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The Roman Ethnozoological Tradition: Identifying Exotic Animals in Pliny's Natural History

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A thesis submitted in partial fulfillment of the requirements for the Master of Arts degree in Classics

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THE ROMAN ETHNOZOOLOGICAL TRADITION: IDENTIFYING EXOTIC ANIMALS
IN PLINY'S *NATURAL HISTORY*

(Thesis format: Monograph)

by

Benjamin Moser

Graduate Program in Classical Studies

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts

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Abstract

Only recently has Pliny's *Natural History* garnered favourable reception, as scholarship has expanded from Quellenforschung and the comparisons to modern biological understanding to a more balanced approach. Continuing with this perspective, I seek to appreciate both the *Natural History* on its own merit, free of modern scientific scrutiny, and Pliny as a participating author in the work beyond the previously stigmatized compiler or unknown perspective. I address the question of the *Natural History*'s position within the ancient zoological tradition, examining the Aristotelian influence on Pliny. I investigate three case studies: the haliaëtus and its (non-)genus; the relationship between and identification of the *panthera* and *pardus*; and the *crocota* and the (mis-)identification of Aethiopia. I further reveal Pliny's understanding and presentation of these exotic animals in his work, illuminating also our understanding of the Roman ethnozoological tradition and the pitfalls when trying to identify these animals from a modern taxonomic perspective.

Keywords

Pliny the Elder, *Natural History*, Aristotle, *Historia animalium*, Roman, Ancient Greek, *genus*, *species*, *genos*, *eidos*, classification, taxonomy, ancient science, ethnozoology, *crocota*, *krokottas*, hyena, *panthera*, *pardus*, leopard, cheetah, panther, Aethiopia, eagle, *haliaëtus*, *ossifraga*, Aelian, Ctesias, ancient geography

וַיִּצְרֹף יְהוָה אֱלֹהִים מִן־הָאֲדָמָה כָּל־תְּנִית הַשָּׂדֶה וְאֵת כָּל־עֵוֹף הַשָּׁמַיִם וַיִּבֹא אֶל־הָאָדָם לְרֹאוֹת
מִה־יִּקְרָא־לּוֹ וְכָל־אֲשֶׁר יִקְרָא־לּוֹ הָאָדָם גִּבְשׁ תְּהִה הוּא שְׁמוֹ:
וַיִּקְרָא הָאָדָם שְׁמוֹת לְכָל־הַבְּהֵמָה וְלַעֹוֹף הַשָּׁמַיִם וְלִכְלֵ תְנִית הַשָּׂדֶה וּלְאָדָם לֹא־מָצָא עֹזֵר כְּנֶגְדּוֹ:
(בראשית ב:יט-כ)

ὅτι ἐξ αὐτοῦ καὶ δι' αὐτοῦ καὶ εἰς αὐτὸν τὰ πάντα· αὐτῷ ἢ δόξα εἰς τοὺς αἰῶνας, ἀμήν.
(ΠΡΟΣ ΡΩΜΑΙΟΥΣ ια'·λϛ')

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Praise be to God for all He has done for me. Thanks be to Jesus Christ my Lord and Saviour.

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Introduction

As a resource on the natural world, Pliny's *Natural History*, was considered an authoritative text from its creation in the first century A.D. through the medieval period, but ultimately fell from this position with the scientific revolution which fostered observations repeatable and testable.¹ Under this approach, Pliny was deemed a poor scientific source and scholars such as Rudolf Wittkower and William Stahl have criticized Pliny for being an uncritical and inattentive compiler of information.² This opinion of Pliny has largely been dismissed as scholarship has shifted from viewing the *Natural History* in light of modern scientific understanding to, recently, a more literary-based analysis of the *Natural History* with emphasis on encyclopaedism and its worth and purpose in edifying the Roman Empire; Sorcha Carey, Aude Doody, Clemence Schultze, and Trevor Murphy embody this movement.³ Although this approach provides a valued consideration of Pliny's work, I think that it has drawn our attention too far away from the scientific merit the *Natural History* possesses. Not only was the work a

¹ Gudger (1924: 270) reasons that the *Natural History* must have been so popular based on the number of manuscripts and editions produced during this time; for the evolution of the popular approach to the *Natural History* from its linguistic roots to scientific understanding, see Nauert Jr. (1979: 72-85).

² Bodson (1986: 98): some of the criticism results from a comparison to Aristotle. Since Pliny wrote after Aristotle, some expect(ed) him to present an improved version, but Bodson rightly points out that this was never his aim as Pliny himself indicates (*NH* 8.17.44). See also Wittkower (1942: 160-161); Reymond (1955: 105); Stahl (1962: 103); French (1994: 207).

³ Carey (2003) touches upon how Pliny's *Natural History* exemplifies Roman imperialism (p. 25), since conquest and the catalogue are intertwined (an argument favoured by proponents of viewing Pliny's work as an encyclopedia praising the Roman Empire). Although it cannot be denied that Imperial expansion provided much of this knowledge for the Romans, I concede that Pliny may have sought to incorporate this information into the Roman sphere, emphasizing Roman ideals and culture. Yet this strategy can be just as easily explained as a means through which Pliny could make his writing more accessible and interesting to his Roman audience, while delivering information about the world and its cultures previously unknown to them. I have to wonder how pronounced this concept of Roman imperialism is in the *Natural History*. I think this stance reveals a modern over-commitment to viewing everything Roman as expansion and conquest. Carey supports this argument through the characterization of Pliny criticizing his Greek sources (p. 24) revealing his own superiority to them and, through inference, Roman supremacy over the Greeks. But I would counter that Pliny is just as thankful to his Greek sources, notably Aristotle. Much of his information on zoology is only accessible because of non-Roman writers, including Juba and Aristotle, whom Pliny is not necessarily seeking to correct, but rather add the few details he knows. Carey also suggests that there is a connection between the Latin language and unpronounceable "barbaric" languages which displays Roman conquest (p. 35); Carey mentions the practical purpose of excluding the meaningless foreign names, yet unfortunately dismisses this reason without much cause. Pliny will at times include foreign names, including the *nabun* for giraffe (*NH* 8.37.69) and *rufium* for lynx (*NH* 8.38.70), and many names of plants and animals have their roots in Greek and other non-Latin languages. See also Murphy (2004); Doody (2010); Schultze (2011).

means through which to praise Nature, which Pliny's continual admiration of her works thoroughly demonstrates, but also a provision for the Roman people, both specialist and layman alike, for the knowledge Pliny felt was necessary for a proper citizen to possess.⁴

Although I concede that the *Natural History's* value to our modern scientific understanding of the world is much less than prior to the scientific revolution, we can nevertheless learn much from it in the realm of ethnobiology: the study of how a culture views or interacts with nature. Studies of its treatment of botany, such as Jerry Stannard's, have not only bettered our understanding of how the Romans viewed the plants around them, but more importantly how they used these plants and incorporated them within their society.⁵ The same can be said about zoological understanding: J. M. C. Toynbee and, more recently, Hazel Dodge have discussed the human-animal interactions in the Roman world, especially domestication, usage and spectacle.⁶ Pliny himself has been a contributor to such undertakings, frequently addressing the issue of medicinal and

⁴ For a corrective approach to viewing Pliny's *Natural History* as an encyclopedia, see Doody (2009: 3-4). I agree with Doody's statement that the genre of encyclopedia was not likely recognized in antiquity and it is only our hindsight which makes the connection. There is of course merit in understanding the work through modern awareness, but we must be careful to not impose something upon it that neither its audience nor author intended. Doody also addresses the issue of *enkuklios paideia*, the meaning of which is currently debated. Some scholars derive encyclopaedism as a possible meaning for this Greek concept of education encompassing a multitude of subjects (pp. 11-17). I, however, agree more with Doody's view that *enkuklios paideia* means a proper or formal education leading to further disciplines (p. 17). This would then explain Pliny's apparent lack of specialist language at times (a thought brought out through comparisons to other writers, particularly Aristotle, but this too is under debate), as well as the all-encompassing subject matter and his preference for anecdotes providing lessons on morality and how to be a good Roman citizen. See also Doody (2010: 37); Schultze (2011: 170-171) addresses exempla in Pliny's *Natural History* as a means to challenge Pliny's contemporary Romans and deal with growing extravagance and *luxuria* (p. 178). This too suggests that the *Natural History* is not necessarily meant to praise Roman imperialism particularly if Pliny displays a concern that these conquests had a negative impact on the morality of his fellow Roman citizens.

⁵ Stannard (1965: 422-425) sees Pliny as a benefactor, providing contemporary practices and views, utilizing his own eye-witness accounts to bolster his descriptions. Not only that, but Pliny uses some of the "technical" language which has become standardized by modern day botanists. I, however, disagree with Stannard and think that much of this technical language was simply the descriptive words the Romans used to characterize the world around them and should not be viewed as more than that. I admit that this vocabulary influenced later scholars and scientists, but to no greater degree than the rest of Latin and Greek did in their respective disciplines.

⁶ For a thorough examination of animals in Rome, including games, parks and triumphs, and how these animals were viewed by the general populace, see Dodge (2011: 47-57). See also Jennison (1937); Carcopino (1940: 237-239); Farrar (1998: 155-159); Bowe (2004: 52-53); Östenberg (2009: 168-170). The general consensus seems to be that birds, fish, deer, rabbits and other native wild animals were the majority of fauna found in Roman gardens and parks; the large cats seem to be the most common "exotic" animals appearing in Roman games.

culinary uses of animals as well as the games and shows the Romans held. Yet there is still much to learn from Pliny in how the Romans understood exotic animals, not just those foreign to Italy, but even those with whom the Romans would not have been familiar in a natural setting.⁷ Pliny provides a favourable opportunity in that he has gleaned most of what he knows from books and secondary sources.⁸ This represents the knowledge readily available to a well-read Roman elite and might be their only source of zoological information concerning exotic animals beyond the few, rare personal experiences in games, hunting or travel.

This view is not unanimous, however, and one key issue may be raised; Murphy seems to characterize this opposition to my view when he says:

As a consequence, readers who want to find a unitary Pliny at the bottom of the *Natural History* will be driven to making an arbitrary division between the surface of the text, to be dismissed as merely rhetoric or tradition, and the real thoughts of the author. This means privileging whatever passages can be found that may contain authorial reflections (...) mining for a voice, a consistency, an individual perspective that is not elsewhere in evidence. However, what are taken to be Pliny's real attitudes, when his rhetorical postures have been subtracted, can just as well be read as traditional rhetorical statements (...) Though they may be stated in the first person, they are not necessarily more representative of the 'real Pliny' than the rest of the text, and there are no good grounds for privileging them over the rest of the book. There is more than one 'Pliny', that is, more than one perspective on Nature authorized by the text. Any reading that isolates a single passage from the *Natural History* and says of it 'this is what Pliny thought in his heart' risks limiting what is really a many-voiced text. (Murphy [2004: 10-11])

One might take this very exception to my current study. First off, Murphy's concern appears rooted in two of his arguments: contradictions in the *Natural History* are the products of "different rhetorical discourses of Roman moralizing tradition" and are used by Pliny with distinct moral intentions in separate parts of his work.⁹ Murphy cites the *echeneis* fish, which Pliny says can, and cannot, stop a ship by clinging to its hull (see *NH* 9.41.79 and 32.1.2-6), although Murphy is mistaken that Pliny ever denies the fish's

⁷ In her study of Greek views on the exotic animal, Bodson (1998: 61) concludes that exotic can refer to both geographical and cultural. The same can be said about the Roman view.

⁸ Murphy (2004: 5) goes so far as to say that nearly the whole *Natural History* could have been written from a library; still, he recognizes that Pliny had experience and observations beyond the confines of Rome.

⁹ Murphy (2004: 10).

ability to do so.¹⁰ Murphy's concern serves as a means for reconciling the presence of these contradictions. The other argument is rooted in Murphy's focus on the *Natural History* as a cultural artifact and therefore it stands to reason that, by minimizing Pliny's influence, or, at the very least making the question of his personal opinion impossible to discern, Murphy has strengthened his position on the *Natural History* as cultural artifact. I am not necessarily opposed to this idea; it is clear that the *Natural History* embodies Roman culture and, as I have already said, I think it represents the knowledge accessible to a well-read Roman elite. I am, however, not convinced by Murphy when he says that what appear to be authorial reflection are, in fact, rhetorical statements. There is no sufficient reason to think that these remarks are not indicative of Pliny's perspective; the contradictions which Murphy cites do not reveal a lack of individual voice in the *Natural History*. In consideration of the broad scope and size of the work, Pliny would have taken quite some time to complete it. It is not unreasonable to think that during this time errors found their way into the *Natural History* and information which Pliny approves or denies in one section of the work is forgotten about or disregarded in another. This does not mean that Pliny does not insert his own opinion in his work. When Pliny denies a story, this may well be his view on the matter, and elsewhere, where he does not deny a similar, or even the very same, story, we may be seeing a mere retelling. Lastly and most indicative on the matter is that Aristotle has been noted for contradictions appearing in his *Historia animalium*.¹¹ These contradictions certainly do not diminish Aristotle's voice or perspective in the *HA*. On the other hand, Murphy raises a key point: it is almost

¹⁰ Murphy (2004: 9) appears to base Pliny's denial upon the inclusion of *creduntur* in *NH* 9.41.79 since he does not give us his own personal opinion on the matter. This mirrors what we see in *NH* 32.5.6 (all translations in this thesis are my own): *nos plurium opiniones posuimus in natura aquatiliū, cum de eo diceremus, nec dubitamus idem valere omnia ea genera* (I have set out the opinions of the majority regarding the nature of water animals, when I have spoken about it; I do not doubt that every *genus* [of] this [fish] has this same [power]). Pliny clearly gives us his opinion on the matter in the latter account of the fish, but we cannot assume in the absence of such a statement in the former description that he did not continue to have this view. Murphy cites other examples too, like the *cinnamolgus* bird (*NH* 10.50.97; 12.42.85), but it is unnecessary to address each one specifically. It is simply enough to say that the same thing can be said about Pliny's accounts of the *cinnamolgus* bird: not denying it in one description does not mean he approves it; nor is it fair to expect Pliny to have approved or denied each story and fact in every instance it appears in the *Natural History*.

¹¹ Föllinger (2012: 240-241) argues that the *HA* is a collection of information upon which Aristotle later bases his explanations and theoretical explorations (such as in the *GA*). Föllinger even explains apparent contradictions in the *HA* as the result of Aristotle gathering everything known to him in order to possess a complete picture and addressing the matter later (he gives the example of bees: 5.21 533a17; 9.40 624b12).

impossible to find a consistency of thought throughout the *Natural History* as a whole because of both its range and extensive use of secondary sources. Since I agree with Murphy that literary traditions are present, I do not seek to find a broad, underlying thought in my study. Instead, I examine each topic within its own confines in the *Natural History* in addition to how it is presented by other ancient authors, especially Roman ones, so as to not rely too heavily upon any one single comment found in the *Natural History*. But unlike Murphy, I must stress that there is sufficient reason to recognize authorial voice as representative of Pliny's perspective, at least at that particular moment in the text. This view can provide a deeper glimpse of how Pliny understands the zoological world around himself.

One specific challenge is our attempt to decipher the unrecognizable names of flora and fauna in the *Natural History* and those whose identity is at best an educated, but questionable and hesitant, guess.¹² It would be a wonderful thing if we could correctly identify all the animals and plants in the *Natural History*, allowing us to know, for example, what species were recognizable to Pliny and his Roman readers and how he described these animals and plants through inclusion and exclusion in his work.¹³ It is of course necessary that, in such a study, we be cautious in comparing Pliny's understanding to our own lest we criticize its fallaciousness and short-comings. I, therefore, largely ignore the issue of the accuracy of the information found in the *Natural History*, since that type of analysis subjects the text to a modern understanding and produces few

¹² Doody (2010: 27) notes that problems can arise if multiple names exist for one particular thing or vice-versa, if one name can encompass various things. This issue is more prominent over different languages and cultures, and will be more evident in chapters three and four.

¹³ Goguey (2003) notes that Pliny does not describe all animals in a similar fashion, such as describing the phoenix for its colour, or differentiating the various eagle and hawk species by their names and sizes. Goguey recognizes this as a lack of a systematic method (pp. 48-49). Perhaps this notion derives from a comparison to Aristotle who organizes his material better. Nevertheless, Pliny does follow his predecessor in certain sections (i.e. *NH* 11.43-119) comparing particular body parts among different animals. But a lack of similar observational practices between animals is not indicative of a non-systemic study. Pliny's focus is on the wonders of nature, emphasizing the notable and most interesting features of his subject matter: the phoenix is known for its fiery red nature, while eagles are characterized by their differences from each other. This method also provides a suitable means to describe animals, since it is the differences which best distinguish one animal from another, as well as the similarities which allow the reader to picture an animal, specifically when said animal was foreign or unknown to them. Therefore, not all animals can be, or ought to be, described in a similar fashion, a method which also provides enough variation and emphasis to capture the reader's attention.

informative results, except, perhaps, an indication of observational behaviour and practices of the ancient writers.

My intent is threefold. The first, which I have touched upon, is my primary focus: to better shape our understanding of how Pliny (and when clear, the Romans) recognized and perceived exotic animals as shown in the *Natural History*. Emphasis is placed on how Pliny would have interpreted his sources, chiefly Aristotle, with attention paid to Pliny's own comments regarding these exotic animals to help reveal contemporary Roman thought.¹⁴ This aspect is especially important when we consider that his comments, critiques and inclusion of popular belief are indicative of ancient thought and the transition it undertook from the original sources to Pliny's own time. Second, and equally if not more important than my first purpose, is to continue the current trend in Plinian scholarship on improving our modern perception of the *Natural History*. I, however, aim to improve its value within the history of classification, taxonomy and natural history. I show that Pliny, although no Aristotle, ought nonetheless to be held in higher regard as a contributor to zoological understanding in the ancient Roman world. In light of the *Natural History*'s focus and his own methods, Pliny can be deemed an appropriate Roman heir to Aristotle and the Greek tradition. Lastly, due to the nature of my investigation, I inevitably discuss the identification of the specific animals in my case studies. Not only am I able to improve upon our recognition of these animals in light of modern understanding, but I also address scholarship regarding the identification of these animals, scholarship which has exhibited some all too common pitfalls: notably, supposing that what we now constitute as an individual species the ancient considered one and the same. This is of course not always the case. I tackle this issue from the ethnozoological information garnered from the studies first and foremost, letting how Pliny and the ancient Romans viewed the exotic animals in question shape my analysis.

To situate Pliny within the context of natural history, I must discuss the history of Aristotelian scholarship, particularly that of G. E. R. Lloyd, D. M. Balme, and Pierre

¹⁴ I realize that Pliny uses many other sources for his zoological books (notably Juba). But since part of my focus is in restoring Pliny's place within ancient natural history largely through a comparison to Aristotle, whose zoological treatises we have, I will naturally be focusing on Aristotle rather than Pliny's other sources, unless otherwise necessary.

Pellegrin, who address Aristotelian classification and the organization of his biological treatises.¹⁵ I have tried to give a concise overview of Aristotelian scholarship with the perspective that those reading my study will be primarily Plinian scholars and those with an interest in Roman culture. I address Aristotle's influence on and prevalence throughout Pliny's *Natural History*, arguing that Pliny's work echoes much the same as Aristotle's, without philosophical theory and causation: in effect, the *Natural History* resonates with the *Historia animalium* in its similar compilation of information and presentation. Because of the similarities between the two, Pliny ought to be appreciated more for his *Natural History*'s contribution to the zoological tradition. This chapter also lays the foundation for further inquiry into the identification and recognition of exotic species by both Pliny and the modern reader.

Subsequently, I proceed to explore the use of *genus* and *species* in the *Natural History* not only on its own merit, but also in relation to γένος and εἶδος as has previously been studied in Aristotelian scholarship.¹⁶ This study further emphasizes the connection between Pliny and Aristotle. It also differentiates between the uses of *genus* and *species*: the former highlighting the procreative habits of a specific type of animal, and the latter indicating the physical appearance of said animal. I devote the last section of chapter two to the case study of the *haliaëtus* and the other *genera* of eagles, most of which only appear in the works of Aristotle and Pliny in extant Greek and Latin literature. In regards to the *haliaëtus*, Pliny claims that it has no *genus*. In light of his use of *genus* and *species*, I argue that this statement ultimately derives from a perceived idea that the *haliaëtus* is unable to replicate itself in breeding, giving birth instead to the *ossifraga*.

For an analysis on the identification and understanding of exotic animals in the *Natural History*, I have chosen to focus my attention on only two case studies. I realize that my reader may desire that I should cover more animals not only for a broader scope of information, but even for interest's sake. However, like Pliny's *Natural History*, the more inclusive the text, the less detailed the study can be. Furthermore, I have observed that previous studies on animals in the ancient world, although often exhaustive,

¹⁵ See Lloyd (1961); Balme (1962); Pellegrin (1982).

¹⁶ See especially Balme (1962); Pellegrin (1982).

frequently address the more obscure animals inadequately. That is not to say that there have not been some remarkably well-thought out advancements in Roman ethnozoology. I have also tried to be as explicit as possible, particularly in my discussion on the identification of these exotic animals from a modern taxonomic perspective, so that those after me can clearly see where I have been successful or where I have made my own mistakes and oversights. Too often I have seen a claim to an animal's identification be made with very little support or recognition of the ancient perspective. With that being said, the third chapter is devoted entirely to the relationship between the terms *pardus* and *panthera*. Pliny says that the *pardus* is a male *panthera*. With support from my study on the meaning and use of *genus*, I explore Pliny's use of both *pardus* and *panthera* in the *Natural History* to validate his claim. This identification is then supported through an analysis of its other literary appearances: I trace the history of the words from their first appearances in Greek extant literature – Herodotus and Homer respectively – through Aristotle to Cicero, Pliny and Aelian. Alongside a look into artistic representations of spotted cats in Greek, Roman, and Egyptian art, this inquiry reveals that the Romans prefer to translate the Greek word *pardalis* with the Latin *panthera* and not *pardus*; an evolution of the words appears to have been taking place in Pliny's time, eventually arriving at *leopardus* a couple of centuries later. I address the issue of the identification of which animal(s) these names represent from a modern viewpoint: Otto Keller and Helmut Leitner suggest that the names originate from the various leopard subspecies;¹⁷ Toynbee and Ann Ashmead consider the two names to represent the cheetah and leopard specifically.¹⁸ Nevertheless, I argue from Pliny's perspective that the two names indeed represent the same animal which includes non-exclusively any large, spotted cat, including both the cheetah and leopard.

