 4] pointed out the ways in which the ocean must be accounted for in the well-established field of Atlantic history, marine environmental history also has the potential to

help historians recover hitherto overlooked oceanic worlds that embrace both humans and animals. Thinking about life beneath the waves transforms our view of events on the surface. It uncovers new historical actors, reshapes traditional geographies, and adds complexity to older

stories of the Atlantic as a projection of imperial and commercial power [3]. Whenever and wherever humans and marine animals came to contact with one another, a history of common interactions and relations began to be written.

With the research presented in this book we

intend to look underneath the Atlantic waves and reveal the complexities of humans' historical relationships with oceans and its animals. This is supported in the principle that the living and changing sea is an important factor in any oceanic history [3].

## Mammals of the sea

Information on exotic animals has always been received with great interest and admiration in Europe, and particularly in Portugal. This information, since the beginning of the modern period, transformed the ways of perceiving and conceiving the Ocean (the Atlantic) as well as all the new marine animals from the open seas and different and distant shores. Since the 15th century, news about exotic and strange marine animals began to emerge. These stories

started as oral histories, then were described in manuscripts and printed books, and finally earned their own space in the conversations inside the salons of the nobles or the common peoples' rooms. All new actors creating this body of knowledge about exotic natural history – explorers but also indigenous peoples – and the vectors of knowledge transmission – the traders, collectors and naturalists – created new stories, but also reinforced myths and traditions already existing on both sides of the ocean.

Marine mammals, a non-taxonomic group that encompasses baleen whales, dolphins,

sperm whales and other odontocete, seals, sea lions, manatees and dugongs, are a good example of this body of knowledge and myth. These animals live in an environment that is strange to humans; they were considered as odd-looking, sometimes frightening due to their large size, and they were simultaneously mythical and mundane. Stories of marine mammals and monsters largely contributed to the new way of observing and describing exotic nature that developed since the early modern era (or era of Atlantic discoveries). These animals themselves, their existence and features, particular-

ly interested the European philosophers and naturalists who, at the time, started to abandon the old encyclopedic treatises' procedures and made way to a new paradigm in terms of a natural history construction. They began including and classifying within their volumes exotic specimens coming from overseas. This led to a new practice by members of different sectors of the early modern society, aimed at compiling written information, visual details, and material remains of these new marine beings. Again, new marine mammals, not being easily transported or preserved, were typically the subject of long written descriptions and iconographic representations that were being kept instead of

the remains themselves. Nevertheless, they lack a proper discussion in the historiography.

In Portuguese historiography, these accounts still remain poorly understood. It is known that exotic animals were particularly used by the Portuguese to obtain political influence in European countries and their exchanges had profound and lasting influence on the visual representation of some animals in art and publications of natural history [5]. But, this was not the case of marine mammals' representations, accounts and remains coming from the Portuguese overseas. Or, these relations were yet to be established.

In this period, Portugal was one of the great collectors of the exotic within the Atlantic [5].

Yet, it was not the major producer of content and materials on the exotic. In most cases, in the 15th, 16th, and even 17th centuries, Portuguese scholars and explorers gathered and collected an enormous wealth of information on the natural history of the exotic and overseas, but did not publish or disseminate it systematically. As a rule, there is no information transmission or translations of the Portuguese works, even the printed ones<sup>51</sup>. Thus, most records returned to and remained in Portugal. In this way, major European naturalists resorted to the works of authors from other nations and languages to enrich their treatises on animals and plants of the world.

There are many examples of large and exotic

51. There are, nevertheless, notable exceptions, such as the work of Garcia da Orta, translated and disseminated by Carolus Clusius. For more information about Portuguese erudite knowledge transmission in Europe, see Lopes' work [4], which describes the reception of Portuguese humanists in Germany and how their findings and testimonies were, in this region and period, considered to be a mirror of the real experience.

marine animals initially reported in the Atlantic and other oceanic basins, and only later in Europe, that emerged first in the stories of Portuguese and other European writers – dolphin-fish and flying fishes, whales (Figure 5.1), sea lions, seals, turtles. At the

same time accounts of the giant and scary sea monsters also emerged. This category of (real) sea monsters includes large, unknown or unidentified marine animals. For our concerns, and for possible future studies, they may be whales and sharks, sea turtles

and sea birds, sea lions and seals, manatees or dugongs. Nevertheless, whales and whaling still remain a major focus of research on the environmental history of the sea and study of the past of natural history.