Lastly, I devote the fourth chapter to the study of the *crocota* (and its various spelling variations),¹⁹ an animal largely unfamiliar to the Romans, appearing only three times in the *Natural History*. I trace the word's presence in ancient literature, including the works of Pliny, Aelian, and Ctesias, the latter of which is its first appearance in extant

¹⁷ See Keller (1887); Keller (1909); Leitner (1972).

¹⁸ See Toynbee (1973); Ashmead (1978).

¹⁹ These spelling variations include *crocot(t)a*, *corocot(t)a*, and the Greek *k(o)rokot(t)as*.

Greek literature. I raise the issue of misidentification, not necessarily of the animal itself, but of geography and the issue of two Aethiopias, one African, the other Asian, upon which Herodotus touches. This confusion has been discussed in scholarship regarding the *crocota*, albeit briefly and too dismissively (see Leitner and Bali). I think, moreover, that this oversight has led to a misidentification of the *crocota* and a general confusion as to what hyena species this animal actually is, particularly from a modern perspective. With support from the ancient writers, I advance my argument that the *crocota* is likely the striped hyena, but by the time of Pliny, this animal is shrouded in mystery, except for a perceived similarity in certain behavioural practices with the hyena. This case study emphasizes the need for us to examine all descriptions of an animal found in extant Greek and Latin texts, with attention paid to the ancient writers' recognition, perception and word usage, in order to adequately understand what animal(s) is being described.

Chapter 1

1 Aristotelian Influence on Pliny and his *Natural History*

1.1 The Aristotelian Classification System

The work of Aristotle is important in the study of Pliny's *Natural History* for two reasons. One, Aristotle had a profound influence on Pliny. Not only is much of the information found in Pliny's zoological books taken, nearly verbatim at times, from the works of Aristotle, but the Aristotelian methodology can be seen to have had an impact on Pliny as well. Pliny readily reveals his indebtedness to Aristotle in zoology, recognizing Aristotle's chief position in this particular subject matter, because, as the story goes, it was Alexander the Great who ordered that all men who had dealings with animals be brought to Aristotle so that the various animals might be known (*NH* 8.17.44).²⁰ Although the historicity of this event has been cast into doubt,²¹ the purpose of its inclusion is all too clear: Pliny would have us believe that Aristotle, whose work Pliny chiefly relies upon for his zoological information, supposedly spoke with people who would have had firsthand accounts of the animals described in his writing; not to mention his own personal experience either. Not only would this give credence to the *Natural*

²⁰ *Aristoteles diversa tradit, vir quem in his magna secutus ex parte praefandum reor. Alexandro magno rege inflammato cupidine animalium naturas noscendi delegataque hac commentatione Aristoteli, summo in omni doctrina viro, aliquot milia hominum in totius Asiae Graeciaeque tractu parere iussa, omnium quos venatus, aucupia piscatusque alebant quibusque vivaria, armenta, alvaria, piscinae, aviaria in cura erant, ne quid usquam genitum ignoraretur ab eo* (*NH* 8.17.44: Aristotle says something different, a man whom I think that I ought to mention first since I will follow him in a great part of these matters. With king Alexander the Great inflamed by the desire to know the nature of animals and with this study assigned to Aristotle, a leading man in every field of research, some thousands of men in the whole area of Asia and Greece were ordered to be on hand, all for whom hunting was their means, fowling and fishing and those in whose care were game, herds, hives, fishponds, and aviaries were in their care, so that nothing born anywhere would be unknown to him).

²¹ Ley (1968: 34) thinks this event was quite unlikely since many of Aristotle's (reliable) descriptions are about local fauna; Romm (1989) argues that Aristotle did not know the difference between an African and Indian elephant and that the relationship between the philosopher and Alexander was not as warm as Pliny suggests; W. D. Ross (1923); Bodson (1998: 84).

History since he owes much to Aristotle's information, but it also shows a justification for utilizing him as a source.²²

The second reason is the influence Aristotle has had on the development of modern taxonomy and the regard many have for his role in shaping the foundations of this field. Any attempt to situate Pliny within natural history must therefore address Aristotle. Aristotle composed three particular texts that deal with zoology and biology: *Historia animalium* (HA), *De generatione animalium* (GA), and *De partibus animalium* (PA).²³ The last two are self-explanatory, dealing with reproduction and parts or attributes of animals respectively. The first, *Historia animalium*, is a collection of information on animals and deals with what are called *differentiae* (διαφοραί), or differences.²⁴ *Differentiae* are the features which define one member in a specific γένος from another in the same γένος. In Allan Gotthelf's discussion of Aristotle, divisions, which are attributed to D. M. Balme, are seen between the books: 1-4 concern the *differentiae* of parts; 5-7 of lives and activities; 8 of character; and 9 of humans.²⁵ But it is Aristotle's apparent

²² Although Stahl (1962: 107) recognizes that Pliny uses his own observations or knowledge on occasion to either dispute or back information he has garnered from his sources, he nevertheless characterizes Pliny as being unable to comprehend Greek science or discern between anecdote and theory (p. 119). I think that Stahl is giving too much credence to the Greek scientific tradition because of its closer resonance with modern practices, while disregarding Pliny's purpose and methods; see Lehoux (2012: 14-15) for a fascinating and well needed exploration on why it is that the ancient Romans believed things we now call "unbelievable" facts. The core of Lehoux's argument is that the Romans, like us, "thought they knew a lot and had a good idea about the world." And why would they not? Since many of these unbelievable facts did not conflict with their belief system, there was no reason for the ancient Romans to question their validity, especially when their source, and literary tradition, carried authority (p. 145). Whenever there were conflicts, however, we can see Pliny addressing accuracy and "popular" opinion. Lehoux's conclusions are vital to our understanding and appreciation of ancient Roman science and Pliny's role in said culture.

²³ For an overview on the writings of Aristotle concerning which works were (probably) written by Aristotle and how they came to be as we have them now, see Guthrie (1981: 49-65). There are two main divisions that can be seen in Aristotle's works: those which were used for lectures in the school (esoteric) and those which were meant for the public (exoteric), the former of which make up the majority of what we possess. Although Guthrie says that there is enough evidence that "in the surviving corpus we possess what we need not hesitate to call genuine 'acroamatical' works of Aristotle," he points out that it is, nonetheless, "difficult to tell at times whether we are reading lecture-notes or memoranda for use in Aristotle's or his pupils' research" (p. 51); Lloyd (1987: 53) observes that it is "often impossible to distinguish Aristotle's personal investigations from those of his assistants" but considers that in light of the collaborative nature of the school, this issue is not critical.

²⁴ See Lloyd (1962); Balme (1962: 98); Lennox (2001: 40); see also PA 1.2 642b5-20.

²⁵ Gotthelf (2012: 272) emphasizes that we should not be so quick to label a work as pseudo-Aristotle just because the writing exhibits a style distinct from what we see in other Aristotelian works, citing Cicero (*De Finibus* 5.5.12) who notes this discrepancy too (p. 59). The finer points of this debate are not a concern for my study, since the biological treatises are attested to have been composed, for the most part, by Aristotle;

attention to detail and observational skills that seem to have impressed modern scholars.²⁶ The current and general estimation of Aristotle from the perspective of natural history provides insight into Aristotle's place within the framework of taxonomy and zoological understanding, regardless that these "overviews" are somewhat outdated in their opinion. In one such view, Brittain regards Aristotle as a meticulously observant "researcher", which indicates the importance of his writing and is a relatively accurate statement of his methods.²⁷ On the other hand, in this same work, Brittain considers Aristotle to use γένος and εἶδος (their most basic translations are "kind" and "form") in a manner similar to their modern equivalents: *genus* and *species* (derived from Latin).²⁸ These words are highly technical within a modern taxonomic setting, representing the two lowest ranks within the biological hierarchy (sub-species being a division within species, but not in itself representing a distinct species). "Genus" and "species" also make up both parts of

the consensus for *HA* is that books 1-6 and 8 are original, with some additions from the Peripatetic school, while books 7, 9, and 10 are later products (p. 52). Even if Pliny should cite these pseudo-Aristotle books, it does not pose a problem since he would have considered them to have possessed the same authority as the remaining books of *HA*.

²⁶ Locy (1925: 21-24); Stresemann (1951: 5, 7) regards Aristotle as embodying the habit of a proper researcher: observing animals. Contrarily, Stresemann is critical of Pliny (and Aristotle's other successors) for failing to do this, calling their works "fabulous" collections; Corcoran (1964: 273) thinks that there is very little evidence that Pliny had any personal experience with aquatic animals. This seems to suggest that Pliny obtained most of what he knows second-hand. On the other hand, Corcoran emphasizes Aristotle's treatment of local aquatic species around Greece, western Asia and Lesbos (p. 272); Bodson (1986: 102-103) claims that Pliny was at least accurate enough in describing animals native to the Alps and Germany that he must have seen them. Of course, however, one could argue that the Romans in general were likely more familiar with these animals (and thus there were more adequate Roman sources for Pliny). Nevertheless, Bodson is probably right, at least so far as to think that Pliny was more familiar with these animals than ones from Africa or Asia; Lloyd (1987) discusses the limits to Aristotle's observational practices, but is nevertheless impressed by the amount of information found in the zoological treatises and Aristotle's "ingenious interplay of data and arguments" (p. 62); for a contrast between Aristotle's and Pliny's intention, albeit slightly biased in favour of the Greek tradition over the Roman, see Bertman (2010: 146-148, 187-196).

²⁷ Brittain (2007: 24); Ley (1968: 34) calls Aristotle an "indefatigable collector of facts, including spurious ones" in what is as critical a statement as Pliny himself has ever received, revealing that Aristotle has not been completely free from this view and that Pliny too can be appreciated beyond being a mere compiler. Ley recognizes, however, that the more facts included, the greater the "generalizations" and theories which result.

²⁸ Brittain (2007: 26); Locy (1925: 31) seems to not view γένος as an equivalent to the modern term *genus*, choosing instead class, such as mammalia. This may have been Locy's attempt to understand Aristotle's μέγιστα γένη while retaining some semblance to taxonomic practices, but I think this correlation is, for the most part, regarded now as too specific and incorrect in light of Aristotle's usage of γένος; Lloyd (2004a: 110) argues that there is a need to clarify that γένος and εἶδος do not coincide with *genus* and *species*.

biological nomenclature (i.e. *canis familiaris* for the domestic dog; *canis* signifying the “genus” dog, and *familiaris* for its “species”).²⁹

This point has clouded judgement, especially in the way in which the zoological works of Aristotle and Pliny were viewed in the past,³⁰ and even continues to shape the way the general view regards Pliny’s contribution to natural history.³¹ In contrast, Aristotle’s writing has given the impression that he embodies current scientific traditions, albeit rudimentary, with attention paid to observation and detail, while the organization of his information and his philosophical treatises on biology would give evidence to a basic and partially completed taxonomic structure mirroring our own.³² This outcome is largely the result of our own natural, yet unfortunate, inclination to see the modern definitions contained within Aristotle’s use of γένος and εἶδος. Nor is this limited to Aristotle. This

²⁹ For a brief overview on the history of taxonomy and natural history from Aristotle, see Agassiz (1886: 3-7). It is necessary, however, that we overlook Agassiz’s criticism of Aristotle (and Pliny) and his outdated views on *genus* and *species*. On the other hand, Agassiz’s description of taxonomy more recent to his time may be more beneficial. For a brief summary: Carl Linnaeus (an 18th century naturalist) took the terms *genus* and *species* and developed Linnaean taxonomy, including what is now known as binomial nomenclature. Agassiz states that deficiencies in this system led Georges Cuvier (an 18th and early-19th century French naturalist) to base classification on anatomy, “according to law”. For the historical views on taxonomy and nomenclature, with a focus often on issues (for example, the debate whether species are unchanging or if there is variation in individuals and the inadequacy of classification systems, embodied by Buffon versus Louis-Jean-Marie Daubenton, 18th century French naturalists), see Llana (2000:10-13). Llana’s analysis reveals the ever-changing development of modern taxonomic practices, as well as the fact that classification systems are arbitrary, as was said by 18th century Denis Diderot (p. 6). This should be warning enough that we cannot subject Aristotle or Pliny to anachronistic taxonomic consideration since the field and its definition have hardly been stable.

³⁰ Cf. introduction, n. 2.

³¹ Pavord (2005: 63-67) is a contemporary who has this “general” view of Pliny. I am under the impression that she is relatively unversed in Plinian scholarship and only mention her to demonstrate that this view, albeit significantly diminished in Plinian scholarship, nevertheless is still very present outside the field. This is particularly noteworthy for my discussion of Roman ethnozoology since it encompasses multiple disciplines; Bertman (2010: 195-196).

³² See Bertman (2010) for a modern, but, I would argue, a still somewhat idealized portrayal of Aristotle as opposed to a more generic view of Pliny. Bertman sees Aristotle as someone who recognized there was a hidden “order” to nature and did not distort his material to fit a preconceived idea (pp. 146-148): these statements may be a little too generous in their praise. On the other hand, Bertman regards Pliny as an encyclopaedist, which is not necessarily a negative thing in that Bertman credits the Romans for their organizational talent (p. 192). He, however, appears to diminish the creative capacity of the Romans, citing Posidonius, a Greek, as creating an earlier “encyclopedia” (135-51 B.C.) in contrast to Pliny’s assertion that he was the first to his knowledge to produce such a project. But Posidonius was without Roman influence. I am therefore under the impression that this observation of Bertman is a means through which Bertman attempts to give strength to his argument that, although the Romans could organize and compile extensively, they were not ones to pursue further discovery (p. 196). I strongly disagree with this view, needing only to cite Pliny’s concern for truth, accuracy and observation in addition to his very purpose: to add to the work of Aristotle and other zoological writers. Regardless of whether Pliny shares an interest in theory similar to Aristotle, Bertman overlooks the similarities between the two writers.

is, perhaps, unfair to Aristotle, but more appropriate to Pliny, who, even quite recently seemed to pale in comparison to Aristotle and his methods. It is clear that Aristotle's methods at least appear to better match our own modern views in how zoological study should be undertaken.³³ But is it really the case that Aristotle is so much more sophisticated in his treatment of the biological world than Pliny? Although Aristotle lays the foundation for zoological study, can we rightly consider him with the eye of a modern taxonomist with the same concerns and methods? In response to these questions, I now turn to one school of thought regarding Aristotelian method concerning biology.

Two key scholars helped shape the transition from the earlier need to find a taxonomic system, albeit rudimentary in organization, in Aristotle's work, to understanding that Aristotle's aim was not rooted in a quest to taxonomically classify the natural world. The first of these is G. E. R. Lloyd, who in 1961 published a paper in which he addresses the development of Aristotle's theory of classification of animals.³⁴ Lloyd argues that stages of a classification system can be seen in Aristotle's texts (*PA* and *GA* in particular), exemplifying Aristotle's modification and own understanding of the classification system with which he was working.³⁵ Lloyd sees Aristotle's process as beginning with "problems" inherent to classifying animals: that is, when dividing, one must use the *differentia* of the *differentiae*. The example Lloyd provides is the characteristic "winged" which ought to be furthered divided by the *differentiae* of "winged": "whole-winged" and "split-winged".³⁶ The issue arises when *differentiae* are non-exclusive. If one distinguishes animals by "terrestrial" and "aquatic" and then proceeds to distinguish all "terrestrial" animals by "wild" and "tame" an immediate problem arises: there are "aquatic" animals that can also be described as "wild", yet the qualifiers "wild" and "tame" are supposed *differentiae* of "terrestrial" animals.³⁷ The

³³ Although Lloyd (2004b: 9) cautiously assumes that the pitfalls of anachronism and teleology are universally recognized by historians of science with which I largely agree, I nevertheless consider the need to state it again. It seems all the more necessary for Plinian scholarship which has been slower to respond than Aristotelian scholars, in part, I think, because of the comparison between the two authors. This practice can have similar dangers to anachronism, if not as immediately obvious.

³⁴ Lloyd (1961).

³⁵ Lloyd (1961: 77-80) argues that this shaping could possibly help identify when Aristotle wrote each work in relation to the others.

³⁶ Lloyd (1961: 67).

³⁷ Lloyd (1961: 71).

hierarchy of a taxonomic system starts to break down, with overlapping traits. Lloyd also addresses the emphasis placed on the distinctly different systems apparent in *PA* and *GA*. In the *PA*, Aristotle defines groups through the function or possession of an organ, blood, or locomotion, while in the *GA* he emphasizes “perfection” in birth. Although Lloyd’s portrayal of a progression to Aristotle’s classification system is less convincing now, he is still right when he says that there is no real correlation between classifying animals by locomotion (and by extension, parts) and reproduction.³⁸ Recently, Devin Henry has argued that this is evidence for a rank-free classification system, which, he argues, is distinct from a taxonomic system.³⁹ The importance of Lloyd’s contribution is, however, that he introduces the question of whether or not Aristotle actually used a concrete taxonomic system, a question further explored by D. M. Balme.

Only a year after Lloyd’s article, Balme wrote his own article dealing with γένος and εἶδος within the Aristotelian corpus.⁴⁰ In his opening statements, Balme remarks on the obscurity of the uses of both these terms in relation to their technical meaning. For example, he regards Plato as using them practically interchangeably, but says that Aristotle appears to understand the technical definition.⁴¹ Although it is now argued that Aristotle did not aim to use this technical force,⁴² Balme laid the foundation for further argumentation concerning γένος and εἶδος. Nor is he completely rigid in his assessment either, recognizing that in Aristotle’s biological works the terms are less technical as opposed to their usage in his *Metaphysics*, which is especially useful for our understanding of Aristotle’s zoological methodology.⁴³ In his argument concerning Aristotle’s use of γένος and εἶδος in the biological works, Balme shifts away from the modern derivatives “genus” and “species”, asserting that they are better represented by “kind” and “form” instead. He understands the emphasis of γένος on kinship, with implied association through reproduction, while εἶδος seems to be characterized by

³⁸ Lloyd (1961: 74-78).

³⁹ Henry (2011): classification and taxonomy are not the same thing, which is why Henry argues for a rank-free classification system (ranks being intrinsic to modern taxonomy, but not necessarily to a classification system).

⁴⁰ Balme (1962); for a summary of Balme’s contributions to Aristotelian scholarship, see Pellegrin (1982).

⁴¹ Balme (1962: 83).

⁴² See Boylan (1983: 50-53); Pellegrin (1986: 78-79); Gotthelf (2012: 268).

⁴³ Balme (1962: 84).

physical appearance.⁴⁴ Furthermore, Balme perceives no underlying taxonomic structure: the μέγιστα γένη (the greatest kinds, of which there are nine) do not include every animal described by Aristotle.⁴⁵ This is a significant problem to the expectation of a taxonomic system by Aristotle.⁴⁶ Lastly, Balme considers that Theophrastus, an immediate successor of Aristotle, noteworthy for his own biological works (on plants: *De causis plantarum* and *De historia plantarum*), does not appear to use these terms with any apparent technical force either. Balme understands this as evidence that Aristotle never established this idea. But appearing unsatisfied with this conclusion, Balme suggests that Aristotle had intended to use a classification system and the *HA* was simply the beginning stage of his undertaking and the basis on which he was able to explore the various *differentiae* among animals in order that he might later be able to classify them.⁴⁷ It is this point that later scholars pick up.

It is now fairly well established that Aristotle did not employ a taxonomic system within his texts. As Balme points out, this was not Aristotle's intention, insofar as this can be recovered. Following Balme, Michael Boylan argues that Aristotle was not “practicing Biology” as we might know it; rather, his interest lay in biological philosophy.⁴⁸ Boylan arrives at this conclusion largely due to the apparent contradictions

⁴⁴ Balme (1962: 86-87); Pellegrin (1982: 79).

⁴⁵ γένη δὲ μέγιστα τῶν ζῴων, εἰς ἃ διήρηται τὰλλα ζῶα, τὰδ' ἐστίν, ἐν μὲν ὀρνίθων, ἐν δ' ἰχθύων, ἄλλο δὲ κήτος. ταῦτα μὲν οὖν πάντα ἐναίμα ἐστίν. ἄλλο δὲ γένος ἐστὶ τὸ τῶν ὀστρακοδέρμων, ὃ καλεῖται ὄστρεον· ἄλλο τὸ τῶν μαλακοστράκων, ἀνόνημον ἐνὶ ὀνόματι, οἷον κάραβοι καὶ γένη τινὰ καρκίνων καὶ ἀστακῶν· ἄλλο τὸ τῶν μαλακίων, οἷον τευθίδες τε καὶ τεῦθοι καὶ σηπία· ἕτερον τὸ τῶν ἐντόμων. ταῦτα δὲ πάντα μὲν ἐστὶν ἀναίμα, ὅσα δὲ πόδας ἔχει, πολύποδα· τῶν δ' ἐντόμων ἕνια καὶ πτηνά ἐστίν. τῶν δὲ λοιπῶν ζῴων οὐκ ἐστὶ τὰ γένη μεγάλα· οὐ γὰρ περιέχει πολλά εἶδη ἐν εἶδος, ἀλλὰ τὸ μὲν ἐστὶν ἀπλοῦν αὐτὸ οὐκ ἔχον διαφορὰν τὸ εἶδος οἷον ἄνθρωπος, τὰ δ' ἔχει μὲν, ἀλλ' ἀνόνημα τὰ εἶδη (*HA* 1.6 490b7-19: the μέγιστα γένη of animals, into which other animals are distributed are the following: one is of birds, one of fish, and another is *cetacea*. All of these are blooded. There is another γένος of hard-shelled animals, which is called shelled. Another is of soft-shelled animals, nameless, such as crayfish and some γένη of crabs and lobsters. Another is of soft animals, such as both calamary and squids and cuttle-fish. There is another of insects. All of these are bloodless, and such that have feet, are many-footed. Some insects are winged. But of the remaining animals there are no further μέγιστα γένη. For one εἶδος does not contain many εἶδη, but either there is the same simple εἶδος not possessing any difference, such as man, or it has [differences], but the εἶδη are nameless).

⁴⁶ Balme (1962: 85, 90); Pellegrin (1982: 83) argues that the μέγιστα γένη are to be understood as the largest γένη because they can be divided the most number of times and do not represent a fixed level of generality. I have to think that he is right. Much of Pellegrin's focus on γένος and εἶδος rests on a γένος being able to be subdivided into contraries (Pellegrin argues that these contraries are εἶδη) (pp. 57-59).

⁴⁷ Balme (1962: 98); cf. introduction, n. 11. Föllinger (2012: 240-241).

⁴⁸ Boylan (1983: 62).

within the Aristotelian zoological works that exist if Aristotle had intended to create a taxonomic structure. Attempts to “re-construct” this system yield approximately 550 described animals alongside more than 60 groups containing about 200 members, while many of these groups are low sub-divisions such as dogs, spiders, and eagles.⁴⁹ This discrepancy has been pointed out recently by Gotthelf too: there are very few intermediary groups between the μέγιστα γένη and these low level sub-divisions.⁵⁰ We would expect there to be more groups, particularly these intermediary stages, if Aristotle was trying to construct a systematic taxonomy. The fact that less than half of the total animals described by Aristotle are associated with a group, according to Boylan, is a key obstruction to this argument. How could he have been classifying animals without actually placing many of them within his organizational scheme? This appears to be the summation of (19th-century) George Henry Lewes’ sentiment that Aristotle has produced a collection of facts without any apparent classification or organizational structure, alongside a harsh judgement that such things are not, in fact, true science.⁵¹ This view resonates with earlier scholarship on Pliny’s *Natural History*, which, for some time, criticized the Roman for this very same thing: his *Natural History* was nothing more than a collection of facts, which were generally perceived as myth, legends and marvels, without any apparent purpose except for the sake of entertainment.

Returning to Aristotle, later scholars explored the idea that he was either developing a rudimentary system or, more appropriately, toying with the idea of how one might actually create one.⁵² Boylan argues that Aristotle was theorizing how one would do so (which Boylan calls meta-beta-taxonomy), and, as a result, Aristotle was laying down the foundations for the work necessary for the creation of such a system.⁵³ Although Boylan’s argument that Aristotle was creating a classification system seems initially at odds with his claim that the philosopher was not concerned with making one, he must be implying that the result of Aristotle’s work was a classification system (the

⁴⁹ Boylan (1983: 60).

⁵⁰ Gotthelf (2012: 269); Henry (2011: 217) recognizes this as evidence that Aristotle was not interested in taxonomic rankings.

⁵¹ Gotthelf (2012: 265).

⁵² Balme (1962: 98).

⁵³ Boylan (1983: 65-66); Charles (2000: 326).

HA being the preliminary study).⁵⁴ This end, of course, follows the argument that Aristotle was creating the foundations to an organizational process, intentional or not. I am, nonetheless, still not fully convinced, since this notion still seems to favour the position that an almost taxonomic necessity underlines the text; that is to say, according to this view, even if Aristotle's zoological works do not possess a taxonomic system applied to the biological world, it must have been Aristotle's aim to create such an organizational method eventually. Therefore, any supposed traces of a method of classification are attributed to this idea, while any obscurity and conflict are the products of this system's incompleteness.

Either way, it is clear that Aristotle's primary aim could not have been to create a taxonomic system. Aristotle himself suggests as much in Book 1 of his *HA* when he describes the purpose and method of his study:

ταῦτα μὲν οὖν τοῦτον τὸν τρόπον εἴρηται νῦν ὡς τύπῳ, γεύματος χάριν περὶ ὅσων καὶ ὅσα θεωρητέον. δι' ἀκριβείας δ' ὕστερον ἐροῦμεν, ἵνα πρῶτον τὰς ὑπαρχούσας διαφορὰς καὶ τὰ συμβεβηκότα πᾶσι λάβωμεν. μετὰ δὲ τοῦτο τὰς αἰτίας τούτων πειρατέον εὐρεῖν. οὕτω γὰρ κατὰ φύσιν ἐστὶ ποιεῖσθαι τὴν μέθοδον, ὑπαρχούσης τῆς ἱστορίας τῆς περὶ ἕκαστον· περὶ ὧν τε γὰρ καὶ ἐξ ὧν εἶναι δεῖ τὴν ἀπόδειξιν, ἐκ τούτων γίνεται φανερόν. (*HA* 1.6 491a7-14)⁵⁵

These things have therefore been said in this way as by outline, for the sake of a taste concerning the sorts of things one need consider; I shall speak with precision later, in order that first we might grasp the differences and attributes belonging to all [animals]. After this one must attempt to discover their causes. For in this way an investigation is to be naturally done, with the knowledge about each having been already recorded; for concerning which things and from which things that it is necessary this demonstration come about, from them it will be clear.

As scholars have pointed out,⁵⁶ Aristotle's primary concern is first to seek out the differences among animals, then to address the causes of these differences. The first part of Book 1 more or less addresses the similarities and differences between the μέγιστα γένη not only to help situate individual animals within this framework, but also in order that Aristotle does not have to mention every specific trait for each animal when describing them individually later. My reasoning follows Boylan's in that it would be

⁵⁴ Boylan (1983: 62); see Föllinger (2012).

⁵⁵ I reiterate that all translations in this thesis are my own.

⁵⁶ Cf. n. 24.

highly redundant and time-consuming to address many of the similarities in overly like animals in the course of his study.⁵⁷ As mentioned above, the μέγιστα γένη serve well as a broad encompassing overview of the animal world. On the other hand, these very words may have also given rise to the notion that there is an underlying taxonomic method in the work. Should this impression come as a surprise? Boylan observes that Aristotle does not capitalize upon the opportunity to employ more technical terms for these groups, preferring to use the commonly used words: “birds” and “fish”.⁵⁸ He argues that if Aristotle had used his own terms, he might have been regarded as imposing his own “artificial” groups on nature. While this may be true, I think Boylan is more correct in suggesting that these words are used because they were already perceived as groups within the Greek mindset.⁵⁹ No doubt birds and fish were popularly recognized as distinct groups due to the close resemblance of each of their constituents: birds possess more similar visible and physical characteristics with other birds than, for example, mammals with mammals. To the naked eye, birds do not appear largely distinct from each other, apart from colour and size; the same is true about fish.⁶⁰ Aristotle suggests this notion when he appears to define the group of birds through description: τὸ μὲν οὖν πτερωτὸν γένος τῶν ζώων ὄρνις καλεῖται, τὰ δὲ λοιπὰ δύο ἀνόνομα ἐνὶ ὀνόματι (*HA* 1.5 490a12-13: the feathered γένος of animals is called bird[s], but the remaining two [γένη] are nameless). It may be fair to reason that Aristotle’s “soft-shelled” and “soft” groups, and even the “hard-shelled” animals, were relatively unknown or unrecognized as an individual group because of the inclusion of specific examples and the more popular name “shellfish” for the “hard-shelled” group.⁶¹ Because he does not do the same for “birds”, “fish” or “insects”, it would appear that he was concerned that his reader may have been unfamiliar with these other groups. Nevertheless, Aristotle includes these

⁵⁷ Boylan (1983: 44-46); see *PA* 1.4 644a-644b.

⁵⁸ Boylan (1983: 47); Graham (1986: 541).

⁵⁹ Boylan (1983: 47); Lloyd (2004a: 111) recognizes that Aristotle created “new” names for particular groups, suggesting that the old names for these groups were insufficient or non-existent.

⁶⁰ I am, of course, being relatively general in my characterization of both birds and fish, and in no way mean to imply that birds and fish do not possess between their individual members the same genetic and physical variation that other groups of animals do, such as mammals.

⁶¹ See *HA* 1.6 490b7-13.

μέγιστα γένη to establish the similarities and differences between the largest groupings of animals, before delving into specific kinds of animals.

Aristotle's method is addressed by James Lennox who recognizes that the *HA* fails as a taxonomy, as we have already seen; instead he sees it as a full description of the animals found within it.⁶² He rightly characterizes the *HA* "as a methodical apodeixis of living nature" but only in the sense that Aristotle is trying to explore and recount all the *differentiae* found between animals; it is not simply an attempt to list "facts" about Nature. These *differentiae* are what characterize a particular animal, and make it what it is: a γένος. All individuals of a γένος naturally possess the same traits and features (albeit with some variation allowed among its members):⁶³

ληπτέον δὲ πρῶτον τὰ μέρη τῶν ζῴων ἐξ ὧν συνέστηκεν. κατὰ γὰρ ταῦτα μάλιστα καὶ πρῶτα διαφέρει καὶ τὰ ὅλα, ἢ τῶ τὰ μὲν ἔχειν τὰ δὲ μὴ ἔχειν, ἢ τῆ θέσει καὶ τῆ τάξει, ἢ καὶ κατὰ τὰς εἰρημένας πρότερον διαφοράς, εἶδει καὶ ὑπεροχῆ καὶ ἀναλογία καὶ τῶν παθημάτων ἐναντιότητι. (*HA* 1.6 491a14-19)

One must first understand the parts of animals from which they are formed. For according to these things, first and foremost, the wholes differ; either in that one [animal] has things which another does not, or in position or arrangement, or even according to the differences spoken about earlier: in *eidos*, and excess, and resemblance, and opposition of conditions.

This statement may seem, at first, to give rise to the appearance of a taxonomic structure, because Aristotle must examine the *differentiae* of animals. This process ultimately leads to the lowest grouping of animals (which we would call species) since *differentiae* exist until one arrives at this final stage where all individuals are alike. It is understandable that a taxonomic system is expected to exist, but we have seen this notion to be incorrect. The importance of Aristotle's work is not taxonomy, but *differentiae* and their causes, through the use of a rank-free classification system.⁶⁴

⁶² Lennox (2001: 40); Föllinger (2012: 242).

⁶³ Lennox (2001: 145); Lloyd (2004a: 108; 116) regards the key feature of Greek zoological understanding to be that a γένος is permanent, rarely, if ever, changing: there is an "emphasis on stable essences"; Llana (2000: 10) relates Comte de Buffon's (formally Georges-Louis Leclerc, 18th century naturalist) definition of a species as "a succession of individuals which reproduce with one another." There is no doubt that Buffon's view was shaped largely by Aristotle.

⁶⁴ See Henry (2011); for the counter-argument that Aristotle was "engaged in the taxonomic task of laying out which kinds exist" (p. 315, n.9), see Charles (2000).

It is this aspect which I wish to highlight for my study of Pliny's *Natural History*, since a similar pattern can be seen between the two ancient writers. Both of their texts at one time or other held an authoritative position, with that of the *Natural History* extending through the medieval period. Aristotle's zoological works were more generally accepted in their entirety a little later, in the 13th century, and by the 15th century it appears that Aristotle's works found greater interest, eventually garnering favour with later scholars and scientists.⁶⁵ Both also fail when held to modern taxonomic standards: Pliny for seeming to not even care about a classification model, and Aristotle whose effort is merely inadequate. As we have seen, though, Aristotelian scholarship within the last fifty years has changed how we understand Aristotle's methodology and intention in conducting his philosophical study of the biological world. This evolution is highly important to remember when we examine Pliny's description of animals in the *Natural History*. One of the criticisms Pliny has received in the past is this notion that, having written after Aristotle, he ought to have improved upon the Aristotelian method and further shaped an organizational model for nature.⁶⁶ This evaluation is understandable from our perception that scientists ought to work upon the research of their predecessors, improving and correcting their theories and ideas. To expect the same from Pliny would be incorrect. To say that Pliny fails for not improving Aristotle does not take into account the fact that Aristotle was not participating in taxonomy; and, moreover, how can we blame Pliny when Theophrastus, Aristotle's so-called successor, did not incorporate these supposed Aristotelian terms for organizing the biological world, as has been argued?⁶⁷ Moreover, the two authors have seemingly different aims, but with, perhaps, a remarkably similar result. Aristotle, as we have seen, was likely engaging in a philosophical discourse concerning biology, particularly the *differentiae* of animals, and ultimately the causes of these *differentiae* after describing them within the framework of a rank-free classification system. He was concerned with causes. Interestingly enough,

⁶⁵ See Nauert Jr. (1979); the 13th century seems to be when the first major translations of Aristotle's *HA* appear in Latin: Michael Scot's Arabic-Latin translation, and one from Greek by William of Moerbeke. See also Perfetti (2000: 1-6); Van Oppenraay (2003: 387-388); Thomson (2011: 17); for a basis on the number of manuscripts and printed editions of either work, see Gudger (1924).

⁶⁶ French (1994: 207); cf. n. 2. Bodson (1986: 98): how can we hold Pliny to this criticism when he himself has addressed this view?

⁶⁷ See above, p. 16 regarding Theophrastus.

Pliny seems to address this very statement of Aristotle when he says it is not his purpose to explain “doubtful” causes of things (*NH* 11.2.8).⁶⁸ In consideration of Pliny’s attested reliance upon the Greek philosopher, this remark does not seem to be a mere coincidence; rather, Pliny is perhaps anticipating his reader’s awareness that if he is to follow Aristotle, he should deal with causation in his zoological books. Pliny’s interest does not lie here, but in his predecessor’s apodeixis of nature: the *Natural History* is a means through which to show the marvels of Nature.

Like Lewes’ criticism of Aristotle’s *HA* as a mere collection of “facts”, Pliny’s apparent emphasis on “marvels” has received similar treatment in past scholarship.⁶⁹ Part of the criticism is that Pliny includes these marvels with little regard for their validity.

⁶⁸ *denique existimatio sua cuique sit; nobis propositum est naturas rerum manifestas indicare, non causas indagare dubias* (*NH* 11.2.8: finally let each one have his own judgement; for it is our purpose to show the clear nature of things, not to investigate doubtful causes). Some scholars have seen Pliny’s characterization of Nature as Divine and its influence on “shaping” and “affecting” the natural world as a testament to divine causation, although I have to wonder, on the one hand, how similar to Aristotle’s focus on causation this can be regarded. Aristotle appears to attribute causation to the success and benefit of an animal, while the Divine *Natura* in the *Natural History* seems to do things for its own benefit. Pliny describes the fight between the elephant and snake as a match arranged by Nature to be a show for itself (*NH* 8.12.34). Yet Pliny does appear to suggest that animals act in a way beneficial to themselves as well: *mira animalium pro se cuique sollertia est* (*NH* 8.12.33: there is a marvellous ingenuity to each animal for its own behalf) which may reference an animal’s desire for self-preservation, rather than causation dependent on the animal’s best interest. Nevertheless, see Papparazzo (2011: 100-101).

⁶⁹ Locy (1925: 23-25) is one of these earlier critics of Pliny. Locy addresses the harsh criticism of George Henry Lewes aimed at Aristotle by arguing that Aristotle was not merely a compiler, with the evidence that Aristotle uses in the *HA* “methods of personal observation, broad comparison, and reason.” Locy says that we cannot base our judgement on what Aristotle did not know. On the other hand, I find it noteworthy that Locy immediately follows his defense of Aristotle by labelling Pliny as a compiler and “not an original student like Aristotle.” Locy’s preference for Aristotle is immediately evident when he further characterizes Pliny as an “unknowing amateur” (p. 50), lacking discrimination and embodying the “decline of science from Aristotle” (p. 51). Locy underestimates Aristotle’s use of earlier sources, while devaluing Pliny for his reliance on sources, such as Aristotle. This may be due in part to Pliny’s transparency concerning his sources. Nevertheless, Locy’s bias towards Aristotle is quite evident, even in response to Lewes. On the other hand, this characterizes the upswing Plinian scholarship is now undergoing, mirroring that of past Aristotelian views, albeit more slowly; I have already mentioned the criticism of Corcoran (1964) regarding Pliny’s “apparent” lack of personal observation (cf. n. 26). Corcoran, however, is not so quick to blame Pliny for including these marvels, or what Corcoran calls “curiosa” (p. 273). Although, he recognizes the view contemporary to his writing that Pliny is uncritical and naïve, Corcoran argues that Pliny includes these “curiosa” for entertainment value, seeing him adding a literary “air” to them. I agree with Corcoran in so far as these marvels add entertainment value to the *Natural History*, but I disagree that Pliny seeks to add to its marvellous feel “even when there is a rational explanation” (p. 273). I think this devalues any concern for truth in Pliny’s writing, instead addressing the naïve argument with literary intentions, all the while regarding factuality in the *Natural History* as nearly absent; Bodson (1998: 70-71) reveals how the Greeks, too, held some animals in *thauma* (wonder; marvel). She further attributes this to Aristotle’s justification for studying “lesser” animals (*PA* 1 645a18). This is mirrored by Pliny in his justification for studying *insecta* (*NH* 11.1.1-4).

Those about phoenixes, unicorns and basilisks were, and still are, regarded as fables or legends about mythical beasts.⁷⁰ This inclusion of so many fantastical stories in the *Natural History*, although interesting, seems out-of-place within a supposedly scientific text. But this presupposes that the *Natural History* is “scientific” in the same way as we would see it, or more fairly, in comparison to Aristotle. Lastly, the view which sees Pliny as a mere compiler or copier of information, ignores his purpose and undermines his worth to the modern scholar.⁷¹ Rather, in consideration of Aristotle’s impact on Pliny, Pliny can therefore be considered a valid source for zoological information, extending his own influence and regard for the subject matter. It is with this background in mind that I shall now examine Pliny’s methods and emphasis within the *Natural History* and the views of current scholarship which have bolstered his reputation of late.

1.2 Situating Pliny within Natural History

Current scholarship on Pliny and the *Natural History* focuses on “encyclopedic” style and an emphasis on *Romanitas*.⁷² Based upon the argument that the encyclopedia is the product of imperialism, first attributed to the *Encyclopedia Britannica* under the British Empire, many scholars recognize a similar pattern within the confines of the *Natural History*.⁷³ It is undeniable that Pliny applies many Roman elements to his work, incorporating his culture whenever the opportunity arises. In the zoological books specifically, he recounts many triumphs which earlier Roman generals held, such as those of Pompey,⁷⁴ or the games of past emperors or generals, namely Augustus and Caesar.⁷⁵ These have often been seen as testaments to the success of Rome and its conquests of foreign peoples and lands.⁷⁶ But one must remember that although a triumph symbolizes

⁷⁰ See Goguey (2003: 108-110).

⁷¹ Mayr, et al. (1953: 5) divide the history of taxonomy into four parts, the first of which loosely correlates with alpha taxonomy. This stage is characterized by the study of fauna, often local, in which it is described and named (p. 19). It is clear that both Aristotle and Pliny partake in this stage, albeit Aristotle more philosophically.

⁷² See Carey (2003): cf. n. 3. Schultze (2011).

⁷³ See Carey (2003: 17); Murphy (2004: 2); Doody (2009: 19-21).

⁷⁴ See *NH* 8.2.4; *NH* 8.6.16.

⁷⁵ For a few examples see *NH* 8.7.22; *NH* 8.20.53; *NH* 8.24.64; *NH* 8.27.69; *NH* 8.28.70.

⁷⁶ Cf. n. 3.

these victories, Pliny's inclusion of triumphs does not necessarily reveal this to be his intention. I think it is reasonable to recognize the practical reason: what Pliny knows about these animals is dependent upon Roman exposure to them, beyond his sources, including the Greeks and especially Aristotle. As Pliny relates to us, it is his intention to rely heavily upon Aristotle while including information unbeknownst to the Greek. What better information to include, which Aristotle did not include, but that which belonged to Roman history, conquest and culture? Pliny confirms this notion when he makes mention of several triumphs and games accompanied with saying that said event was the first time such and such an animal first appeared in Rome. We should be careful in reading this too much as a display of Roman power lest we overlook its observational worth to Pliny. By accounting for an animal's presence in Rome, Pliny is able to familiarize his reader with a Roman awareness of the aforementioned animal. By locating an animal within the confines of Rome, and even the borders of the Empire, Pliny reduces the obscurity associated with the animal, making it something actually observable, having been previously witnessed by the Roman people. Take, for example, the *camelopardalis* (giraffe) or the *chama* (perhaps a lynx) of which Pliny tells very little, beyond a brief description of their appearance, and their debut in Rome: the former in games given by Caesar (*NH* 8.27.69) and the latter by Pompey (*NH* 8.28.70). By attesting to their presence in Rome, he not only situates them within Roman history and culture, but he can also claim a knowledge about these animals real to the Roman world, beyond the information presented by his sources. The other clear benefit of including Roman events within his zoological books is in order to make the *Natural History* more accessible to his contemporary reader. Not only would they share culture, but they would supposedly know of some, if not many, of these Roman events included in the *Natural History*, thus further making the text relevant and relatable.

It is not my place to argue here the validity of the prevalence of Roman imperialism within the *Natural History* in consideration of my study of the zoological books and the identification and recognition of animals described therein. It is enough to mention it briefly, since, even if this was Pliny's purpose, Books 8-11 are not dominated by this aspect. As I have already mentioned, the inclusions of triumphs and games permit

a further glimpse into Roman interaction with these animals and the intertwining history they had with Roman culture.

What is worth more attention, however, are Pliny's methods and manner of writing the *Natural History*. We are given some insight into this question through the letters of Pliny the Younger, Pliny's nephew. In a letter directed to one Baebius Macer, Pliny the Younger relates how his uncle would continually dictate passages whenever the opportunity presented itself:

in itinere quasi solutus ceteris curis, huic uni vacabat: ad latus notarius cum libro et pugillaribus, cuius manus hieme manicis muniebantur, ut ne caeli quidem asperitas ullum studii tempus eriperet; qua ex causa Romae quoque sella vehebatur. (Epistulae 3.5.15)

On travel(s), as if freed from other cares, he would devote himself to this one thing: at his side was a short-hand writer with a book and writing-tablets, whose hands were protected by gloves in winter, so that not even the fierceness of the sky would take away any time from his study.

Even on journeys, Pliny did not waste the time, choosing to capitalize upon it. His nephew also tells of one incident in which Pliny chastised a friend for interrupting the reader, thus causing him to lose valuable time:

memini quendam ex amicis, cum lector quaedam perperam pronuntiasset, revocasse et repeti coegisse; huic avunculum meum dixisse: 'Intellexeras nemp?' cum ille adnuisset, 'cur ergo revocabas? decem amplius versus hac tua interpellatione perdidimus.' tanta erat parsimonia temporis. surgebat aestate a cena luce, hieme intra primam noctis et tamquam aliqua lege cogente. (Epistulae 3.5.12-13)

I remember one of his friends, when the reader had pronounced something incorrectly, checked him and made him repeat it; my uncle said to him, "certainly you understood, no?" When the man agreed, he said, "Why then did you make him turn back? We lost more than ten lines because of this interpretation of yours." So great was his thrift of time. In summer he would get up from the table at light, in winter during the first hour of night, as if some law compelled him.