## Whales, as mythical as mundane

For centuries chasing and hunting whales was a dangerous yet romantic activity, sending mariners and whalers on perilous voyages in search of profit and adventure. For these reasons, the history of whaling has always been

subject of interest. References in historiography can be found, at least, since the early 20th century [e.g. 6] to the present day [e.g. 7]. In fact, in any culture all over the world and across historical periods, whaling has emerged whenever human beings encountered whales and similar animals. The first western people to hunt large whales in an organized and intentional manner were the Basques who became the paradigms

of early occidental whaling, establishing the way the industry would be characterized for the following hundreds of years [8, 9]. The Basques pursued whales in small open boats, attacking them with hand harpoons and lances. This basic technique was used for many centuries and is confirmed to have begun around 1050 [7, 10, 11, 12].

Basque whaling was a highly specialized and dangerous fishery, con-



Figure 5.1. Several large marine animals, probably a school of dolphins, a whale, dolphinfish, tuna and sea birds, hunting a school of flying fish in a seascape from “*India Orientalis*” IV, 1599/1600 by Theodore de Bry.

ducted from the Basque shores [13]. They hunted mainly the Biscay right whale, so called because of the early location of whaling in the Bay of Biscay, also known as the black right whale (*Eubalaena glacialis*) [13, 14]. The Basques also ventured to distant regions across the Atlantic Ocean where they set up permanent or semi-permanent shore stations for processing

whales [13, 15, 16, 17, 18]. But before that, a local and regional expansion occurred since its early beginnings along the shores of the Bay of Biscay in the north of Spain [13]. As shown by Aguilar [17], Basque historical sources indicate that whaling started in the Basque French country and followed on to the south and west over the years, through a process of information and

technology transfer. Along the French and Spanish Biscayan coasts there are several towns and villages whose seals and coats-of-arms depict whale-fishers. Ancient whaling bases have been discovered along the length of this coastline, which also encompasses the provinces of Santander, Asturias and Galicia. In contrast, mainland Portugal was not renowned as a rel-



evant whaling nation. In the 20th century, there were two periods when short-lived enterprises operated whaling shore stations on the mainland and used modern, Norwegian-type, whaling technology [19]. Besides the important presence of land-based whaling from the archipelagos of Madeira and Azores, mainly active during the 20th century, no other significant episodes of whaling are historically attributed to Portugal. However, preliminary studies have brought to light enough historical evidence to suggest that this activity has

occurred since the 12th century, with stranding or whaling-related activities recorded in several coastal regions [20]. At that time, different Portuguese fishing villages started to use several whale products [21, 22, 23]. The Portuguese coastline is, and certainly was, favored by good tides, a temperate climate and an abundant and diverse marine fauna, making it amenable to the undertaking of several different fisheries and marine salt extraction. Consequently, is not surprising that medieval Portuguese populations turned to

the exploration of local marine resources following what was probably a much older tradition [21]. The same is true for the exploitation of large whales and small cetaceans in the inshore waters of mainland Portugal, practices that seem to be significantly older than firstly expected.<sup>52</sup>

Earlier studies [20, 23] showed the existence of numerous historical sources documenting whaling and whale use on the Portuguese coast. A peak of whale-related sources comes from the 13th and 14th centuries and almost all Por-

52. Knowledge and understanding of whale use across medieval Europe is still sparse. According to Szabo, medieval people viewed whales as great resources, but greater terrors; they were simultaneously marvellous and mundane. For a complete discussion on medieval traditions of whaling in the North Atlantic, see the book by Szabo VE (2008) *Monstrous Fishes and the Mead-Dark Sea: Whaling in the medieval North Atlantic*. Brill: Leiden, Boston.

tuguese accounts and those about the French and Spanish Basque countries are contemporary, thus the beginning of the whaling activity seems to be coeval. No geographical cluster of whaling activities was yet established nor was an expected chronological north-south movement of coastal whaling activities discerned. The geographical and chronological patterns give support to the assumption that whaling was not introduced to Portugal by the Basques, who are known to have spread westward from the French Labourd (11th century), via the Gulf of Biscay, to Asturias, and southward to Galicia (14th century). Rather, Portuguese whaling use seems to have originated independently of Basque influence. Some sources specify black whales as the target species, which

is consistent with modern knowledge about the distribution and migration patterns of North Atlantic right whales at the time of Basque medieval and early modern whaling. The Portuguese sources are still not clear as to numbers of whales taken, nor to the whaling technology used, but the activity was sufficiently well organized and developed to warrant the levying of tithes in the feudal system of 13th century Portugal [20]. Also, the activity must have continued through the 16th and 17th centuries in Portugal [23].

Using whaling as a case-study, it is also possible to reflect on the Portuguese contribution to the establishment of new commercial systems in the Atlantic, and to a new sense of the experience and meaning of nature, as they were crucial mediators in the ac-

cess to new knowledge and new ways of exploring and representing the natural world during the early modern period [5]. Shore-based whaling occurred in Portugal over the centuries [20, 23], but its chronology is not. For instance, there seems to have been an unexplained interregnum of the activity somewhere after the 14th century [24], perhaps due to an environmental collapse of the natural populations of whales, or possibly related to social and economic constraints in Portugal, resulting from the maritime expansion. More research is needed about this subject [24, 25], as has been continuously done by different researchers from other countries that historically, up to recent times, approached the system of whales and its hunt [e.g. 26, 27].

## Manatees discovered, mermaids uncovered

The manatee (*Trichechus sp.*) or sea cow, is an herbivorous marine mammal living in tropical waters, in the East and West Atlantic. It probably became known to the peoples of Europe when the Portuguese began to explore to the South the West coasts of Africa. It has a counterpart in the Indian Ocean, also familiar to the Portuguese early on, the dugong (*Dugong dugong*). These animals are certainly the zoological

correspondents of the mythical mermaids (Figure 5.2), sea creatures (half woman, half fish) that cross cultures and eras enchanting people from all over the world since ancient times.

When crossing the Atlantic, the Iberian navigators found these animals throughout the islands and coasts of Central and South America. Columbus is believed to have been the first to observe and describe (or at least to mention) the manatees, those “ugly mermaids”. This opened up the door to the immediate acceptance of the various descriptions of manatees made by Castilian authors (or concerning Castilian lands overseas) that followed. The work of Gonzalo Fernández

Oviedo<sup>53</sup> included, for the first time, a written description and an illustration of a Caribbean manatee, which enters the European circuit of Natural History through Carolus Clusius’ work<sup>54</sup> and is assimilated and quoted by several naturalists of the 16th and 17th centuries. Ulisses Aldrovandi uses this author as a source for his manatee, and quotes the work of Clusius, with its illustration which was copied and reproduced frequently thereafter. This author also establishes the terminology that would be adopted: “*Manati*” or “*Vacca marina*” (Figure 5.3). This allowed equally for discarding many of the first contemporary descriptions coming from Brazil to Portugal.

53. See Oviedo GF (1995) Sumário de la Natural História de las Índias. Edición de Nicolás del Castillo Mathieu, Santafé de Bogotá.

54. See Clusius C (1605) Exoticorum libri decem. quibus animalium, plantarum, aromatum...: Item Petri Belloni Observationes. Reprod. de la ed. de: Anvers : Ex officina Plantiniana Raphelengii.



Figure 5.2. Mermaids, or the representation of the Sea Goddesses Eurynome (an ocean deity of the ancient Greeks) by the Italian mythographer and diplomat of the Italian Renaissance Vincenzo Cartari (1531-1569).

A similar situation happened with the descriptions of some animal species made by Frei Cristóvão de Lisboa [28]. Among others, this author wrote a work

in the 17th century, in which he included an entries about the Amazon manatee and the Amazon porpoise. In the latter, the description and identification of the

species by the author remained unknown to the coeval science and until very recently even to current science [29].