From the account of his nephew, Pliny was someone who favoured quantity when it came to information and literature. Some have seen this as a testament to a lack of quality, holding the two as irreconcilable opposites. But this attitude of Pliny is most appropriate for one who wrote the *Natural History*, an encyclopedic-style book encompassing all aspects of Nature, including people, animals, art and geography. He is a man driven by

knowledge and facts. The benefit of this ought to be clear: Pliny includes much of what he knows and of what information is accessible to him. In the opening remarks of the *Natural History*, Pliny mentions the great amount of works and authors of whom he uses as sources for his various topics.⁷⁷ This list is probably not exhaustive, but his point stands nonetheless. What else could we expect from someone who attempts to cover all of Nature? It would be outrageous to think that he alone would have had enough knowledge on every subject to fill up his *Natural History*. Even Aristotle, at least according to Pliny, relied upon knowledgeable men as sources for his zoological works.⁷⁸ The same can be said about Pliny. The only difference, however, is that Pliny is much more obvious when citing; perhaps this is, in part, because of his reliance upon the work Aristotle laid down previously, and others since him.⁷⁹

In response to Pliny's almost-obsessive focus on information through reading and dictating, some have argued that Pliny is nothing more than a compiler.⁸⁰ Although this view is one generally now located in the past, it must be addressed, if only briefly, for the sake of my analysis in subsequent chapters on the identification of specific animals. For these case studies to be worthwhile, Pliny must provide reliable information with appropriate approval and criticism of his own. Grundy Steiner wrote a short piece in 1955 that deals with this topic.⁸¹ Steiner argues that Pliny was indeed skeptical, at a time when this view was largely dismissed, but one which now appears to be quite obvious. In support of this idea, Steiner points out some occurrences in the *Natural History* where Pliny disagrees with either popular opinion or his source on a matter; these occurrences

⁷⁷ For the authors Pliny uses for the zoological books, see *NH* 1.8-11; it is noteworthy that Ley (1968: 34) addresses the fact that Pliny cites his sources, while Aristotle does not. Ley argues that this lack of citation on the part of Aristotle reveals that his biological treatises were meant to be lecture notes, read aloud with additions able to be made, rather than to be read. Although it is argued that some of the treatises were probably intended for lectures (cf. n. 23: Guthrie [1981]), I think that Ley overlooks the tradition in ancient Greek science for authors to rarely mention predecessors, except when correcting or refuting them. Pliny's inclusion of citations, however, seems to be a conscious decision on his own part to credit, at least partially, his predecessors, particularly when he lists these sources in the preface of his *Natural History*.

⁷⁸ Cf. n. 20; Guthrie (1981: 43) briefly discusses this "Aristotelian legend" as he puts it, citing Aelian, Athenaeus, and Pliny. Aristotle even suggests that he had at least some contact with specialists. Guthrie, however, reminds us that Aristotle is not above using literary sources; Lloyd (1987: 53-54) also addresses the references to both specialists and secondary sources within Aristotle's writings.

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⁸⁰ At the time, Stannard (1965: 420-422) argued against the main contemporary argument that saw Pliny as an uncritical and gullible copyist.

⁸¹ Steiner (1955).

are not uncommon.⁸² In fact, Pliny often interjects his opinion on a matter, displaying his own doubt or hesitancy regarding the validity of a “fact” yet includes the information nonetheless for his reader, as he suggests in Book 17:

est et alia hora circa canis ortus, paucioribus nota, quoniam non omnibus locis pariter utilis intellegitur, sed haud omittenda nobis non tractus alicuius rationem, verum naturae totius indagantibus. (NH 17.30.132)

And there is another time around the rising of the Dog, known to fewer people, since it is not equally understood as useful in all places, but nothing ought to be omitted [since] I am not drawing out an account for some of you, but for those investigating all of nature.

Here he is characterizing his work as one not limited to one specific group of readership; it is his desire to include everything in order that all of Nature is covered and not just one part of it. Steiner expands upon this and interprets a second passage (NH 17.30.29-30) as Pliny leaving it up to his reader to decide.⁸³ On the other hand, Pliny recounts elsewhere, as Steiner points out, that it is not his purpose to go beyond the “facts” (as we saw earlier when Pliny says it is not his intent to explore causes):⁸⁴

nominantur ab Homero scopes avium genus: neque harum saturicos motus, cum insidientur, plerisque memoratos facile conceperim mente, neque ipsae iam aves noscuntur, quam ob rem de confessis disseruisse praestiterit. (NH 10.70.138)

The *scopes* is called by Homer a *genus* of birds. I cannot easily grasp with my mind their satirical movements, when they lie in wait, known by many, nor are these birds now known, on account of which it is better to speak about acknowledged things.

Pliny does not want to waste time hypothesizing on causes and questionable ideas. He simply relates what is known or believed, includes his own opinion on the matter and then proceeds to the next topic. Steiner perhaps characterizes Pliny most accurately, in my opinion, when accounting for Pliny’s sometimes questionable skepticism in correcting popular opinion quite readily, yet in other places agreeing with what seem to

⁸² For example, Pliny criticizes those who believe and write about werewolves, thinking it absolutely ridiculous (NH 8.34).

⁸³ Steiner (1955: 142). This is similar to the unbiased approach seen in the historiographical tradition: for example, Herodotus 1.1-5; Livy, *Ab urbe condita* Pr.

⁸⁴ Steiner (1955: 141).

be even more outlandish beliefs:⁸⁵ he is affected by his sources, tradition and culture, and his own personal bias.⁸⁶ Pliny may be a compiler in the sense of including so much information from his sources, but he does so not without inserting his opinion. He is conscious of what is in the *Natural History* and he does not agree with all of it. One might then ask why Pliny bothers to include these “facts” if he considers them to be incorrect. The modern scholar might regard this as evidence that Pliny is an uncritical compiler of information, but this does not seem to be his purpose, namely to censor and limit what is included in the *Natural History*. This is perhaps one of Pliny’s greatest benefits to modern scholarship: a hypothetical near-exhaustive inclusion of knowledge accessible to him. We are partakers to nearly all, if not all, of what Pliny knew about any particular exotic animal and any concerns he may have had with the accounts of earlier writers. Of course it is unlikely that he includes everything known to him just out of sheer magnitude and time-consumption, but it is reasonably safe to assume that personal bias was not a limiting factor in what is included and excluded. Moreover, because Pliny readily includes his own opinions in the text, we are partial to his understanding too.

In terms of Pliny’s zoological books, my view is that his indebtedness to Aristotle runs deeper than the superficially “borrowing of information” for the *Natural History*. Although it is true that Pliny will at times copy passages from his sources (as I will more clearly demonstrate in the following chapters), the underlying views and assumptions of the biological world testify to Aristotelian influence. Within the *Natural History* there exist pieces of what look like a classification system in a similar manner to that of the Aristotelian corpus. It might be best to characterize these “pieces” as the means to describe animals. If Aristotle’s *HA* is indeed a philosophical discourse on biology, with its emphasis on *differentiae* and ultimately causes, this same organizational system permeates Pliny’s *Natural History*. The question, however, is whether this is a natural effect of Pliny’s reliance on Aristotle, or the result of ancient philosophers categorizing

⁸⁵ I use outlandish from our point of view. Just because we find something unbelievable does not mean that the Romans did not or could not. This characterization of Pliny and his *Natural History* hearkens back to the concern of Murphy (2004: 10-11) (see introduction, p. 3). Although we might find it difficult to discern the historical Pliny behind the *Natural History* because of the pervasiveness of multiple literary traditions within the *Natural History*, we are nevertheless able to recognize Pliny’s understanding and beliefs in the instances which he actually inserts his own voice.

⁸⁶ Steiner (1955: 140); cf. n. 22; Lehoux (2012).

Nature, a process led by a perceived “organization” to the biological world? I have already shown that Aristotle’s own description of the μέγιστα γένη at *HA* 1.6 490b6-13 appears to indicate that his readership was unfamiliar with some of the groupings, beyond the general words for “birds” and “fish”, while the “soft-shelled” animals went by supposedly more than one name. This suggests an awareness of “related” animals governed by similarities, as seen when Aristotle defines those with feathered wings as “birds” (*HA* 1.5 490a12). Aristotle further suggests this idea that some of these names do and do not derive from himself, already existing (or not) among Greek speakers:

τοῦ δὲ γένους τοῦ τῶν τετραπόδων ζῴων καὶ ζωοτόκων εἶδη μὲν ἐστὶ πολλά, ἀνόνομα δέ· ἀλλὰ καθ’ ἕκαστον ὡς εἰπεῖν, ὥσπερ ἄνθρωπος εἴρηται λέων, ἔλαφος, ἵππος, κύων καὶ τᾶλλα τοῦτον τὸν τρόπον, ἐπεὶ ἐστὶν ἐν τῷ γένει καὶ ἐπὶ τοῖς λοφούροις καλουμένοις, οἷον ἵππῳ καὶ ὄνῳ καὶ ὄρει καὶ γίνῳ καὶ ἴνῳ καὶ ταῖς ἐν Συρίᾳ καλουμέναις ἡμίονοις, αἱ καλοῦνται ἡμίονοι δι’ ὁμοιότητα, οὐκ οὔσαι ἀπλῶς τὸ αὐτὸ εἶδος· καὶ γὰρ ὀχεύονται καὶ γεννῶνται ἐξ ἀλλήλων. διὸ καὶ χωρὶς λαμβάνοντας ἀνάγκη θεωρεῖν ἐκάστου τὴν φύσιν αὐτῶν. (*HA* 1.6 490b31-491a6)

There are many εἶδη of the γένος of four-footed and viviparous animals, but are unnamed. But each of these is, so to speak, individually named such as man: lion, deer, horse, dog and the others in this way, although there is one γένος even to those called *lophouroi*, such as the horse, ass, mule, *ginnos*, *innos*, and those in Syria called half-asses, which are called half-asses on account of their likeness, but are simply not the same εἶδος; for they breed and give birth from each other. For this reason it is necessary to consider the nature of each of these taken separately.

Although Aristotle is aware of the many kinds of animals belonging to the viviparous quadrupeds, he also recognizes that many of these do not have an actual name; rather, they are grouped according to “individuals” or better yet, the lowest common factor: lions, men and dogs. We have already touched upon the fact that Aristotle includes few intermediary groups, the reason for which appears to be that they were not actually recognized or called anything.⁸⁷ Aristotle provides an exception to this rule in considering the *lophouroi*, a group which encompasses horses, asses and mules. The rise of this grouping can fairly certainly be attributed to the domestication of these animals

⁸⁷ See above, pp. 17-19.

and the degree of human interaction.⁸⁸ I think it is clear by now that if Aristotle had intended to create a taxonomic system he would have “created” these groupings specifically for his study; this, in conjunction with the application of a rank-free classification system, demonstrates that he was indeed focusing on *differentiae*. Any kinds which are found in his *HA* are to ease his discussion of both the similarities and *differentiae* of animals.

In returning to Pliny, these so-called groups appear also in his *Natural History*. He divides his zoological information into four separate books based upon general “large” groups, although not completely consistent with Aristotle’s μέγιστα γένη. Book 8 concerns terrestrial animals (*terrestria*); Book 9 aquatic animals (as Pliny indicates when he describes animals *aequorum, amnium stagnorumque* [NH 9.1.1]); Book 10 birds; and lastly, Book 11 small animals, otherwise known as *insecta*. Only two of these actually belong to Aristotle’s μέγιστα γένη, while Book 8 and 9 deal with animals by habitat as a uniting feature. Yet Pliny is not ignoring the other groups of Aristotle’s μέγιστα γένη. The viviparous and non-viviparous animals can easily be inserted into the appropriate book based upon habitat. As for the *cetacea*, “hard-shelled”, “soft-shelled”, and “soft” animals, Pliny seems to consider that they belong to the aquatic grouping. Not only does he discuss the *ballaena* and the *physeter* (NH 9.3.8), but he characterizes the other three groups as belonging to “fish”:

piscium sanguine carent de quibus dicemus. sunt autem tria genera: primum quae mollia appellantur, dein contecta crustis tenuibus, postremo testis conclusa duris. mollia sunt lolliigo, sepia, polypus et cetera generis eius. (NH 9.44.83)

We will speak about those of fish which lack blood. There are three *genera*: the first, which are called soft, second, those covered with thin shells, and lastly those enclosed in hard shell. The soft(s) are the cuttlefish, *saepia*, *polypus* and the others of this *genus*.

He includes all three of these other μέγιστα γένη. The *mollia* correspond to Aristotle’s “soft” animals; the *conclusa testis duris* are “hard-shelled” animals, which are also named shellfish according to Aristotle; and the *contecta crustis tenuibus* are clearly “soft-

⁸⁸ This is something similar to the frequent use of both masculine and feminine words for domestic animals of the appropriate gender as opposed to a lack thereof in wild species, with some exceptions of course.

shelled". Pliny, like Aristotle, mentions their bloodless nature. Interestingly, Pliny informs his reader that of the *polypus*, which is a "soft" fish, there are both terrestrial and aquatic kinds: *polyporum multa genera. terreni maiores quam pelagici* (NH 9.46.85: there are many *genera* of polyps; the terrestrial ones are larger than those of the sea). Even though the focus of Book 9 is aquatic animals, Pliny includes the terrestrial *polypus* because of its relation to the aquatic version and the appropriateness of discussing it at this moment. Pliny therefore does not bind himself to this overall organizational model. The themes of each book are not exclusive, but guidelines, easing his reader's ability to locate any one specific topic or fact, something to which Pliny attests in his opening remarks of the *Natural History*:

tu per hoc et aliis praestabis ne perlegant, sed, ut quisque desiderabit aliquid, id tantum quaerat et sciat quo loco inveniatur. hoc ante me fecit in litteris nostris Valerius Soranus in libris, quos ἐποπτίδων inscripsit. (NH Pr.7.33)

You will be responsible, even to others, not to read through this, but, as each desires something, he will seek it alone and know in which place he will find it. Valerius Soranus already did this in our literature before me, in his books which he inscribed On Mysteries.

One should not recognize these book divisions as evidence for Pliny's recognition of a taxonomic system among animals, but rather, it characterizes Pliny's view that perhaps this was the best way to organize his material. And, as we have seen, his preferred choices and descriptions differ from Aristotle's μέγιστα γένη, although all nine of these groups are included in the *Natural History* in some form.

The greatest indicator of this freedom for Pliny's *Natural History*, at least within the zoological books, is Book 11 in which, after discussing *insecta*, Pliny continues with a discussion on the various parts of the body and the various differences between animals on a limb by limb basis: *nunc per singulas corporum partes praeter iam dicta membratim tractetur historia* (NH 11.44.121: now let the inquiry pass through each part of the body beyond what has already been said, limb by limb). This echoes Aristotle,⁸⁹ who discusses each part of the body with reference to the differences found in the various kinds of animals, whether it be man, birds or fish. Similarities in groups are touched upon, but it is

⁸⁹ See HA 1.6 491a15ff.

the key, defining features and traits that are highlighted. Those things which characterize a particular group, whether large or small, are addressed in relation to each other in order of bodily parts. Since this method of study appears seemingly out of place in Book 11, in which we should expect to find a discussion of *insecta*, and the strong resemblance of this information's organization to Aristotle's study about these differences among animals, it is nearly impossible to doubt the Aristotelian influence.⁹⁰ Not only is Pliny indebted to Aristotle for much of his information, but he also follows a similar practice when exploring and conveying the information in his *Natural History*.

One may suggest, however, that a similarity between style and practice can be attributed to the fact that Pliny, receiving his information from his sources, prefers to emulate their style. I cannot refute this idea, since it is impossible to know for certain of Pliny's intention. Pliny the Younger, in his description of his uncle's method of composing through listening and dictating, seems to indicate that Pliny closely followed his sources. Although he would have had to translate some of what we find in the *Natural History* into Latin from Greek, it is not uncommon for him to recount sentences and passages nearly verbatim from his predecessors. Yet, I do not want to criticize him for doing so. Although we might view this with disdain from a literary or "uninspired" point of view, it is necessary that we remember that Pliny is not simply discussing zoology, but the entire corpus of Nature. This endeavour is, according to Pliny, the first attempt at such a thing.⁹¹ He does not set out to write something entirely new about Nature, but

⁹⁰ French (1994: 220) seems to think that Pliny clearly does not engage in the *differentiae* between animals, stating it almost factually, without arguing the statement. As I demonstrate in this chapter, I think the issue of *differentiae* is much more prevalent in the *Natural History* than perhaps has been noticed, even if largely through the literary osmosis of Pliny copying his sources. French further states that Pliny recognizes neither Aristotle's purposes nor the correlation between the habits and habitat of an animal with its form, or causation. To the first comment I simply need to recall Pliny's own words that he is not interested in causes (*NH* 11.2.8). It is not so much a matter of whether or not he understands Aristotle's purpose; rather, this is not Pliny's primary focus. In response to French's second comment, although Pliny addresses this issue much less often than Aristotle (as I said, it is not Pliny's purpose), he nevertheless does include correlations at times, for example: *sunt autem complura in his maiora etiam terrestribus. causa evidens umoris luxuria (...) in mari autem tam late supino mollique ac fertili nutrimento, accipiente causas genitales e sublimi semperque pariente natura, pleraque etiam monstrifica reperiuntur* (*NH* 9.2.2: there are, moreover, many among these which are larger than even land animals [...] and in the sea so extensively spread out and soft and fertile with nourishment, receiving generative causes from above and always producing births, many monstrosities are found).

⁹¹ See *NH* Pr.14; Carey (2003: 24) says that Pliny seems to think his work is superior to the Greeks since he is the first one to try and encompass all of Nature within one work. But Carey's statement follows upon the

rather focuses on how the information is presented and organized, with his own occasional perspective added. The same too can be said about his treatment of Aristotle. Pliny does not intend necessarily to rethink or build upon the philosophical foundations established by Aristotle. Instead, he wishes to expand upon the information and “facts” accessible to him. And, as we have seen, Pliny deviates from Aristotle’s μέγιστα γένη and therefore exhibits his own style at times. As mentioned earlier, this has an added benefit to an ethnozoological study of the *Natural History*, permitting a glimpse into the traditions and history of the recognition, identification and knowledge of exotic animals up to Pliny’s own time. Since Pliny also includes his own thoughts and critiques, as well as popular belief, we can see whether thought had changed since the initial writing of his sources. Lastly, because Pliny is a non-specialist (with regard to zoology at any rate) and is not engaged in a deeper, philosophical discourse as Aristotle, the *Natural History* is more accessible and less cryptic to its reader.

Except for the emphasis on Roman glory and empire, the only other major factor which seems to have had an effect on Pliny in shaping the *Natural History* is the attention he gives to morality and the benefits animals have in their uses for humanity.⁹² Although I do not think that this adversely affects the information given for my study, in particular the zoological “facts”, it nonetheless helps further our understanding of the *Natural History* and Pliny’s merit when it comes to the zoological books. Morality goes hand in hand with the inclusion of stories, which not only characterize the animal, but compare its behaviour with that of humanity. For example, elephants are said to be closest to humans in intelligence. In relation to this degree of intelligence, an elephant understands the language of its native land, obeys orders, remembers its duties, desires glory and possesses virtues of honesty, prudence, justice and religious respect, virtues which Pliny

view that Pliny is critical of his Greek sources. Perhaps this view is emphasized by Carey in favour of promoting the *Natural History* as a display of Roman imperialism. Nevertheless, I find it difficult to reconcile this characterization when Pliny seems to suggest otherwise: *an<te> omnia attingenda quae Graeci τῆς κυκλίου παιδείας vocant, et tamen ignota aut incerta ingeniis facta* (NH Pr.14: first, all of which the Greeks call *enkuklios paideia* ought to be touched upon, and then the facts which are unknown or uncertain by our mode of thinking).

⁹² Doody (2010: 37) says there is just as much importance placed upon the moral lessons animals can present to the reader as these narratives have for further understanding nature.

is quick to say are rarely found among men (*NH* 8.1.1). Intelligence, here, seems to go hand in hand with a virtuous character and the traits of an ideal Roman citizen. Although we may question the validity of attributing all these characteristics to the elephant, the point is that he is emphasizing this intelligence of the elephant, while simultaneously criticizing the behaviour of some of his readers through its example.

In a study of Roman zoology, we must remember that morality, “tales” and beliefs about animal behaviour and abilities, are tied quite closely to what we would deem hard facts. In Pliny’s description of the elephant, it is evident that he will cite a source on occasion concerning a particular fact or notion about its nature. Other times, however, he simply says *auctores* (*NH* 8.1.2) or references popular belief as in *creduntur* (*NH* 8.1.3) suggesting that this sort of information may arrive to him from non-literary sources, an opinion, or contemporary belief. But this does not undermine the information he does include, nor should we be troubled that he chooses to focus much of his attention on “myths” and narratives about animals, since these too can help us further understand how these animals are rendered in ancient literature and thought.

Unlike Aristotle’s zoological works, Pliny’s *Natural History* is not meant to be a philosophical and “technical” discourse about the biological world. If anything, there is a “philosophical” discussion about humanity and morality woven into his zoological books. He emphasizes the greatness of Nature, which leads me to my final point. Like Aristotle who focuses on *differentiae* in order to recognize all these differences before understanding and discussing their causes, Pliny too, I think, presents *differentiae*, in a manner of speaking, but not for the same purpose as Aristotle. This is, however, probably the aftereffect of Aristotelian influence on Pliny as seen in the second half of Book 11. It is reasonable that when describing animals, one naturally reverts to focusing on key features and behaviour that make the animal what it is. It makes complete sense that when discussing the elephant, Pliny mentions its tusk, bulk and intelligence, for example. As has already been argued for Aristotle’s treatment of zoology, it would have been rather tedious and boring if Pliny should address each part and trait in every animal when discussing each specific animal in its turn. It is much more satisfying and efficient to address not only features common to larger groups such as birds and their feathered wings all at once, but also to talk about a particular characteristic all at once, highlighting

the differences between individual species, as we see in Aristotle's discussion of body parts in turn, or Pliny's similar treatment in Book 11. This notion applies all the more to Pliny who appears much more concerned with the reader's reception of his *Natural History*, not only in dividing it for ease of searching, but also through the inclusion of stories and *Romanitas*.

He does not stop here, either. Pliny often will link one animal to another through a similar, defining feature. One example of this practice will suffice as an illustration: *id deiectum semper in terram, alias internicio humani generis, omnibus qui oculos eius videre confestim expirantibus. eadem et basilisci serpentis est vis* (NH 8.32.77-33.78: it [catoblepas] is always looking down towards the ground, otherwise deadly to the human genus, since all who see its eyes immediately die. This same power belongs to the basilisk serpent). Pliny moves from the *catoblepas* (possibly a gnu), a large four-footed animal native to Western Aethiopia, to the basilisk serpent of Cyrenaica. It is only the power of their eyes which connects the two animals. Pliny then describes the wolf, following the basilisk, through the introduction: *sed in Italia quoque creditur luporum visus esse noxius* (NH 8.34.80: but in Italy it is even believed that the sight of wolves is harmful). Scholars have not overlooked this aspect of Pliny's *Natural History*. The loose and often unexpected connections are seen as a means to further engage the reader's interest.⁹³ This feature also characterizes the lack of rigidity in the organization of information, as we have seen time and again. The same can be said about Pliny not limiting himself to any one particular linking feature either: above, he connects the descriptions through the defining feature of their eyes; elsewhere one finds him using geography (NH 8.38.91-39.95: crocodiles and hippos of the Nile); medicinal practices (NH 8.40.96-41.97: the hippo unburdens its body through bloodletting, while the ibis purges itself with its beak); and even self-amputation (NH 8.46.108-47.109: both the beaver and wild ass undergo self-castration). This practice embodies what we have seen of Pliny's style in Book 11 when he deals with a part by part analysis as Aristotle does in

⁹³ Fögen (2007: 193) calls these loosely connected passages as "associative narrative"; Doody (2010: 25) argues that Nature as a whole can be understood within the *Natural History*. I would have to agree with her since Pliny includes everything about Nature in his text (I do not necessarily mean every known fact, but every "topic"). Doody is also right in viewing these "links" in similarity as a realization of this idea.

his *HA*. But unlike Aristotle, Pliny is not doing so in order to ascertain the causes of these *differentiae*. To Pliny, it is the means by which he is able to organize his zoological books, linking the animals in a smooth, yet often unexpected way.

It is evident that the Aristotelian influence on Pliny runs deeper than simply as a vital source for the information we find in the *Natural History*. Pliny imitates Aristotle's style of addressing *differentiae* on a part by part basis in the last half of Book 11. His descriptions often focus on features not too dissimilar from *differentiae*, but that is not to say that he is consciously imitating his predecessor in this regard. Aristotle's *differentiae* are the same defining features that allow one to identify and recognize a particular animal from another of the same γένος, and can be argued to be the animal's most interesting features in relation to other animals. In addition, as Aristotelian scholarship has argued, emphasis should not be placed on trying to find a taxonomic system. Any apparent traces of such a system which we find in the *Natural History* are not to be understood as a governing factor in the shaping of the text, but are at best evidence for the way in which Pliny recognizes the world's organization and structure around him, and at worst, the remnants of osmosis resulting from Pliny's use of Aristotle. The truth is probably somewhere in the middle, as shown in Aristotle's need to ease the undertaking of his philosophical study by addressing similarities among individuals and groups as a whole by utilizing a rank-free classification system. The merit of groups extends beyond taxonomy alone, providing a means through which Pliny can describe and understand an animal, a notion evident in my next chapter concerning the use of *genus* and *species* in the *Natural History*. Not only does this further emphasize the Aristotelian influence on Pliny, but also highlights Pliny's own attitude. Lastly, it is important to remember that Pliny's presumed intention went beyond just recounting information as he regularly includes his own thoughts and opinions, while continually challenging his fellow Romans on their moral behaviour. For the sake of this study, we must also remember that Pliny's seeming lack of discrimination between inclusion and exclusion provides an ample opportunity for the study of animal identification and recognition in two main ways: further recognizing his own perspective as seen through his understanding of the subject matter; and for the provision of information needed in the attempt to recognize these animals from our own modern view. Ultimately, however, despite any preconceived

misconceptions and hesitations when we approach the *Natural History* as a source for “scientific” and zoological information, we cannot ignore its place in natural history, remembering that in style the *Natural History* is not too much different from Aristotle’s *HA*. Both warrant an equal place in our appreciation of zoological and natural history, even if for distinct and separate reasons.

Chapter 2

2 *Genus and Species in the Natural History*

For a study of exotic animals in Pliny's *Natural History*, we can learn much from the methods Pliny uses to classify, organize and describe the animals. This study must be based upon the context with which Pliny is working and not a pre-conceived notion on our own part largely influenced by a modern view of taxonomy. It is easy to see why Pliny's *Natural History* has received so much criticism in regards to its taxonomic worth.⁹⁴ First, what we deem as taxonomically-technical words, *genus* and *species*, can be found throughout the text (in particular *genus*). As a result, one might expect these words to possess the same degree of specification as their modern derivatives because Pliny deals so extensively with both plants and animals. Yet, as anyone with much exposure to ancient languages and cultures can attest, this is rarely the case. Second, and perhaps slightly more justified, but nevertheless still unfair, the modern scholar infers a perceived connection between Aristotle's *HA* and Pliny's *Natural History*. And why should he not? Pliny is clear in his reliance on Aristotle, often citing the authority of the Greek philosopher, particularly when it comes to all things animal, as I demonstrated in the previous chapter.⁹⁵

Considering the favourable reception Aristotle has traditionally received in regards to his "founding" of Western taxonomic methodology, we can see why some might expect something similar from Pliny. This is emphasized further when elements of Aristotle's style can be detected in the *Natural History* in sections largely transposed from the *HA*. And of course one other thought persists, that, since Pliny wrote after Aristotle, and took much of his information for his books on zoology from the Greek, Pliny ought to have developed the Aristotelian method, expanding and defining the terms appropriate to classifying animals. But this was never the main purpose of the *Natural History*, which is manifest in Pliny's frequent inclusions of both Roman history and famous people, and his emphasis on morality. These inclusions are often cited as

⁹⁴ Cf. chapter one, n. 31; French (1994: 207); Bodson (1986: 98) discusses this view of earlier scholarship.

⁹⁵ See *NH* 8.17.43-44.

evidence that Pliny seeks to “Romanize” nature and incorporate the natural world into the Roman sphere.⁹⁶

With Pliny’s so-called second-rate status in comparison to Aristotle having been addressed in the previous chapter, in addition to his place in natural history, our attention now turns to Pliny’s methods regarding the terms *genus* and *species*. Do they have a technical meaning, or just a generic definition of “kind” or “type”?⁹⁷ I refrain from using the term taxonomy, since it carries with it its own history and technical language that might hinder a proper study of the *Natural History*.⁹⁸ The purpose of this study is to understand how Pliny relates animals to each other in the broader scheme of classification and organization. I use the term classification in the loosest sense since an actual taxonomic system does not exist per se. Even Aristotle does not clearly demonstrate an evident system. There is also continued focus given to Aristotle and his influence on Pliny, in order to understand what impact Aristotle had on Pliny’s use of *genus* and *species*. Through the apparent differences, we can discern the true meaning behind these practices which perhaps have been overlooked because of the *Natural History*’s less “scientific” style. At the very least, such an undertaking will provide a more practical understanding of the *Natural History* in order to identify and recognize species currently unknown to us in their Latin and Greek names.

It is first necessary to clarify that my study is limited to just Books 8-11 of the *Natural History* since the focus of these books is largely zoology. A study of *genus* and *species* within the context of this zoological information can be deemed sufficient for understanding whether any specialized meaning is implied within the ethnozoological tradition. I do realize, however, that a further exploration of *genus* and *species* in the

⁹⁶ See chapter one, pp. 23-24.

⁹⁷ A similar study has been conducted regarding Aristotle’s use of γένος and εἶδος in his zoological works with many of the same results and understandings (as briefly mentioned in chapter one, p. 15 regarding Balme [1962]). I will refer to this study and compare it to my own concerning the *Natural History* wherever appropriate. See Balme (1962); Boyland (1983); Gotthelf (2012).

⁹⁸ The modern taxonomic practice is Linnaean taxonomy deriving from the work and first systemic organization by (18th century) Carl Linnaeus. This is where we derive the binomial nomenclature for recognizing individual animals through combining the genus and species of said animal (i.e. *Ursus maritimus* for the polar bear: *ursus* being its genus, while *maritimus* represents the species). This system flourished in comparison to the earlier polynomial method (essentially descriptive phrases in Latin) for both its ease and transcendence of language, region, or “vulgar” name: binomial nomenclature is universally recognizable within the scientific community. Cf. chapter one, n. 29.

whole of the *Natural History* can only benefit, but at this time a study of the zoological books should be adequate for a zoological understanding.

2.1 Genus

An examination of the four books yields approximately 250 instances of *genus* and its derivative forms. *Species*, on the other hand, appears only 17 times in these books. Although a number of the cases concerning *genus* refer to things other than animals, it is nevertheless clear that the word *genus* is Pliny's preferred word choice when it comes to describing types of animals.⁹⁹ What is the impact of *genus*? What does it convey to the reader of the *Natural History*? If Pliny's purpose is to provide his Roman readers with information, through descriptions of animals mysterious or hitherto unknown to them through his writing, we have to assume that *genus* has some purpose. That is not to say, however, that the term needs to be technical, known only by specialists, as this brief study of its presence in the *Natural History* reveals. *Genus* acts as a descriptive force which further characterizes the animal in question. In light of this, I suggest that there are two main meanings which *genus* conveys, with a third less apparent and more intricate notion. In no way, however, am I seeking to classify the uses of *genus* with these categories, as all three are not limited to themselves and frequently overlap.¹⁰⁰ Instead, by showing the various meanings and nuances of *genus* in Pliny's *Natural History*, we see that *genus*' worth is rooted in its descriptive capabilities of nature rather than taxonomy.

The word *genus* implies a sense of organization by definition in that it establishes a form of classificatory hierarchy by its own presence, a concept the Romans recognized, as Cicero attests:¹⁰¹

genus autem id est, quod sui similes communionem quadam, specie autem differentis, duas aut pluris complectitur partis. partes autem sunt, quae generibus eis, ex quibus emanant, subiciuntur; omniaque, quae sunt vel generum vel partium nomina, definitionibus, quam vim habeant, est exprimendum; est enim

⁹⁹ Boylan (1983: 50): there are 354 uses of γένος by Aristotle where he means "kind" as opposed to only 24 incidents of εἶδος with this same meaning. It is clear that Aristotle favours γένος.

¹⁰⁰ See especially, OLD s.v. *genus* I.2; I.5; I.6; I.11.

¹⁰¹ I include Cicero for reference only since Pliny does not refer to him as one of his "authorities" for his zoological books.

definitio rerum earum, quae sunt eius rei propriae, quam definire volumus, brevis et circumscripta quaedam explicatio. (De oratore 1.42.189)

A *genus* is that which is composed of two or more parts, which are similar in some common regard, but different in appearance. The parts, moreover, are those which are subdivisions of these *genera* from which they derive; and all names which are either of a *genus* or part, must be expressed in definition what force they have. A definition is a concise and a certain defining explanation of these things, which belong to this thing which we wish to define.

Although Cicero is discussing parts of speech, my definition of *genus* is nevertheless quite similar to his. The difference between Cicero and Pliny, however, is that Cicero presents a very definitive and almost technical description of the word. He also emphasizes parts, which Pliny does not in the *Natural History*. Nowhere do we see Pliny say that x animal is part of the *genus* of y animal. He usually renders it as something akin to x animal is a *genus* of y animal or simply that x animal belongs to the *genus* of y animal.¹⁰² Thus, Pliny's *genus* can be seen to represent not only Cicero's *genus*, but also his *partes*. An entire system of *genera* is present, underlying the text of the *Natural History*.

Now this might seem contradictory to my previous statement that *genus* carries more descriptive weight than taxonomy, but it is necessary to point out this idea of organization. Let me address the issue with an example. As mentioned, Pliny frequently gives descriptions in his *Natural History* that more or less operate as follows: there are x *genera* of y animal. One instance of this pattern is regarding the heron: *ardiolarum tria genera: leucon, asterias, pelion* (NH 10.79.164: there are three *genera* of heron: white, starry and dark).¹⁰³ Here we encounter a taxonomist's dream. Pliny sets out what animal is being classified, in this case, the *ardeola*, followed by what we might call its sub-*genera*. This is where the implied organization or hierarchy comes into play. All three sub-*genera* of herons, *leucon*, *asterias*, and *pelion*, are, by definition, herons. They belong to the group known as "heron", which is, taxonomically speaking, a level higher than all three sub-*genera*. We might relate this to our *genus* and *species*, but cannot allow

¹⁰² This practice appears to derive from Aristotle's similar method of presentation: there are x γένη of y animal; but unlike Pliny, Aristotle also says on occasion: there are x εἶδη of y animal.

¹⁰³ See HA 9.1 609b22: Aristotle uses γένη.

our own notions of these words to shape our views. This would be *genus*' first meaning in the *Natural History*: establishing a form of hierarchy. At the same time, this sort of statement has descriptive implications. Not only does it describe the heron in that it has three variations, revealing the diversity of this animal, but it also immediately characterizes the three sub-*genera* as distinctly different from each other. The *leucon* is not the same animal as the *asterias*, which is, in turn, not the same as the *pelion*. This might seem overtly obvious, but this is not much different from saying the eagle and hawk are both kinds of birds. Through such a statement, we instantly conjure up a characterization of these animals that should resonate quite differently, if we should say that these animals are something different, like a fish or insect. Most importantly, although differentiating between the three heron variations, Pliny's statement also has tremendous influence in drawing the three together. They are still herons, albeit different versions. The unifying factor is quite strong, especially in instances such as this where Pliny does not add any other information regarding the individual *genera*. He does not describe the herons to further distinguish them as separate animals. This is not always the case, as we shall particularly see concerning the eagle, but let us first see how Pliny follows up on his three-*genera*-of-heron statement.

After listing the three *genera* of herons, Pliny proceeds to say that *hi in coitu anguntur; mares quidem cum vociferatu sanguinem etiam ex oculis profundunt; nec minus aegre pariunt gravidae* (*NH* 10.79.164: these birds suffer pain when mating. In fact, the males mate with a loud cry and even shed blood from their eyes; no less painfully do the pregnant females give birth).¹⁰⁴ In one sentence he separates the heron into its constituents, but in the next he immediately brings them back together, by describing male herons breeding with a great cry and even bleeding from their eyes. It is not just one of the heron *genera* that behave in such a way, but all three. There is no further distinction between them as all three become herons again. Thus, without any description relating to the individual *genera*, it appears that the inclusion of *genera* says more about the heron as a whole. It is this aspect which I consider the second force

¹⁰⁴ See *HA* 9.1 609b23-24: Aristotle attributes this behavior only to the πέλος heron. This appears to have been an oversight by Pliny.

behind the word *genus* and the most important: that it is meant to be a conveyer of description and not simply a means through which nature can be organized into neat compartments. We can see this idea in Pliny's comment regarding Apollodorus and his organization of scorpions: *venenum ab iis candidum fundi Apollodorus auctor est, in novem genera discriptis per colores maxime supervacuos, quoniam non est scire quos minime exitiales praedixerit* (NH 11.30.87: the author Apollodorus declared that a white poison is shed from these [their tails]; he also said there are nine *genera* of these divided by their colour, altogether useless, since it is not possible to know which are the least deadly). This statement reveals two things. First, classification in some form was a concern for the ancients; second, and necessary to note for this study, Pliny thought Apollodorus' attempt to distinguish the nine scorpions was pointless because he failed to note which one was the most deadly. This reveals Pliny's own concern for a practical purpose to organizing animals. It is not just simply for the sake of classifying them, but to serve a benefit to people. He fails to see what gain there is in distinguishing the various *genera* of scorpions except for knowing which were the least deadly. This suggests that Pliny was not in favour of classification on its own merit, but sought a deeper purpose in doing so. As we see, however, in his statement regarding herons, he appears to be doing the exact same thing as Apollodorus and therefore we must take Pliny's comment here with a grain of salt. On the other hand, it is possible that Pliny is simply relating material present in Aristotle and his other sources, the *genera* being no more than information which needs to be passed on through the *Natural History*.

Apollodorus' comment also reveals one other major fact: any classificatory force *genus* holds is relatively fluid and far from the concrete established tradition we have now in modern taxonomic practices. Opinions differed, organization changed; it was ultimately up to the individual in how to label and define a particular animal, which seems to fit the idea of the rank-free classification system we saw with Aristotle. This notion is not restricted to Apollodorus either, since Pliny shares a similar understanding as seen in his *Natural History*. One example of this practice is evident in his descriptions of the cicada:

similis cicadis vita, quarum duo genera: minores quae primae proveniunt et novissimae pereunt; sunt autem mutae. sequens est volatura. quae canunt:

*vocantur achetæ, et quæ minores ex his sunt, tettigonia; sed illæ magis canoræ. (NH 11.32.92)*¹⁰⁵

The life of the cicada, of which there are two *genera*, is similar: the smaller ones which appear first and die last; these, however, are mute. Following is the flight of those which sing: they are called singers and those which are the smaller ones among these, [are called] *tettigoniae*; but these sing more.

Pliny informs his reader that there are two types of cicada, for the first of which he chooses not to provide a name. It is of little importance whether he actually knew the name of the animal or not. He does however provide the name of the second *genus*, even including a sub-type of these “singer” cicadas: *tettigonia*. Following an account of cicada habits, he then further describes cicada *genera*: *quidam duo alia genera faciunt earum, surculariam, quæ sit grandior; frumentariam, quam alii avenariam vocant: apparet enim simul cum frumentis arescentibus (NH 11.32.94: certain people make two other genera of these: the tree-cicada, which is bigger, and the corn-cicada, which others call the oat-cicada; for it appears at the same time when crops dry up).*¹⁰⁶ It turns out that other people divide the cicada into two more *genera* (whether they are his sources or contemporary Romans, Pliny does not inform us). Since Pliny does not state that there are four *genera* earlier in his description, nor has anything else to say regarding these two new *genera* it is probably safe to assume that Pliny did not subscribe to a view of four *genera*; but because he does not state that these people are wrong as he does on occasion with popular belief in fabulous stories,¹⁰⁷ we cannot be certain. If Pliny’s primary concern was classification of animals, we would rightly expect him to have either stated there were four *genera* of cicadas or informed his reader that the other two were not. Thus it is fair to conclude that Pliny’s focus is on information, knowledge and descriptions rather than an all-encompassing classification of animals.

¹⁰⁵ See *HA* 5.30 556a14-21: Aristotle uses γένη.

¹⁰⁶ This passage does not seem to originate from Aristotle.

¹⁰⁷ For two examples of when Pliny refutes popular opinion, see *NH* 8.34.80 (werewolves); 8.54.131 (bears in Numidia). Although it stands to reason that Pliny is unlikely to have criticized and corrected everything he disagrees with, we can nevertheless infer something of his sentiment in consideration of his frequent attribution of ideas and notions to the “many” or popular belief. He may not necessarily disagree with such statements, but he seems less certain or convinced than if presenting it as “fact”. For example, see: *NH* 8.34.80 (*creditur*); 8.44.105 (*vulgus credit*); 8.57.137 (*a pleris*).

This idea fits well with the grand scheme of Pliny's zoological books. He intended each one to focus on four varieties of animals: Book 8 concerns terrestrial animals, Book 9 aquatic species, Book 10 birds, and Book 11 small animals. It is possible that Pliny had intended for some semblance of organization, especially when we consider the *Natural History* as a whole, divided into the various subjects regarding nature. Pliny, for the most part, conforms closely to this pattern, yet we frequently see him shifting from subject to subject, not only concerning animals which ought to belong to a different book, but even topics whose main focus lies elsewhere in the *Natural History*. The best evidence of this occurrence is in Book 11 in which the latter half of the book (as we saw in the previous chapter) is devoted to body parts, rather than continuing the discussion of small animals. Despite the shift in focus, Pliny merely introduces the change with *nunc per singulas corporum partes praeter iam dicta membratim tractetur historia* (NH 11.44.121: now let the investigation pass through each part of the body, limb from limb, beyond those already spoken about). At this point in his writing, he switches his preference of discussing individual species for a discussion of particular body parts, reminiscent of what we see in Aristotle's *HA*.¹⁰⁸ Even this, though, emphasizes the descriptive merit of such a discussion, as animals are indirectly compared and contrasted. In some cases, most, if not all, *genera* of animals are united: *mares in omni genere fortiores sunt praeterquam pantheris et ursis* (NH 11.110.263: the males in every *genus* are stronger except among *pantherae* and bears). Pliny is transcending the organizational meaning of *genus* for the expressive and immediate imagery the word creates in such comparisons between animals. Returning to the fact that Pliny divides up the *Natural History*, one can attribute this not so much to a need to organize for its own sake, or even an attempt to classify zoological knowledge, but rather for its practical uses, as Pliny himself explains in his introduction to the work as whole (NH Pr.33). Thus, I do not think we should be so quick to see classification as the driving forces behind Pliny's *Natural History*, with the same being said about *genus* and its meaning.

¹⁰⁸ As seen in the previous chapter, it has been argued that Aristotle is describing *differentiae*, with the emphasis of *HA* Books 1-4 on parts. See Balme (1962: 98); Lennox (2001: 40); Gotthelf (2012: 272); Föllinger (2012).

This becomes more apparent when we consider that the use of *genus* in the *Natural History* is not limited to the four broad themes of the zoological books. It would be tempting to devise an extensive reconstruction of what could be deemed a hierarchal tree of the animals presented in the text, starting with these four groups: *animalia terrestria*, *aves*, *animalia aquatica*, and *insecta*, with the appropriate sub-divisions: under *animalia aquatica*, for example, would be *pisces*, and under that, we could find *planori* (flat-fish),¹⁰⁹ *conchae* (shell-fish),¹¹⁰ *squamosi* (scaly-fish),¹¹¹ *mollia* (soft-shelled fish),¹¹² and so on. If we sought to continue this pattern we could try to fit in the other *genera* Pliny mentions: both *sanguinei* and *sine sanguine* would fall under *pisces*; both *mollia* and *conchae* would fall under the latter *sine sanguine*, although Pliny does not say *conchae* at *NH* 9.44.83, instead describing the animals as those which possess hard shells.¹¹³ This lack of precise terminology should caution us from reading too much into Pliny's use of *genus* as a classification tool. Furthermore, such an undertaking would only work so far until we come across *genera* that do not readily fit into the above system.¹¹⁴ In one section Pliny describes lions as belonging to an implied "cat" *genus*, a notion we are not unfamiliar with: *leonibus, pardis omnibusque generis eius, etiam felibus, imbricatae asperitatis ac limae similis* (*NH* 11.55.172: to lions, *pardi*, and all in this *genus*, even cats, is [a tongue] similar to a file or rough gutter-tiles). This, however, conflicts with another passage Pliny gives:

sed superiora omnia perfectos edunt partus, haec inchoatos, in quo sunt genere leaenae, ursae; et vulpes informe etiam magis quam supra dicta parit, rarumque est videre parientem. postea lambendo calefaciunt fetus omnia ea et figurant. (*NH* 10.83.176)

But all those above give birth to complete offspring; these, however, give birth to "started" offspring. In this *genus* are lionesses and bears; foxes, even, produce [offspring] more unformed than those mentioned above, and it is rare to see them

¹⁰⁹ *NH* 9.40.78.

¹¹⁰ *NH* 9.52.102.

¹¹¹ *NH* 9.23.56.

¹¹² *NH* 9.44.83.

¹¹³ *NH* 9.44.83.