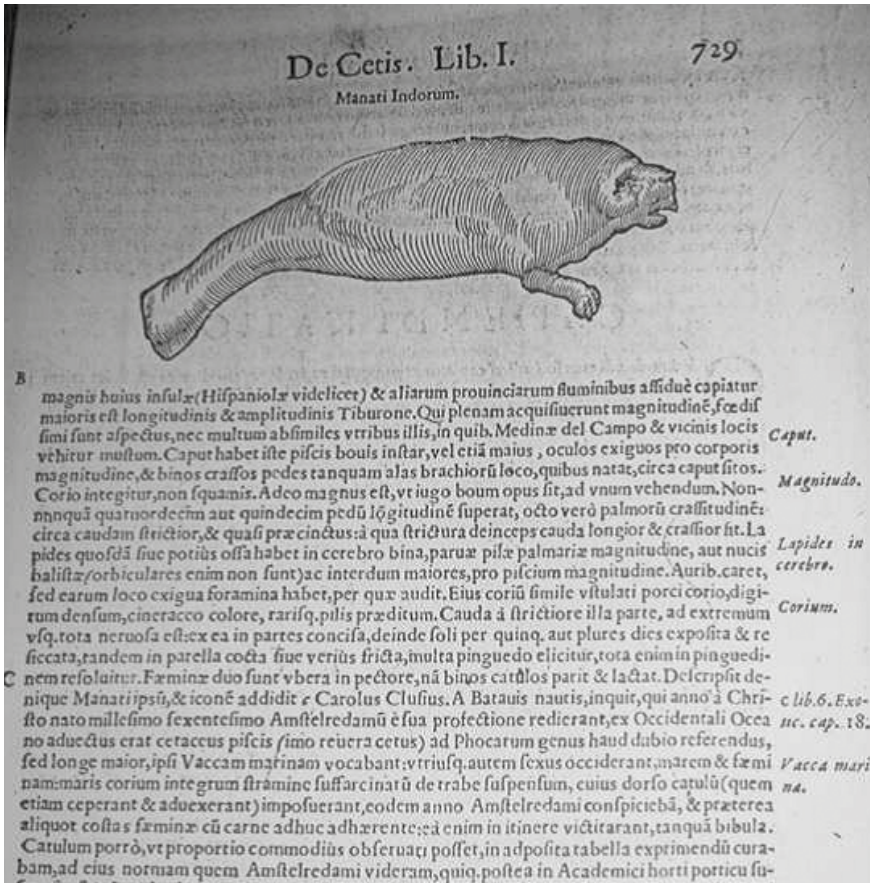


Figure 5.3. A manatee in the work by Aldrovandi (1613)<sup>55</sup>, copy of the image published by Clusius (1605). Library of the National Museum of Natural History Madrid.

55. See Aldrovandi U (1613) De Piscibus Libri V et de Cetus Lib. Unus. Ioannes Cornelius Uteruerius... collegit. Hieronymos Tamburinus in lucem edidit... Cum Indice copiosissimo. Bononiae [Bologna]: 4 h., 732 pp., 14 h.; Fol.

In a similar process of information sharing and dissemination, several descriptions of the same animal – manatee (the species of the Brazilian and African coasts) – concerning the Portuguese Atlantic, have emerged roughly contemporary to one another. José de Anchieta<sup>56</sup> describes the “Sea Ox” or “Iguaraguá” in the Captaincy of Espírito Santo, and other areas more upnorth, as Gândavo also did:

*«And leaving aside the wide variety of those fish that commonly do not differ from ours, I will*

*solely refer a certain kind of fish to be found there, which they call manatees: they are so large, that the biggest might weight six hundred to seven hundred fifty kilos. They have a muzzle like an ox and two stumps they use to swim as if it were arms. Females have two teats with milk to raise their children. The tail is broad, blunt and very long.*

*They do not have any feature like any fish, except for the skin that looks like porpoise. These fish are mostly found in some rivers, or bays of this coast, especially where a brook or stream gets into salt water: fort hey lay their*

*nose out and munch herbs found around there and also eat the leaves of some trees called mangroves, abundant along the same rivers. The inhabitants of the land kill them with spears and also with boats, because they come to such places with the tide and with go back to the sea where they came from with the ebb tide. This fish is very tasty and very similar to meat, in the way it looks and tastes: if roasted, it is just like pork loin» [30].*

The manatee is also mentioned in the works of Gabriel Soares de Sousa, Jean de Léry, António

56. See Anchieta J (1946) Primeiros Aldeamentos na Baía. Coleção Brasileira de Divulgação, Série IV, História, Nº 1. Imprensa Nacional, Rio de Janeiro. Anchieta J (1946) A Província do Brasil (1585). Coleção Brasileira de Divulgação, Série IV, História, Nº 2. Imprensa Nacional, Rio de Janeiro. Anchieta J (1946) Capitania de S. Vicente. Coleção Brasileira de Divulgação, Série IV, História, Nº 3. Imprensa Nacional, Rio de Janeiro.

Galvão and Fernão Cardim<sup>57</sup>, in the late 16th century, referring to the Portuguese America. Two other works referring to manatees with high scientific and visual accuracy were written in the 16th and 17th centuries (handwritten or published). This is the above-mentioned work by Frei Cristóvão de Lisboa [28], which remained unknown and unedited until the middle of the 20th century, and the description of Father António de Montecúccolo Cavazzi including the “Marine-woman” or “Fish-woman” (Figure 5.4), the African manatee [31]. Again, as far as we know, none of these cases is quoted, known or used in the scientific production of early modern natural history in Europe.