¹¹⁴ This fits with my earlier examination of the Aristotelian classification system and the inclusion of many, often not mutually-exclusive, groups, some of which probably have their roots in popular understanding and culture. It stands to reason that if Aristotle's corpus is inconsistent with these γένη, Pliny would be too, having been influenced by him, or at least not setting out to "correct" his predecessor.

giving birth. Afterwards, all these animals warm their newborns and shape them by licking them.¹¹⁵

We, as the reader, are given the impression that there is a *genus* which is defined by all those in this group as giving birth to incomplete offspring which have to be “completed” by their mothers through licking.¹¹⁶ An attempt to place this *genus* in the organizational method which I described above would fail. On one hand, there is a cat-*genus* which includes lions, leopards and other cats, and on the other, there exists an incomplete-offspring-*genus* (for a lack of a better term) to which lions, bears and foxes belong. Lions clearly belong to both groups, but neither of the two groups is able to co-exist within each other: leopards and cats are not part of the incomplete-offspring-*genus*, nor are bears and foxes in the cat-*genus*. One might argue that Pliny simply made an error when describing these *genera* for his reader, but this cannot possibly be the case when we consider this is not the only instance where this occurs. This echoes what has been seen in Aristotelian scholarship and the different organizational rationale in each of the zoological books.¹¹⁷ The connection between the two authors is furthered; but Pliny’s use is perhaps even less technical than Aristotle. Thus, what we see here is a non-technical use of the word.

Other examples of this issue include the dwarf-*genus*: *pumilionum genus in omnibus animalibus est, atque etiam inter volucres* (NH 11.108.260: there is a dwarf *genus* in all animals, and even among birds); and both the tame-*genus* and wild-*genus*, with an intermediate stage:

hi mansuescunt raro, cum feri dici iure non possint; complura namque sunt nec placida nec fera, sed mediae inter utrumque naturae, ut in volucris hirundines, apes, in mari delphini. quo in genere multi et hos incolas domuum posuere mures (...) (NH 8.82.220-221)

These [hares] rarely grow tame, although they cannot be rightly said to be wild; for there are many animals that are neither tame nor wild, but of a nature in between both, as swallows among birds, bees, and dolphins in the sea. In this *genus* many place the mice which dwell in homes (...)

¹¹⁵ See GA 4.6 744b14-19.

¹¹⁶ One might infer that there would naturally be a *genus* for all those animals which do give birth to fully-shaped offspring to counterbalance the *genus* Pliny describes, but we cannot assume as much since he does not inform us of this.

¹¹⁷ See chapter one, pp. 11; 15.

While we might be able to reconcile the dwarf-*genus* as a sub-*genus* present to all types of animals, similar to how we might view sub-species in modern taxonomic practices, it appears much more likely that Pliny does not mean for the dwarf-*genus* to fall under individual animal *genera*, instead recognizing the dwarf *genera* to belong to the dwarf-*genus*. This puts this *genus* above the animal *genera* in this hierarchical structure. I say this based upon Pliny's description of the tame, wild and intermediate-*genera* since these are clearly not sub-*genera*, since specific animals belong to these groups. In particular he deals with an intermediate-*genus*, classifying bees, swallows, dolphins and, tentatively, house mice. He reiterates his view of the bee later in Book 11, saying *mores habent praeter cetera, cum sint neque mansueti generis neque feri* (NH 11.4.11: they possess customs beyond all others, since they are neither of the tame *genus* nor the wild). We can therefore not dismiss this group as a one-time comment of Pliny and must accept that he actually considers it an appropriate means through which to describe these animals, which brings me back to my claim. Pliny's use of *genus* here cannot be said to have been, first and foremost, a means through which to create a taxonomic system. What we see here is a rank-free classification system influenced largely by Aristotle's *HA*. This system allows, however, a method through which animals can be compared and contrasted. And, although, as I stated previously, *genus* implies a sort of hierarchy within itself, this is not what we should emphasize when trying to understanding its presence in the *Natural History*; it has far more impact as a descriptive factor.¹¹⁸ In the above passages, instead of trying to situate the animals into a *genus* and these *genera* in further *genera* and so forth, we should recognize the presence of *genera* as a depiction. Bees belong to an intermediate-*genus*, creating an image of a semi-wild animal, which either interacts with people in a somewhat friendly manner or it provides something beneficial to the human race. The dwarf-*genus*, on the other hand, describes an animal smaller than what is regarded as normal. Moreover, this characteristic is not limited to any one particular

¹¹⁸ Although Aristotle may have been philosophizing about creating a classification system, it is clear that Pliny does not engage in such practice. His understanding of *genera* may derive from Aristotle, but its worth in the *Natural History* is first and foremost descriptive, since Pliny adds little to further the discussion of organization and the classification of animals.

animal, instead revealing a universal trait among all animals. The merits of *genus* in descriptive narratives are clear.

I come to the most important evidence for this notion. On occasion, we encounter instances where Pliny uses *genus* to describe an animal without actually providing its name. One such example of this practice is the following:

exeunt in terram et qui marini mures vocantur et polypi et murenae, quin et in Indiae fluminibus certum genus piscium ac deinde resilit. nam in stagna at amnes transeundi plerisque evidens ratio est, ut tutos fetus edant, quia non sint ibi qui devorent partus fluctusque minus saeviant. (NH 9.35.71)

Those which are called sea-mice come out onto land, and the polyp and the *murena*; indeed even in the rivers of India there is a certain *genus* of fish that does this and then leaps back. For most of the time there is clear reason for crossing into pools and rivers, in order to give birth to safe offspring, since there are not any who eat the young there and the waves hardly stir.

We are told of a certain kind of fish in India that leaves the water in order to travel to other, presumably safer, bodies of water. Yet Pliny does not inform us of the name of this particular kind of fish. He may not have even known its name. Without the presence of a name, one cannot adequately argue that Pliny intended a grand classification of animals. Perhaps he still wanted to include this information despite not knowing the animal's name? This would further support the point that he was primarily concerned with information in the form of descriptions and characterizations. It is not important that this animal belongs to the *genus* fish, but that a certain fish *genus* acts in a way similar to the *polyp* and *murena*; all three behave in a way Pliny's contemporary Roman might have found fascinating. In fact, the inclusion of this *genus* of fish has more of an effect on the reader's perception and understanding of the fish *genus* than any one specific *genus*. This argument is supported all the more when we consider that this phenomenon occurs elsewhere: *in quodam genere pro manibus ad scrabendum corpus (NH 11.45.125*: in a certain *genus* [horns] are used for scratching the body instead of hands). This comment is situated in a larger passage dealing with the various forms and uses of horns among deer, antelope and similar animals; and:

alterum eorum genus vulturum magnitudinem excedit, quorum et colorem reddit, nec ulla ales, excepto struthocamelo, maius corpore inplens pondus, in tantum aucta ut in terra quoque immobilisprehendatur. gignunt eos Alpes et septentrionalis regio. (NH 10.29.56)

Another *genus* of these [grouse] surpasses the size of vultures, and imitates their colour; no other bird, with the exception of the ostrich, has a greater mass in body, with it increasing to such a size that it can even be caught immobile on the ground. The Alps and the Northern realm yield these birds.

Once again Pliny omits a name, which I find especially remarkable considering he had spent time in Germany and the northern regions.¹¹⁹ Surely he would have witnessed this animal first hand, perhaps when hunting, or at the very least, known someone who had. It seems appropriate to consider that Pliny was aware of this bird's name, as opposed to the exotic Indian fish in Book 9. The presence of *genus* here furthers emphasizes his description of *tetraones* (grouse), while comparing it to both vultures and ostriches intermixed with an interesting factoid.

2.2 Species

Let us now draw our attention to *species* in the four zoological books. There appears to have been some hierarchical understanding of the term *species* in the mindset of Romans contemporary to Pliny.¹²⁰ One of these is Seneca the Younger (mid-1st century A.D.).¹²¹ In one of his letters to Lucilius, Seneca's focus is on Plato and his "being" in a philosophical context. For our purposes, let us turn to Seneca's description and understanding of what a *genus* and *species* is and how they relate to each other:

homo species est, ut Aristoteles ait; equus species est; canis species est. ergo commune aliquod quaerendum est his omnibus vinculum, quod illa conplectatur et sub se habeat. hoc quid est? animal. ergo genus esse coepit horum omnium quae modo rettuli – hominis, equi, canis – animal (...) cetera genera quidem sunt, sed specialia. tamquam homo genus est; habet enim in se nationum species, Graecos, Romanos, Parthos; colorum, albos, nigros, flavos; habet singulos, Catonem, Ciceronem, Lucretium. ita qua multa continet, in genus cadit; qua sub alio est, in speciem. (Sen. Ep. 58.9-12.7)

¹¹⁹ Bodson (1986: 104) attributes the accuracy with which Pliny describes animals from these regions to the time he spent there.

¹²⁰ See OLD s.v. *species* I.3a; I.10a.

¹²¹ Other Roman authors who present a similar view of *genus* and *species* are Quintilian (1st century A.D.), *Institutio oratoria* 5.10.90, and, although not quite a contemporary, Varro (1st century B.C.), *Res rusticae* 3.3.3.

Man is a *species*, as Aristotle says; horse is a *species*; dog is a *species*. Therefore some common bond ought to be found for all of these, which embraces them and holds them under itself. What is this? Animal. A *genus* therefore begins to be of all these which animal represents in part – man, horse, dog (...) there are certain other *genera*, but special, just as man is a *genus*. For it has within itself *species* of nations: Greeks, Romans, Parthians. Of colours: white, black, tawny. It has individuals also: Cato, Cicero, Lucretius. Thus where it contains many, it falls into *genus*. Where is it under something else, it falls into *species*.

Although Seneca's focus lies on a greater hierarchy under which, according to Plato, everything falls under the *genus* "being", he nevertheless provides a very specific description of both *genus* and *species*, relating them to each other. *Genus* is that which contains sub-parts, similar to what we saw of Cicero's *genus*; *species* is one of these sub-parts, or Cicero's literal *partes*.¹²² More importantly, being a *genus* or *species* is not mutually exclusive as Seneca illustrates through the term "man" as most things can theoretically be further divided into what we might call sub-species in a zoological context (i.e. down the hierarchal system) or grouped into increasingly more general *genera* (i.e. up the hierarchal system). Even Aristotle's μέγιστα γένη could be plausibly grouped under *animal*. Since Seneca says that his thought is rooted in Aristotle,¹²³ it suggests that Pliny would have likely been exposed to this concept from both Greek and Latin sources. It would seem, however, that this view of *genus* and *species* was either overlooked, or largely ignored by Pliny when composing his *Natural History*.¹²⁴ As I have mentioned previously, *species* appears only 17 times in the four zoological books, a far cry from the extensive presence of *genus*. Most of these instances merely refer to the appearance of something, and do not have any deeper meaning to them, such as:¹²⁵ the beaver's body has the appearance of an otter (*NH* 8.47.109); the *tragelaphus* (goat-stag or

¹²² Cicero's *partes* appear to be the same as Seneca's *species*: *nam genus est, quod plures partes amplectitur, ut animal. pars est, quae subest generi, ut equus. sed saepe eadem res alii genus, alii pars est. nam homo animalis pars est, Thebani aut Troiani genus* (Cicero, *De inventione* 1.22.32: for a *genus* is that which embraces several parts, as "animal". A part is that which exists under *genus*, as "horse". But often the same thing is a *genus* to one thing, but a part to another. For man is a part of animal, but a *genus* of Thebans or Trojans).

¹²³ It may possibly derive from *HA* 1.6 490b31-491a6.

¹²⁴ For the one instance where Pliny exhibits this notion of *genus* and *species* in the zoological books, see *NH* 10.22.43.

¹²⁵ This aspect has also been noted in Aristotelian scholarship: εἶδος represents the form of an animal. See Balme (1962: 87); Boylan (1983: 51).

horse-stag) is nearly of the same appearance to regular stags (*NH* 8.50.120); Alexander was delighted in the appearance of a particular large breed of dog (*NH* 8.61.149); eggs resembling grapes (*NH* 9.74.162); and scorpion grubs which look like eggs (*NH* 11.30.86). Two other occurrences can be interpreted as meaning appearance, but appear to hint at a kind or type. These are *quarti generis est percnopterus (...) vulturina specie, alis minimis* (*NH* 10.3.8: of the fourth *genus* is the *percnopterus* [...] with a vulturine appearance and small wings);¹²⁶ and *nidos luto fingunt salis specie* (*NH* 11.25.75: they [silk-worms] make their nests with mud, with the appearance of salt). One can understand how someone might try and define *species* as “type” in these instances, considering not only how the word means as much in contemporary English, but also based upon Seneca and his use of *species*. But upon consideration of the first of these two passages, the *percnopterus* is already considered a *genus* of eagle. Although Pliny does not limit himself to a rigid classification system, as we have already seen, any rendering of *vulturina specie* as “vulturine *species*” is clumsy and completely opposes what we see in Pliny’s use of *genus*. Not once does he use *genus* in conjunction with the adjectival form of an animal, so why would he with *species* if implying “type”? The same can be said about the second passage. To conform *species* to the idea of type, we would have to render the sentence as “they make nests in mud: a type of salt” but again, this is clumsy at best. It is much more natural to take my initial translation “they make nests in mud with the appearance of salt” especially when we consider the previous uses of *species* in the *Natural History* and their emphasis on appearance.

This leaves just two other occurrences of the word *species* in which its meaning seems to deviate from the standard “appearance” and need to be reconciled in some way.¹²⁷ The first of these is: *piscium species sunt LXXIV, praeter crustis intecta, quae sunt XXX. de singulis alias dicemus; nunc enim naturae tractantur insignium* (*NH* 9.16.43: there are 74 *species* of fish beyond those covered with a shell which number 30. We shall speak about each of them elsewhere; for now the natures of notable ones are

¹²⁶ See *HA* 9.32 618b34: Aristotle says γυπὶ ὄμοιος.

¹²⁷ I do not consider it necessary to reconcile *NH* 10.22.43. It is, nevertheless, an aberration and should not affect our interpretation of *NH* 9.16.43 since *genus* does not appear in the latter through which we could justify the presence of *species*.

being discussed). The first part clearly follows the structure I laid out for *genus* – there are x *genera* of y animal – only with *genus* substituted by *species*.¹²⁸ Although one might argue that the use of *species* is so evident as “type” that it requires no further discussion, I think this notion comes from our own perception of *species*, leading it to appear normal. Yet, in the *Natural History*, this is not something ordinary and deserves consideration even if for the sake of appreciating the word from Pliny’s perspective. I did briefly consider that Pliny is saying that there are 74 appearances of fish, which loosely means the same thing as *genera*, but is nevertheless semantically different. This theory, however, comes under attack if we consider the other appearance of *species*, which occurs in a lengthy passage concerning the various spider *genera*:

*plura autem sunt genera nec dictu necessaria in tanta notitia. phalangia ex iis appellatur quorum noxii morsus, corpus exiguum, varium, acuminatum, adsultim ingredientium. altera eorum species nigri, prioribus cruribus longissimis. omnibus internodia terna in cruribus. luporum minimi non texunt; maiores in terra, et cavernis exigua vestibula praepandunt. tertium eorundem genus erudita operatione conspicuum. (NH 11.28.79-80)*¹²⁹

There are, moreover, many *genera* [of spiders] not needing discussion since being in such fame. The ones among these called *phalangia* have a harmful bite, a small body, varied and pointed, and move by leaping. A second *species* of these is black with long, front legs. There are three joints in the legs of all of them. The smallest of the wolf-spiders do not weave; the larger hang down before the tiny entrances

¹²⁸ This pattern is used by Aristotle, although far less often than γένος: x εἶδη of y animal. The occurrence of these few “anomalies” may have their roots in Aristotelian influence, but I have to wonder why, of all the examples in Books 8-11, Pliny only repeats this pattern twice, while using *species* in what could be argued a direct substitution of *genus* once elsewhere. I do concede that a broader study of *species* yields a few more instances of this pattern (see *NH* 16.145.4; 13.133.3), but the relative scarcity of this usage cannot be overlooked.

¹²⁹ This passage appears to derive directly from Aristotle: τῶν δ' ἀραχνίων καὶ τῶν φαλαγγίων ἔστι πολλὰ γένη, τῶν μὲν δηκτικῶν φαλαγγίων δύο, τὸ μὲν ἕτερον ὅμοιον τοῖς καλουμένοις λύκοις, μικρὸν καὶ ποικίλον καὶ ὀξὺ καὶ πηδητικόν· καλεῖται δὲ ψύλλα· τὸ δ' ἕτερον μείζον, τὸ μὲν χρῶμα μέλαν, τὰ δὲ σκέλη τὰ πρόσθια μακρὰ ἔχον, καὶ τῆ κινήσει νωθρὸν καὶ βαδίζον ἠρέμα καὶ οὐ κρατερόν καὶ οὐ πηδῶν. τὰ δ' ἄλλα πάντα, ὅσα παρατίθενται οἱ φαρμακοπῶλαι, τὰ μὲν οὐδεμίαν τὰ δ' ἀσθενῆ ποιεῖ τὴν δῆξι. ἄλλο δ' ἔστι τῶν καλουμένων λύκων γένος. τοῦτο μὲν οὖν τὸ μικρὸν οὐχ ὑφαίνει ἀράχιον, τὸ δὲ μείζον τραχὺ καὶ φαῦλον πρὸς τῆ γῆ καὶ ταῖς αἱμασιαῖς (...) ἄλλο δ' ἔστι τρίτον τούτων σοφώτατον καὶ γλαφυρώτατον (*HA* 9.39 622b27-623a8: of spiders and *phalangia*, there are many γένη; of the biting *phalangia*, there are two: the one similar to those called wolf [spiders], small, spotted, pointed and good at leaping. It is called the *psulla*. The other is larger, black in colour, and has long, front legs. It is sluggish in movement and moves slowly; neither is it strong nor does it leap. All the others, the sort druggists provide, make no bite or a weak one. There is another γένος of those called wolf [spiders]. The small one does not weave a web; the large one a rough and simple [web] on the ground or wall [...] there is a third [γένος] of these, most skilled and refined).

of their caves in the ground. The third *genus* of these same spiders is remarkable for its learned work.

Pliny relates that there are many *genera* of spiders, but deems it unnecessary to name all of them since he considers them well-enough known by his readership (especially when this remark does not appear in Aristotle's *HA*). He still informs us of a few particular breeds including the *phalangium* and *lupus*. What is noteworthy is that he includes *species* in the midst of describing these spiders. Similarly to the previous passage which discusses fish, the initial reaction is to take *species* here as a stand-in for *genus*, particularly when we find *altera eorum species* and *tertium eorundem genus*. A natural succession would seem to be occurring (the differences between *eorum* and *eorundem* being negligible). I think the matter is not so clear.

First, Pliny does not inform his reader of how many *genera* of spiders there are when beginning his description. If he did, we could better understand why he says “the second *species*” and “the third *genus*” of spider. Moreover, he does not complete the pattern by using “the first *genus*” although his reader would infer the *phalangium* to be this first *genus* of spider. And, if we are to infer numerical order based on presence in the text, how do we reconcile the *lupus*? It falls between the second black *species*, with long, front legs and the remarkable weaving ability of the unnamed *tertium genus*. We should expect that Pliny would have labelled the *lupus* as the third *genus* and the present third *genus* as a fourth. Of course, although I previously showed that Pliny is not primarily concerned with classification and organization so much as general description, this still creates a conflict on a linguistic level. I wish to submit another possible interpretation for this passage. The sentence preceding that which contains *species* addresses the *phalangium* and a brief description of its appearance. As we come to the next sentence, we already have images of a spider's physical shape in our mind. Thus, Pliny is not discussing a second *species* of spider, but another *species* of the *phalangium*: he is addressing a different appearance of this individual *genus* of spider. One variation of the *phalangium* is small and has a pointed body, varied in colour. The other form of this spider is one that is black with long, front legs. One could then interpret the *lupus* as the second *genus* of spider; or, another possibility which would follow this interpretation of *altera eorum species* is *tertium eorundem genus* refers not to a third *genus* of spider, but a

third *genus* of *lupus*, since Pliny mentions the *minimi* and *maiores lupi* in the previous sentence. Not only would this address the apparent conflict of numerical sequencing in this entire passage, but it would also be more suited to what we have seen concerning the uses of *species* in the *Natural History*. It also appears most appropriate in comparison to Aristotle's rendition of these spider γένη in *HA* 9.39 622b27-623a8 (see n. 129). With that being said, I recognize that this translation might be deemed clumsy at first, in creating a possible meaning where one is not necessary. I cannot overstate, however, how necessary it is for us to consider these words in the Roman context, in Pliny's use, as opposed to our own.

This interpretation also has ramifications for the meaning of *species* in *NH* 9.16.43 (see pp. 52-53), since we cannot readily accept it as a replacement for *genus*. That is not to say that Pliny could not have used *genera* in this instance, since it is clearly his preferred word. What this does say, however, is that *species* was viewed, on occasion, more alike to *genus*' use, rather than Seneca's characterization that *species* is that which is a sub-category of a *genus*. Otherwise there would be a greater frequency of *species* and, in the instances it does appear, it would not simply substitute *genus*, albeit emphasizing a different aspect of an animal. Before one criticizes Pliny for not adopting a more rigid use of *genus* and *species*, he is not deviating considerably from Aristotle. As I discussed earlier,¹³⁰ Aristotle appears to distinguish or, at the very least, attempt to differentiate between the terms γένος and εἶδος.¹³¹ But γένος and εἶδος cannot be accurately correlated to a modern taxonomic level, for example: class, order, or family. At most, εἶδος is sub-ordinate to γένος, whenever these terms are used in proximity,¹³² at least by Aristotle's own admission. Questions are nevertheless raised in response to this system: in one instance Aristotle says that some εἶδη have their own εἶδη, which are just unnamed (*HA* 1.5 490a17). In addition, despite Aristotle using εἶδη in a sub-ordinate position: two εἶδη of vultures (*HA* 7.3 592b6-7) or three εἶδη of thrushes (*HA* 7.20 617a18), it is much more common for him to use γένη in this same way: there are x γένη

¹³⁰ See chapter one, p. 12.

¹³¹ See *HA* 1.1 486a25; 1.6 490b31-491a; 7.3 592b6-7; 7.20 617a18.

¹³² Gotthelf (2012: 268).

of y animal.¹³³ Since γένος is Aristotle's preferred word choice, it seems appropriate to recognize that this supposed differentiation is not well defined. We discussed in the last chapter the possibility that Aristotle was theorizing about how to create a taxonomic system, rather than actually practicing one, a notion which is furthered with his use of γένος and εἶδος. He was, in all likelihood, utilizing a rank-free classification system for the purpose of causal investigation.¹³⁴ Once again, though, Pliny is influenced by his predecessor Aristotle, with his preference for *genus* shaped by the Aristotelian corpus. In the few instances where Pliny does choose to use *species* instead of *genera*, he is emphasizing the physical appearances of the animal, especially the countless varieties of fish. This is what a *genus* is, an animal unlike any other, different in its appearance, characteristics and traits, bound to the commonality of all its individual members. Although it might share specific features or habits with any one other animal or combination of others, it is nevertheless different in its entirety from the entirety of another.

2.3 Genus, Eagle and the *Haliaëtus*

I shall now address what I called the third meaning behind *genus* through Pliny's description of the eagle *genera*. This account occurs in *NH* 10.3-6, much of which derives, almost as a direct translation at times, from Aristotle *HA* 9.32 618b18-619b12.¹³⁵ For the sake of space I will not include the entire passage, but simply highlight the most important eagle *genera* which both Pliny and Aristotle address (see table 1 for a more thorough summary). It is important to note that, unlike Aristotle who says τῶν δ' ἀετῶν ἐστὶ πλείονα γένη (*HA* 9.32 618b18: there are many γένη of eagles), Pliny informs us that there are six *genera* of eagles: *ex his quas novimus aquilae maximus honos, maxima et vis. sex earum genera* (*NH* 10.3.6: from those [birds] which we know, the honour of the

¹³³ See *HA* 6.20 574a16; 5.30 556a14; 5.16 548a24; 5.16 548a32; 1.1 488a6; 2.12 504b6-7; 4.6 531b10; 4.5 530a34; 5.15 547a4.

¹³⁴ See Henry (2011: 202-205).

¹³⁵ It is theoretically possible that Pliny derives his information from an intermediary source, but in consideration of Pliny's own recognition of Aristotle's authority, it is highly unlikely (and simply a precaution on my own part).

Table 1 Eagle Genera¹³⁶

Eagle Genera	Name(s) according to Pliny	Description according to Pliny	Name(s) according to Aristotle	Description according to Aristotle
1	<i>melanaetos</i> (black eagle); <i>leporaria</i> (hare-eagle)	It is the smallest in size, outstanding in strength and blackish in colour. Only eagle to rear its young; and only one without a cry. It inhabits mountains.	(3) <i>melanaetos</i> ; <i>lagophonos</i> (hare-killer)	It is black in colour, smallest in size, but strongest. Only eagle to rear its young. It inhabits mountains and woods. It is silent.
2	<i>pygargus</i> (white-rump)	It is known for its white tail. It inhabits towns and fields.	(1) <i>pygargos</i> (white-rump); <i>nebrophonos</i> (fawn-killer)	It occurs around plains, groves and cities. It flies to mountains and woods.
3	<i>morphnos</i> ; <i>plangos</i> ; <i>anataria</i> (duck-eagle); <i>percnos</i> (dusky)	Homer calls it <i>percnos</i> . It is second in size and strength. It inhabits areas around lakes. Said to have teeth, be mute, the darkest and possess a very noticeable tail.	(2) <i>plangos</i> ; <i>nettophonos</i> (duck-killer); <i>morphnos</i>	It is second in size and strength. It inhabits plains and the sea. Homer mentions it (<i>Il.</i> 24.316).
4	<i>percnopterus</i> (dusky-winged); <i>oripelargus</i> (mountain-stork)	It resembles a vulture due to its short wings, but is larger than one in its entire body. It is unwarlike and degenerate. Only one to carry away carcasses.	(4) <i>perk(n)opteros</i> (dark-winged); <i>oreipelargos</i> (mountain-stork); <i>gypaietos</i> (vulture-eagle)	It has a white head and is large in size. It resembles a vulture, with very short wings and elongated tail. It takes carcasses.
5	<i>gnesion</i> (true-born)	It is the “true” one and the only one of untainted origin. It is medium sized, dull red colour and rarely seen.	(6) <i>gnesion</i> (true-born)	It is the only true-bred bird, as all others (hawks, eagles, and even smaller birds) are mixed. It is the largest of all eagles, yellow in colour and rarely seen.
6	<i>haliaëtus</i> (sea-eagle)	It has very keen eyesight and catches fish. It has no <i>genus</i> .	(5) <i>haliaetos</i> (sea-eagle)	It has a large neck and broad tail, thick with crooked feathers. It dwells by the sea and shores.
7 (?)	<i>ossifraga</i> (bone-breaker); <i>barbata</i> (bearded)	Some people add this animal as a <i>genus</i> of eagle.	<i>phene</i> (?)	Aristotle does not consider it an eagle.

¹³⁶ For the sake of clarity and comprehensive study, I provide a chart detailing all seven eagle *genera*. The descriptions included are not meant to be exhaustive; rather they serve for some comparison, with emphasis placed upon their names. My numbering follows the order Pliny gives. For Aristotle’s ordering, I add the numbers found in the *HA* in parentheses before their names.

eagle is greatest, and the greatest strength. There are six *genera* of these) and a possible seventh *genus* (NH 10.3.11). We should not take this as an indication that Pliny is trying to classify eagles, since he is merely labelling the six *genera* of eagles, as they appear in Aristotle's text, with a numerical feature for literary purposes: Pliny is able to address features common to only some of these eagle *genera* by numeration alone. For example: *tribus primis et quinto aquilarum generi inaedificatur nido lapis aetites* (NH 10.4.12: the eagle-stone is built into their nest by the first three and fifth *genera* of eagle); and *primo et secundo generi non minorum tantum quadripedum rapina, sed etiam cum cervis proelia* (NH 10.5.17: for the first and second *genera* there is not only snatching of small four-legged animals, but also battle[s] with stags). He is able to forgo using the names of the individual eagle *genera* which might have been confusing to his reader, a notion which is not as far-fetched as it might first seem considering that only in dealing with the specific *genera* does he mention their names at all. Everywhere else he favours the more generic term *aquila*. This also has the effect of uniting the eagle *genera* as a whole, as we saw in his discussion of herons.

The first *genus* of eagle according to Pliny is *melanaetos a Graecis dicta, eadem leporaria* (NH 10.3.6: it is called by the Greeks the black-eagle; it is the same as the hare-eagle) which is the third one mentioned by Aristotle καλεῖται δὲ μελανάετος καὶ λαγωφόνος (HA 9.32 618b28: it is called the black-eagle and hare-killer). Pliny gives one of its Greek names, while translating λαγωφόνος into Latin presumably, in order that his reader might understand “hare-eagle” better. The name would have therefore created a better mental image for his Latin-speaking readership. It should be noted that the Greek name is actually “hare-killer”, while the Latin version is more akin to “of-a-hare”. This is probably not so much an error on Pliny's part as recognition that the meaning behind the name is explicit enough. There is also no translation required for *melanaetos* since Pliny includes a description of the eagle's black colour. But considering that he gives the Greek names for most of these eagle *genera*, and that their names only appear in this section of the *Natural History*, I think that Pliny was unfamiliar with many of these various eagle *genera* and was largely copying Aristotle's text.

Regarding the third *genus*, *morphnos*, Pliny says that Homer calls it *percnos*.¹³⁷ *Percnos* is not specifically said to be a name by Aristotle: οὗ καὶ Ὅμηρος μέμνηται ἐν τῇ τοῦ Πριάμου ἐξόδῳ (*HA* 9.32 618b25-26: which Homer recalls in the departure of Priam).¹³⁸ Pliny also translates νηττοφόνος found in the *Natural History* as *anataria*, similar to *leporaria* earlier, with the implied “of-a-duck” meaning.¹³⁹ Although Pliny describes the fourth *genus*, the *percnopterus*, as resembling a vulture due to its short wings, but larger than one in its entire body, he fails to include the other name Aristotle gives for this eagle: γυπαιετός. It is possible that Pliny thought the description was enough and the name itself was redundant. This leads me to the sixth type of eagle: the *haliaëtus*.¹⁴⁰

The *haliaëtus* (literally the sea-eagle) is known for its keen eyesight and fishing ability. In addition, Pliny raises a very interesting point concerning *genus* when describing this animal:

*haliaëti suum genus non habent, sed ex diverso aquilarum coitu nascuntur; id quidem, quod ex his natum est in ossifragis genus habet, e quibus vultures minores progengerantur et ex his magni, qui omnino non generant. quidam adiciunt genus aquilae quam barbatam vocant, Tusci vero ossifragam. (NH 10.3.11)*¹⁴¹

¹³⁷ Other mentions of the *percnos* eagle in extant Greek literature include: Aelius, *De prosodia catholica* 3.1.173; Lycophron, *Alexandra* 260; various other commentaries on, and quotations from, the *Iliad* exist from the ancient writers, but do not further what we know about this particular eagle. It would seem that the greater prevalence of the *percnos* over the other *genera* of eagles in Greek literature is due to its inclusion in the *Iliad* as opposed to any familiarity with the bird itself.

¹³⁸ ὡς ἔφατ' εὐχόμενος, τοῦ δ' ἔκλυε μητίετα Ζεὺς / αὐτίκα δ' αἰετὸν ἦκε τελειότατον πετεηνῶν / μόρφον θηρητῆρ' ὃν καὶ περκνὸν καλέουσιν (*Il.* 24.314-316: thus he spoke, praying, and counsellor Zeus heard him and moreover sent an eagle, most perfect of birds, the dark hunter, which is even called *percnos* [dusky]).

¹³⁹ Aelian describes the habits of this “duck-killer” eagle when hunting ducks (*De natura animalium* 5.33.9). He, however, provides no new information on this eagle.

¹⁴⁰ One of Ovid’s characters is turned into a *haliaëtus*: *quam pater ut vidit (nam iam pendebat in aura et modo factus erat fulvis haliaeetus alis)* (*Metamorphoses* 8.145-146: whom the father then saw [for now he was hanging in the air, having been made in the manner [of] a *haliaëtus* with tawny wings]). For this study, Ovid provides very little in terms of physical description, only saying that this bird has tawny wings. Since none of the other eagle *genera* are mentioned in extant Latin literature, we may, however, infer that the *haliaëtus* was, possibly, a recognizably distinct *genus* of eagle to the Romans (but this is merely conjecture since Ovid was influenced by earlier Greek sources for his mythology).

¹⁴¹ The antecedent of *his* in “*quod ex his natum est*” is ambiguous. Grammatically, we would logically infer that Pliny must be referring to *aquilarum*, in which case those born *ex his* are the *haliaëti* themselves. Their *genus* must therefore be representative of their offspring for the passage to make sense contextually, since they themselves are not *ossifragae*; otherwise, we would expect Pliny to say so in a way more similar to how he normally does, such as: they are a *genus ossifragarum*; or, they are also called *ossifragae*. On the other hand, it makes just as much sense to take the antecedent of *ex his* to be *haliaëti*. This would mean that their offspring are those which have their *genus* among the *ossifragae*, supposedly giving birth to further

The *haliaëtus* does not have its own *genus*, but is born from the different breeding of eagles. That which is born from these has its *genus* among the *ossifraga* whence the smaller vultures are begotten, and from these the large vultures which do not at all give birth. Some add a *genus* of eagle: that which they call bearded, but the Tuscans (call) *ossifraga*.

“The *haliaëtus* does not have its own *genus*.” What are we to make of this remark? Is this observation more of a commentary about the *haliaëtus* or a view which encompasses a larger group of animals, such as crossbreeds? I shall explore these questions concerning the *haliaëtus* as well as the possible seventh *genus* of eagle: the *ossifraga*, through an examination of what we already know about *genus*. I will also address our own recognition of these two eagle *genera* in order to broaden our own notion of these birds. In the end, I hope to make what I deem the third meaning of *genus* in the *Natural History* quite clear: that the word has implicit association with *gignere* and giving birth to offspring, in essence propelling an animal’s *genus* onto the next generation.¹⁴²

Pliny’s claim that the *haliaëtus* does not have its own *genus* appears to be rooted in the idea that it is a crossbreed between two other eagles. It is, in a matter of speaking, the mutt of the eagle *genera*. Yet, what is quite fascinating is that we find Pliny stating something completely different elsewhere in the *Natural History*:

observatum ex duobus diversis generibus nata tertii generis fieri et neutri parentium esse similia, eaque ipsa, quae sunt ita nata, non gignere in omni animalium genere; idcirco mulas non parere. (NH 8.69.173)

ossifragae and the vultures. This reading also helps explain the odd wording. For understanding *his* not to reference the latter noun, but the former, more prominent subject, see *NH* 10.3.6; 10.10.23; 10.12.28. Either reading ultimately suggests that the offspring of the *haliaëti* belong to the *genus ossifragae*.

¹⁴² Lennox (2001) touches upon this same aspect within Aristotelian biology, with a similar conclusion that the most natural way to understand γένος (*GA* 2.1; *Metaph.* 4.28) is a “continuous generation of individuals which are the same in form” (p. 141); γένος is recognized as the ability to reproduce oneself (p. 154); *potestatis nostrae est illis rebus dare genera, quae ex natura genus non habent. genera dicta a generando (...) genera tantum illa esse quae generant. illa proprie dicuntur genera* (Varro, *De lingua Latina* 11.6-7: our power is to give *genera* [gender] to these things, which do not have a *genus* from nature. *Genera* are named from begetting [...] *genera* are only those which generate. There are properly called *genera*). See OLD s.v. *genus* I.1a [gigno; cf. Skt. *jānaḥ*, Gk. γένος]; TLL s.v. *genus* I [cf. c. ind. *Janah neutr. „genus”, gr. γένος et c. gignere. W.*]; Lewis & Short s.v. *genus* I.1 [=γένος, root GEN, gigno, gens]. For a further discussion on *genus*, see Corbeill (2008).

It is observed that the offspring from two different *genera* are of a third *genus* and are alike to neither parent, and these which are born in this way do not give birth, in any *genus* of animal. For that reason mules do not give birth.

In this passage the assumption of this knowledge is clearly based upon domestic animals, in this case, the mule. The Romans were obviously aware that this horse-donkey hybrid was itself infertile and could not reproduce. The Romans' exposure to these domestic animals, surely also instilled the idea that the mule is its own *genus* of animal, distinct from both sets of parents as Pliny relates. We can only assume that when he says *neutri parentium esse similia* he means that the hybrid is alike to neither parent: it does not belong to either parent's *genus*.¹⁴³ Nevertheless it still possesses traits and characteristics similar to both parents. What is remarkable, though, is that Pliny seems to have either forgotten this idea when discussing the *haliaëtus* or thinks it does not apply to this bird. It would be easy enough to dismiss this characterization as incorrect or just a contradiction,¹⁴⁴ but let us see what else we can learn about the *haliaëtus* and *genus*.

Not only does the *haliaëtus* not possess its own *genus*, but unlike other crossbred animals, it is able to give birth.¹⁴⁵ Pliny does not provide an obvious explanation for this elsewhere in the *Natural History*. Perhaps we should not take his earlier remark as fact in every case since his comment likely derives from what he knew concerning mules. Pliny does provide more information regarding crossbreeding in general: *cum diversi generis coiere animalia, ita demum generant si tempus nascendi par habent* (NH 10.85.187: when animals of different *genera* mate, they at last reproduce if they have an equal time of giving birth). There is some question regarding the presence of this statement as it appears to be somewhat out of place.¹⁴⁶ Regardless, Pliny explains what animals are able to crossbreed, explaining the birth of the *haliaëtus*, even if unconsciously on his own

¹⁴³ Lennox (2001) reconciles this idea within the Aristotelian corpus through the absence of any claim by Aristotle that form (εἶδος) is eternal (p. 154). Hybrids are not eternal because they are not derived from the same γένος. Aristotle also describes fertile hybrids (GA 2.4 738b28-34), a notion which we see in Pliny's discussion of the *haliaëtus*. Unlike Pliny, however, Aristotle thinks that these hybrids eventually revert to the form (μορφήν) of the female parent of the original hybrid (p. 155).

¹⁴⁴ See introduction, p. 3 regarding Murphy (2004).

¹⁴⁵ For a description of the *haliaëtus* raising its chicks, see NH 10.3.10. See also HA 9.34 620a2-6.

¹⁴⁶ Rackham addresses this passage's seemingly awkward location within a footnote in the Loeb edition (Pliny [1983]). Although it is followed by a discussion of birthing practices of various animals, I agree with him in this matter.

part. Since the *haliaëtus* is produced through two other *genera* of eagles breeding, it stands to reason that the eagle-pair would have a similar gestation period. Nor is this merely conjecture if we consider that when addressing breeding habits of eagles, Pliny lumps them together using the term *aquila*:

tribus primis et quinto aquilarum generi inaedificatur nido lapis aetites (...) nidificant in petris et arboribus, pariunt et ova terna, excludant pullos binos; visi sunt et tres aliquando. alterum expellunt taedio nutriendi, quippe eo tempore ipsi cibum negavit natura (...) ut merito partus suos oderint. sed eiectos ab his cognatum genus ossifragi excipiunt et educant cum suis. verum adultos quoque persequitur parens et longe fugat, aemulos scilicet rapinae, et alioquin unum par aquilarum magno ad populandum tractu, ut satietur, indiget. (NH 10.4.12-14)

The eagle-stone is built into their nest by the first three and fifth *genera* of eagle (...) they nest on rocks and trees, and lay three eggs, but cut off two chicks and are seen sometimes to cut off three. They cast out the other chick when weary of feeding it. Naturally at this time, nature has denied them food (...) so that they justly dislike their offspring. But the *ossifraga* receives those cast out by them as their kindred race and rears them with their own chicks. But the parents pursue them even as adults and drive them to flee a long way, naturally being jealous of prey. And otherwise one pair of eagles needs a large area to hunt in order to be fed.

Pliny's description of the eagle clearly encompasses the eagle *genus*, if not as a complete whole, then, at the very least, four of the five *genera*, not including the fourth, the *percnopterus*. We can temporarily exclude the *haliaëtus* in our consideration since it is produced through the crossbreeding of the other *genera* of eagle. Therefore, whether or not it shares the similar habits of the other *genera* (which I am inclined to think, since it is grouped together with its fellow eagles), it matters little in terms of it being able to reproduce, being a so-called hybrid in this example. In the above passage, Pliny is not distinguishing between the various *genera* of eagle, characterizing all *aquiliae* as questionable parents, impelled by hunger to the point of casting their chicks from the nest to be reared by the *ossifraga*. Once the chick reaches maturity, the parents still chase it off due to their need for food. Pliny also mentions the number of eggs the eagle lays. It is therefore reasonable to think that the various eagle *genera* would share a similar gestation period too.

As with the section on the different eagles, Pliny obtains some of his information from Aristotle: τρέφουσι δὲ τοὺς νεοττοὺς ἕως ἄν δυνατοὶ γένωνται πέτεσθαι· τότε δ' ἐκ

τῆς νεοττείας αὐτοὺς ἐκβάλλουσι καὶ ἐκ τοῦ τόπου τοῦ περὶ αὐτὸν παντὸς ἀπελάυνουσιν (*HA* 9.32 619a27-29: they raise their young until they are able to fly; then they cast them out of the nest and drive them away from the place all around them); and also: ὁ δ' ἐκβάλλει καὶ κόπτει αὐτούς· οἱ δ' ἐκβαλλόμεναι βοῶσι, καὶ οὕτως ὑπολαμβάνει αὐτοὺς ἡ φήνη (*HA* 9.34 619b33-34: it [eagle] casts them out and strikes them; and the expelled [chicks] cry out, and so the φήνη takes them). Aristotle tells us that eagles will raise their young until they are able to fly (he is referring to the ἀετός and not any particular type of eagle, offering additional evidence that Pliny is doing the same in the *Natural History*). We are already aware that Pliny includes this same habit of eagles, but provides a different reason, citing laziness as the chief factor for eagles expelling their chicks from the nest. At least Aristotle gives a more balanced account, explaining that it is not until the chicks are able to fly that they are forced to leave the nest. We can only assume he was implying that they had reached, or drew near to, maturity. Pliny further attributes strong dislike for the parents' behaviour towards their chicks, even after they have left the nest and matured, while Aristotle says that the eagles need so much space to sustain themselves (Pliny includes this, but does not consider this a reason). This ravenous appetite is also not only limited to the parent birds as the chicks also fight amongst themselves. To Aristotle, this is a trait common to the whole *genus* and does not derive from any innate hatred towards one another.

Both authors also include accounts of these expelled chicks being reared by another bird: the φήνη for Aristotle and the *ossifraga* for Pliny. It seems quite likely that Pliny learned of this animal from Aristotle, since much of his knowledge about eagles derives from the *HA*. Pliny adds one important feature for this study on *genus*: he says that the *ossifraga* is *cognatum genus* of these eagle chicks. As we saw in *NH* 10.3.11, Pliny says that certain people consider the *ossifraga* another *genus* of eagle (which is also known as *barbata*).¹⁴⁷ Aristotle describes its equivalent as φήνη, but he does not say that the φήνη is a type of eagle. It is quite possible that the “certain people” Pliny mentions are his contemporary Romans, but it is difficult to know for sure. What is clear, however,

¹⁴⁷ In extant Latin literature, Seneca the Elder (*Controversiae* 10.4.2) and Lucretius (*De rerum natura* 5.1079) are the only other writers who mention the *ossifraga*, but they do not provide anything relevant to this bird's identification or nature.

is that Pliny seems to not agree with this assessment when he explicitly writes that there are six *genera* of eagles. One cannot attribute this number to Aristotle since he does not give a concrete number of eagle γένη, saying only that there are numerous γένη (*HA* 9.32 618b18). It is safe to assume that Pliny is not constrained by the presence of six γένη present in Aristotle's account of eagles, because we find a similar situation regarding hawks. Aristotle says there are those who say there are at least ten γένη of hawk (*HA* 9.36 620a23) while Pliny claims there are sixteen (*NH* 10.9.21). A quick examination of Aristotle's description of hawks renders a count short of Pliny's sixteen, indicating that Pliny could have easily said there were seven *genera* of eagles if he had thought as much. Returning then to the issue of *cognatum genus*, it is not that they are both eagles or are both the same *genus* of animal. Rather, Pliny is referring to his earlier comment that the offspring of two *haliaëti* belongs to the *ossifraga genus* (*NH* 10.3.11). Because he believes that the *haliaëtus* is born when two different eagles breed, the family connection between the birds is established; but we cannot consider the *haliaëtus* to be an *ossifraga* since Pliny also places both large and small vultures in this *genus* too.¹⁴⁸ This association may derive from Aristotle when he describes the φήνη and γύψ together (*HA* 9.3 592b5-8). He also identifies two types of vulture: a smaller, white one, and a larger one. These match up closely to Pliny's two vultures: *e quibus vultures minores progenerantur et ex his, magni qui omnino non generant* (*NH* 10.3.11: whence the smaller vultures are begotten, and from these the large vultures which do not at all give birth). The smaller vultures are born from the birds belonging to the *ossifraga genus* (whether these are *ossifraga*, vultures, or the offspring of the *haliaëtus* is unclear), while the greater vultures derive from the smaller ones, being unable to reproduce themselves. Pliny could not have further complicated this family tree if he had wanted to.