This is a theme that from time to time has caught attention of researchers [e.g. 32] but is still clearly understudied by present-day scholars. We expect that, in the future, manatees (the African *ngulu-a-maza* or the *Tupi iguaragua*) will make their contribution to the establishment and evolution of knowledge on the natural world and of concepts made both by Europeans and indigenous peoples in different parts of the Atlantic world.

It becomes ever more evident that all early modern actors created new stories and processes, but also reinforced existing myths and traditions. They were the producers of a new body of knowledge about exotic natural history, the vectors of knowledge

transmission, and the receptors of new information. A comparative approach to this theme using written and iconographic sources from the European overseas experience will allow for a wide understanding of new practices by, and views of, early modern societies. The use of long-forgotten Portuguese sources, in comparison with Spanish, French and English sources, provides a much-needed dimension to this research. Moreover, it allows an approach to local production of knowledge on the natural world, local perceptions of nature, and the construction of local and global concepts regarding the natural world.

57. See Sousa GS (1989) [1587] Notícia do Brasil, Descrição verdadeira da costa daquele Estado que pertence à Coroa do Reino de Portugal, sítio da Baía de Todos-os-Santos. Coleção Alfa, Biblioteca da Expansão Portuguesa, n° 11, Lisboa. Léry J (1578) Histoire d'un Voyage fait en la Terre du Bresil, autrement dite Amerique. A La Rochelle, Pour Antoine Chuppin. Galvão A (1989) [1573] Tratado dos Descobrimentos. Coleção Alfa, Biblioteca da Expansão Portuguesa, n° 13, Lisboa. Cardim, F (1980) [1540?-1625] Tratados da terra e gente do Brasil. Introdução de Rodolfo Garcia. Ed. Itatiaia Belo Horizonte; Ed. da Universidade de São Paulo.

## Final remarks

New research methods and approaches are needed. Hybrid practices of investigating the past relationship of humans and the ocean are the key. These approaches to oceanic histories must also get their inputs from rising disciplines such as marine environmental history [33] and historical ecology [34], and allow for cross-chronological and cross-source efforts, through the networking and en-

gagement of different present-day stakeholders. Marine animals, exploitation and use, products traded knowledge on the natural world since early modern times, the evolution of scientific research, and the accomplishments obtained presently through the use of technology may work as an analytical framework of investigation and comparison for the Atlantic. This oceanic basin will, in turn, emerge as a coherent unit of past and future scientific understanding.

The Atlantic as a unit started to emerge in the

early modern period and became itself a subject of inquiry. It allowed connecting people and regions, to develop commerce networks and to create a new sense of a global world and a new perception of nature and its elements as a whole [35]. The 15th century heralded the onset of Europe's global ocean exploration [35] in a period when the Atlantic possibly experienced a close to pristine situation regarding ocean environmental equilibrium. Levels of the populations of predators and prey were probably relatively stable and fluctu-



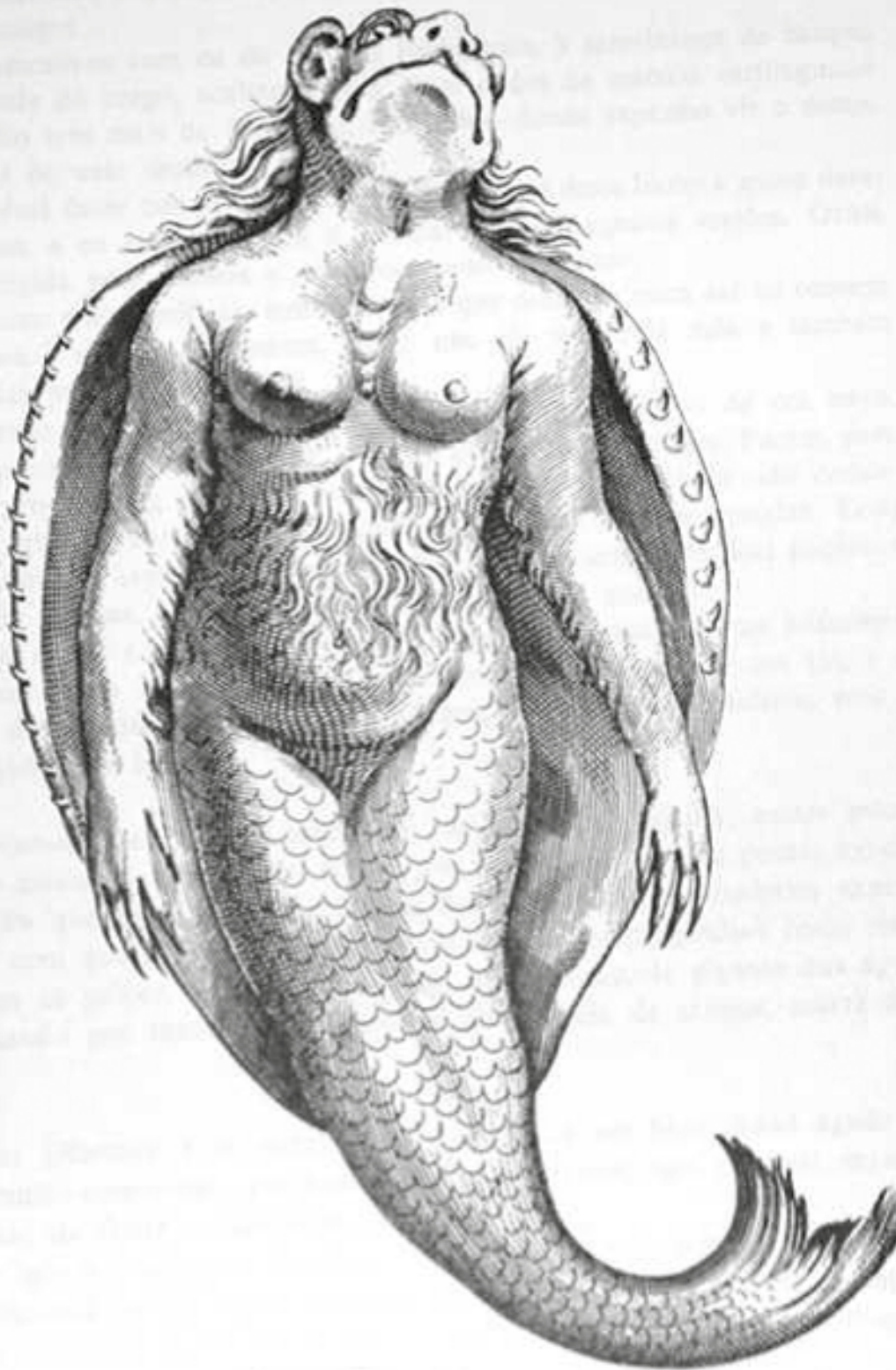


Figure 5.4. The woman-fish described and illustrated in the work by Cavazzi (1687) [31].

ated naturally. Natural disasters happened with much more localized effects and the impacts of climatic shifts were gradual and predictable.

Marine resources were historically exploited, however, until the advent of industrialization, rapid depletion and ecological tipping effects were hindered by lack of technological advances.

In the present time of total globalization, access to key natural resources, such as seas and oceans, has to be managed in new balanced and sustainable manners, unlike most historical examples show us. But for the future con-

servation of human lifestyles in coastal zones, to the management of marine natural populations and human maritime activities, we may and can rely on what the past has to tell us.

The puzzle of Atlantic Ocean environmental history – including humans' explorations and perceptions – will soon be completed. So what are, in fact, the larger patterns and issues to be addressed? What is an Atlantic pattern? What sorts of marine environmental impacts are we talking about? What shared historical processes might these case studies demonstrate? The historical processes

expected to emerge from such transdisciplinary efforts are, at least, four: intensified human sea use over coastlines and open ocean; intensified commercial fishing, whaling and trading in the Atlantic; transfer of knowledge, expertise and techniques over an oceanic basins, and; change of perceptions towards the marine environment and the communication of new views of the natural world. And the analysis of these processes is as relevant to the present and future time as it is for the events of the past [4, 33, 34].

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cies in past seas, but also with the diversity and abundance of works produced by early modern Portuguese that, in the Atlantic, were observing and describing oceans, habitats and animals. Moreover, I came to understand the relevance of marine mammals – sometimes, sea monsters – to the comprehension of a all new nature.

I hope I was able to present you with a bit of these discoveries and exoticism, and I expect that we may, in the years to come, uncover the enormous iceberg of knowledge still laying below the small pieces of novelty presented here.

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Rafaela and Cristina, 2015  
Photograph by Fernanda Moutinho Barros