It is reasonable that someone might find this issue of interbreeding between these birds confusing. The idea that eagles could give birth to a hybrid which gives birth to a pseudo-eagle species which in turn gave rise to the vultures is perplexing to say the least. In fact, Pliny informs his reader that general confusion between these birds was present during his own time:

¹⁴⁸ We do not learn anything of relevance concerning these vultures from other extant Latin texts.

sanqualem avem atque inmusulum augures Romani magnae quaestioni habent. inmusulum aliqui vulturis pullum arbitrantur esse et sanqualem ossifragum. Masurius sanqualem ossifragum esse dicit, inmusulum autem pullum aquilae prius quam albicet cauda. quidam post Mucium augurem visos non esse Romae confirmavere; ego, quod veri similis, in desidia rerum omnium arbitror non agnitos. (NH 10.8.20)

The Roman augurs consider the *sanqualis* bird and *inmusulus* a matter of great debate. Some think the *inmusulus* to be the chick of a vulture and the *sanqualis* an *ossifraga*. Masurius says the *sanqualis* is an *ossifraga*, and the *inmusulus* an eagle chick before its tail turns white. Certain people have asserted that they have not been seen in Rome since Mucius, but I think it is more likely that they are not recognized in our laziness concerning all things.

We are told that among the Roman augurs, whom we should expect to have a good knowledge in bird recognition for religious purposes, were unsure themselves when identifying the *sanqualis* and *inmusulus*. The *inmusulus* was argued to be either the chick of a vulture or a chick of an eagle before its tail turned white. This suggests a close resemblance between the two birds, particularly at such a young age. This debate gives the impression that the only real marker of an eagle when compared to a vulture is its white tail (which interestingly enough is the indicator for one *genus* of eagle: the *pygargus*). The *sanqualis*, on the other hand, is presumably an adult *ossifraga*, but the context might suggest an *ossifraga* chick. As I pointed out, Pliny suggests that those in the *ossifraga* *genus* are not necessarily those “*ossifrae*” which are the offspring of the *haliaëtus*. The augurs’ doubt concerning the *ossifraga* also reveals a lack of familiarity with one or both of the *ossifraga* and *sanqualis*. Otherwise, they would have surely been able to tell if they were the same bird. Pliny confirms this notion by attributing idleness as the cause of this confusion (although he was likely more interested in chastising his contemporary Romans than an actual discussion regarding the identification of these birds). In addition, this lack of certainty shows the perceived relation and similarities between these different birds. Still, there must have been enough distinction between them, otherwise why go to the trouble of trying to identify the *inmusulus* and *sanqualis* as an eagle, vulture or *ossifraga*?¹⁴⁹

¹⁴⁹ Livy mentions the *sanqualis* as an omen, attesting to Pliny’s comment concerning the augurs’ recognition of said bird: *prodigia eo anno nuntiata: in Crustumino auem sanqualem, quam uocant, sacrum*

This kindred relationship between the eagle *genera* and other similar birds is seen elsewhere in Aristotle's text, a point briefly hinted at when I discussed the one *genus* of eagle: the γνήσιον (true-born). Aristotle justifies the name of this breed when he says that φασὶ δὲ τούτους μόνους καὶ τῶν ἄλλων ὀρνίθων γνησίους εἶναι· τὰ γὰρ ἄλλα γένη μέμικται καὶ μεμοίχευται ὑπ' ἀλλήλων, καὶ τῶν ἀετῶν καὶ τῶν ἱεράκων καὶ τῶν ἐλαχίστων (*HA* 9.32 619a9-11: and they say that these alone, even of other birds, are true-born; for the other γένη have been mixed and adulterated by others, both eagles and hawks and even the smallest birds). This information is excluded by Pliny in his description, who provides an inadequate account for the name γνήσιον in the *Natural History*. He cites the fourth *genus* as the cause, perhaps because of its close resemblance to a vulture, but even for Pliny, this is weakly founded, especially when he had the reasonably sound argument of Aristotle at hand. What is occurring, however, is that by excluding this statement from his *Natural History*, Pliny avoids muting his description of the *haliaëtus*. Nothing would have been particularly unique about its ancestry if most of the other eagle *genera* were born in a similar way. More importantly, this reveals the origin of Pliny's statement that *haliaëti suum genus non habent* (*NH* 10.3.11). *Genus* here refers to an animal's pedigree, not unlike how we might refer to a breed of animal. Still, it runs deeper than a hybrid animal, since we have already seen that Pliny still considers this "third" animal as a separate *genus*. I have previously argued that *genus*' force is rooted in its descriptive nature, which reveals the necessity of this new *genus*. The *haliaëtus*, on the other hand, derives from two *genera* of eagle, which are themselves quite alike in appearance and behaviour; and as we have also seen, Pliny mentions only the *aquila* as a whole, beyond this one discussion regarding eagle *genera* which he takes from Aristotle. In fact, the individual *genera* rarely appear in other extant Latin literature, and many of these are the *ossifraga* which we can attribute to its Latin roots. The similarity between the eagles outweighs the differences in this case, attested by the fact

lapidem rostro cecidisse (*Ab urbe condita* 41.13.1: the omens announced in that year: in Crustumerium the bird, which they call *sanqualis*, cut a sacred stone with its beak). Since Livy includes both *avem* and *quam vocant*, I sense that he, or at the very least his readers, were unfamiliar with this bird, otherwise why say it is an *avis*. He provides no further details about the *sanqualis*.

that this hybrid has the ability to reproduce. This leads me to the second point: the offspring of the *haliaëtus* do not belong to the *haliaëtus* genus, but to that of the *ossifraga*. This seems to justify the presence of arguments concerning the *sanqualis* being a *haliaëtus* in some form. If this bird was thought to give birth to chicks not belonging to itself, these chicks would have been thought to be unlike the *haliaëtus*: a thought manifested in the *sanqualis*. Being unable to reproduce a “version” of itself by its offspring, the *haliaëtus* is therefore unable to possess its own genus. This is because genus is also connected to the act of giving birth, continuing one’s “kind”, specifically an “image” of oneself.¹⁵⁰ It is not enough to simply have offspring; they must be similar to their parents, otherwise we see a different genus as we do with hybrids. But the *haliaëtus* shares some semblance with its eagle parents; it does not merit a new genus, while its offspring fall into a different genus altogether.

Unlike my approach in the following chapters, I shall not add much to our understanding of what these birds are in relation to modern identification practices for a number of reasons. First, unlike larger terrestrial animals which are easier to distinguish with the untrained eye, birds have harder-to-discern differences, particularly between species that are closely related, such as the different species of eagles or hawks. In fact, all one has to do is try to identify a circling bird of prey to notice the difficulty. It takes a specialist to properly attribute a species, and often this is, at best, still an educated guess; and I am in no way a bird specialist. In addition, the fact that these eagle genera rarely appear elsewhere in extant Greek and Latin literature makes the task that much more difficult because of their limited description. Since Pliny derives much of his information from Aristotle, as we have seen, I consider the treatment of these eagle species in scholarship from the Greek viewpoint adequate enough, with myself being unable to add much from the Roman treatment of these birds. Thompson’s *A Glossary of Greek Birds*, despite having been compiled more than 100 years ago, is still a thorough and relatively accurate treatment regarding the names of the various birds found in Greek literature.¹⁵¹ I have very little to add to it since I largely agree with D’Arcy Thompson’s assessment that

¹⁵⁰ Cf. n. 142.

¹⁵¹ Thompson (1936).

the *haliaëtus* (sea-eagle) is probably the osprey,¹⁵² not only because it suits the description of the bird's fishing habits, but it is also not a "true" eagle, being rather a hybrid according to Pliny. Thompson also says that the φήνη (which appears to be the *ossifraga*) is the lammergeyer (or bearded vulture),¹⁵³ a bird which is similar to vultures and appears to justify the Roman name *barbata*. Yet we must always be careful when assuming associations by name. Since Pliny relates a general confusion and laziness prevalent in his own time, we cannot assume that these descriptions are completely accurate or that each *genus* of eagle represents a distinct species as we know it. More importantly, this study is meant to increase our knowledge of *genus* (and to a lesser extent, *species*) in the *Natural History* and what defined a *genus*, at least to Pliny, which may hopefully further our understanding of how these animals are viewed in the Roman ethnozoological tradition.

¹⁵² Thompson (1936: 44).

¹⁵³ Thompson (1936: 303); Pollard (1947: 23-24) disagrees and thinks the *perk(n)opteros* is a fit for the lammergeyer, albeit with some errors. Pollard argues that Aristotle confuses the lammergeyer with another bird when describing it. I find Pollard unconvincing since he begins with the premise that the *perk(n)opteros* is the lammergeyer and then proceeds to say what Aristotle described correctly and incorrectly.

Chapter 3

3 An Ethnozoological Understanding of the *Panthera* and *Pardus*

It is Book 8 of the *Natural History* in which Pliny characterizes the relationship between the two animals, the *pardus* and the *panthera*. The main issue here is that Pliny informs his reader that the *pardus* is a male *panthera* (NH 8.23.63); yet in other parts of his *Natural History* he appears to use the names less discriminatively, even using them side-by-side when discussing the habits of large cats (NH 8.17.41). It is through an examination of the other occurrences of these words in the *Natural History* along with other Roman writers and their Greek sources, that his comment at NH 8.23.63 appears accurate. And in doing so, we can see Pliny's own understanding of the animals in question and discern how he reconciles the various names and classifies the world around him.

I must first clarify my usage of the transliterated Latin names (or more appropriately, Latinized Greek names) rather than their English counterparts. I avoid using "leopard" and "panther" respectively when describing the animals in question, as has been done in the past,¹⁵⁴ since leopard is vernacular for the scientific classification of the species *Panthera pardus*, the use of which already suggests a preconceived notion of its identity. The word leopard itself derives from the Latin *leopardus*, a word which does not appear in the *Natural History*, despite Pliny describing the *leo-pardus* hybrid from which leopard originates.¹⁵⁵ The English word panther, on the other hand, describes many different species, including the aforementioned leopard of Africa and Asia, and the cougar or mountain lion of the Americas (*Puma concolor*); the name black panther can

¹⁵⁴ Slim (1996: 97, 100) uses panther and leopard interchangeably when describing the animal, although no discernible difference can be found in the described mosaics.

¹⁵⁵ See NH 8.17.42; since Pliny does not include every name or linguistic origin whenever possible, absence cannot act as proof. However, in the familiarity of the *pardus* and *panthera* to the Romans (regardless of their exotic nature, they are still somewhat familiar animals) and the other notable compounds including *pardus*, it is reasonable to conclude that Pliny would have included the term *leopardus* if aware of it. This agrees with the word's absence from the Latin language until after Pliny's own time; Jennison (1937: 186) argues that *leopardus* originally described the lion offspring of this *leo-pardus* hybrid, resting his argument on Pliny's description. Since Pliny does not use *leopardus*, this can only be conjecture and, in light of the word's use for a leopard after Pliny, I think Jennison is mistaken.

also loosely apply to a black variation of any of the big cats.¹⁵⁶ Since this study is an examination of the classification and understanding of said animals in the *Natural History*, with close attention paid to identification and recognition, it is necessary to eliminate any possible confusion and not permit our modern understanding to be a cause for bias.

Our first encounter with these animals in Book 8 is the opening of section 17 where we learn that the *pardus*, *panthera*, lion and similar animals walk with their claws sheathed inside lest they break them.¹⁵⁷ It is immediately apparent that the Romans considered the big cats as closely similar to each other; so much so, that Pliny describes the existence of hybrids of these cats (*NH* 8.17.42: *multiformes ibi animalium partus*) with the males and females of the various species mating. In fact, Pliny states that these animals are the source of the Greek saying: Africa always produces something new (*NH* 8.17.42: *unde etiam vulgare Graeciae dictum semper aliquid novi Africam adferre*).¹⁵⁸ This is not a surprise since the word leopard is literally a lion-*pardus* hybrid. But the question at hand is Pliny's description of *pardus* and *panthera*. At first glance, although as similar to each other as to any other big cat, specifically the lion, it appears that the *pardus* and *panthera* not only regularly breed together, but are two distinct animals. Pliny, however, suggests otherwise in a later description of the *panthera*, in which, after describing their markings and differentiation from other animals, he adds the following:

sunt qui tradant in armo his similem lunae esse maculam crescentem in orbis et cavantem pari modo cornua. nunc varias et pardos, qua mares sunt, appellant in eo omni genere, creberrimo in Africa Syriaque. quidam ab his pantheras candore solo discernunt, nec adhuc aliam differentiam inveni. (*NH* 8.23.62-63)

¹⁵⁶ Jennison (1937: 13) avoids using the word “panther” for his analysis of the leopard because it does not appear in English zoological nomenclature; Clutton-Brock (2001: 214).

¹⁵⁷ *mirum pardos, pantheras, leones et similia, condito in corporis vaginas unguium mucrone, ne refringantur hebetenturve, ingredi, aversisque falcibus currere nec nisi in adpetendo protendere* (*NH* 8.17.41: it is amazing that the *pardus*, *panthera*, and lion and similar animals walk with the point of their claws hidden inside the sheaths of their body, so that they do not break or grow dull, and run with the claws turned back and do not extend them except when attacking prey).

¹⁵⁸ This saying appears in Aristotle's work, possibly being Pliny's source: καὶ λέγεται δὲ τις παροιμία, ὅτι αἰεὶ φέρει τι ἢ Λιβύῃ καινόν (*HA* 8.28 606b20: as well, even a certain proverb says that Libya always bears something new); this perception is said by Jennison (1983: 183) to be one reason why it is so difficult for us to properly identify these animals.

There are those who recount that on the shoulder of these there is a spot similar to the moon, growing into a circle and hollowing to a crescent in equal manner. They call them spotted, and *pardi* where there are males, those in this entire group, most frequent in Africa and Syria; certain people distinguish *pantherae* from these by their whiteness alone, but I have yet to find any other difference.

Is Pliny simply relating how some people in his time viewed the *pardus* as just the male, particularly when no similar comments about the *pardus* and *panthera* are given by any other ancient author? If so, how is the *pardus* related to the *panthera* according to Pliny;¹⁵⁹ did he share in others' characterization; or is he just relating an interesting, but baseless story? And what implications does this have on understanding the Roman perception of *pardus* and *panthera*, as seen in Pliny's *Natural History*? To answer these questions, it is first necessary to explore how Pliny's describes these animals elsewhere in his work to see if he displays a consistency in thought.

Pliny's description of the interbreeding between cat species in Africa specifically addresses that of a lion and *pardus*. He first relates the difference between the offspring of a lion-*pardus* pair and those born from two lions:

leoni praecipua generositas tunc, cum colla armosque vestiunt iubae; id enim aetate contingit e leone conceptis. quos vero pardi generavere semper insigni hoc carent; simili modo feminae. (NH 8.17.42)

The excellence of the lion is particular at that time when the neck and shoulders are clothed by its mane; for this happens to those begotten from a lion when mature, while those begotten by *pardi* always lack this distinguisher; they are nearly similar to the female.

Pliny informs us that lions begotten by *pardi* have a feminine appearance, lacking the pride of a purebred lion: the mane. Since he uses *leo* and *pardus* to describe males here, it is tempting to think that *pardus* must refer only to that gender, especially when he uses the female descriptor of *leo*, *leaena*, elsewhere to indicate a female of that species.¹⁶⁰ But the matter is complicated here, since he opts to use *feminae* when describing female lions. It is not until later that it is confirmed that *pardus* is being used to represent males: *odore pardi coitum sentit in adultera leo, totaque vi consurgit in poenam (NH 8.17.43: the lion*

¹⁵⁹ For the significance of colour in the *Natural History*, especially regarding the chapters Pliny devotes to art, see Bradley (2009: 87-108).

¹⁶⁰ See *NH* 8.45.107; 11.95.233.

senses the intercourse of a *pardus* in an adulteress by smell and rises up with all his power [to inflict] punishment).¹⁶¹ The *pardus* described here has to be male, since it is the female lion which is the *adultera*; otherwise we would expect the use of *adulter* to describe a male *leo*. Although a case cannot be made on this alone, it at least fits with the description given by Pliny in *NH* 8.23.63: the *pardi* here are males and if this *genus* of animal includes females, none are hitherto mentioned.

The explicit reference to the *pardus* when describing the actions of a male is not the only time in the *Natural History* that a distinction is evident between genders concerning the *pardus* and *panthera*. In Book 11, Pliny is describing the number of teats the females of various kinds of animals possess, including the *panthera*: *alia ventre medio quaternas, ut pantherae, alia binas, ut leaenae* (*NH* 11.95.233: some have four teats in the middle of the belly, as *pantherae*, others two, as lionesses). If *pardus* had been included here, Pliny's earlier attribution of the name to only males would have been completely undermined, since there is no doubt that here he is talking about females. In fact, he uses the feminine word for lion: *leaenae*. One might argue that he chooses not to mention every animal, simply including only one of the *panthera* and *pardus*. But how viable is this proposal? The absence of one kind of animal does not mean said animal belongs to, or is, another animal. No one would suggest that, because Pliny does not mention tigers, they are a variation or gender-specific term for lions. An absence of information is not proof of an idea. But since Pliny makes the claim concerning *pardus* as the male variant of *panthera* we are merely holding his words accountable to the *Natural History* as a whole; so far he has said nothing that would disprove the theory that the *pardus* is a male *panthera*.

Further supporting this notion is the fact that *pardus* hearkens back to the Greek πάρδαλις, similar to *panthera* and πάνθηρ. Since Pliny owes much to Aristotle it is to him that the comparison ought to be made. In fact, *NH* 11.95.233 has its roots in Aristotle's *HA*, for the most part taken directly from the Greek text: τὰ μὲν οὖν ἄλλα πλείους ἔχει, ἢ δὲ πάρδαλις τέτταρας ἐν τῇ γαστρὶ, ἢ δὲ λέαινα δύο ἐν τῇ γαστρὶ. (*HA* 2.1 500a28-29:

¹⁶¹ It could also be translated as “the lion senses intercourse in an adulteress by the smell of a *pardus*” but the implications are still the same.

others have many teats, but the *pardalis* has four on its belly, and the lioness has two on its belly). What is important to note, though, is Aristotle's use of *πάρδαλις* to describe the animal. Since Pliny recounts the same passage in the *Natural History*, we are able to confidently say that the Latin *panthera* and the Greek *πάρδαλις* represent the same animal, at least in Pliny's own perception. What are we to make of the word *πάνθηρ* and how the Romans perceived and translated it from Greek into Latin? Aristotle uses *πάνθηρ* at least once in his text: *καὶ ὁ πανθήρ δὲ τίκτει τυφλά ὥσπερ λύκος, τίκτει δὲ τὰ πλεῖστα τέτταρα. καὶ οἱ θῶες δ' ὁμοίως κυῖσκονται τοῖς κυσί, καὶ τίκτουσι τυφλά* (*HA* 6.35 580a25-27: and the *πανθήρ* bears blind [young] like the wolf, and gives birth to, at most, four. And jackals¹⁶² conceive similar to dogs, and bear blind [young]). Pliny appears to paraphrase this passage: *pariunt plurimum quaternos. caecos autem gignunt canes, lupi, pantherae, thoes* (*NH* 10.83.176: they bear at most four. Dogs, wolves, *pantherae*, and jackals, moreover, bear blind [young]). Pliny uses *panthera* where Aristotle uses *πανθήρ*. It is possible that he does so because Aristotle is talking about females (supposedly). On the other hand, the fact that Pliny recognizes *pardus* and *panthera* as the same animal, in addition to the rarity of *πανθήρ* in the Aristotelian corpus, it is only natural that he translates *πανθήρ* with *panthera*. This correlation further shows the degree of synonymy between *pardus* and *panthera* present in the *Natural History*.

The question then becomes whether or not this was a personal choice for Pliny when translating the Greek necessary for his text, or if other Romans recognized this connection before him; Cicero, in his *De natura deorum*, sheds light on the issue:

(...) *vomitione canes, purgando autem alvo se ibes Aegyptiae curant. auditum est pantheras, quae in barbaria venenata carne caperentur, remedium quoddam habere, quo cum essent usae non morerentur, capras autem in Creta feras, cum essent confixae venenatis sagittis, herbam quaerere quae dictamnus vocaretur, quam cum gustavissent sagittas excidere dicunt e corpore.* (*De natura deorum* 2.126)

(...) dogs by vomiting, Egyptian ibexes moreover cure themselves by purging their belly. It has been heard that *pantherae*, which are seized by poisoned flesh in foreign places, have a certain remedy, by which, when they have used it, do not

¹⁶² Like a lot of ancient animal names, there is doubt regarding the identification of the *θῶς*. Since an accurate identification of this animal has no significant bearing on my study, I will subsequently translate it as "jackal". For a discussion on possible species, see Hull (1964: 97-98).

die, and wild she-goats in Crete, when pierced by poisoned arrows, seek a herb which is called dittany, and when they have eaten it, they say, the arrows exit from their bodies.

Cicero here informs us about the numerous methods different animals use when afflicted by various poisons and illnesses, seeking out what nature has provided them, specifically *pantherae*. This information does not come to Cicero out of a vacuum. Once again, I turn to Aristotle:

πολλὰ δὲ καὶ τῶν ἄλλων ζώων τῶν τετραπόδων ποιεῖ πρὸς βοήθειαν αὐτοῖς φρονίμως, ἐπεὶ καὶ ἐν Κρήτῃ φασὶ τὰς αἰγὰς τὰς ἀγρίας, ὅταν τοξευθῶσι ζητεῖν τὸ δίκταμνον· δοκεῖ δὲ τοῦτο ἐκβλητικὸν εἶναι τῶν τοξευμάτων ἐν τῷ σώματι. καὶ αἱ κύνες δ' ὅταν τι πονῶσιν ἔμετον ποιοῦσι φαγοῦσαι τινα πόαν. ἡ δὲ πάρδαλις, ὅταν φάγη τὸ φάρμακον ὃ καλεῖται παρδαλιαγχὲς, ζητεῖ τὴν τοῦ ἀνθρώπου κόπρον· βοηθεῖ γὰρ αὐτῇ. (HA 612a1-8)

And many others of the quadruped animals act intelligently to help themselves, since in Crete they say wild goats, whenever pierced by arrows, seek dittany; this appears to expel the arrows in their bodies. And dogs, whenever they are pained in a certain way, they make vomit by eating a certain grass. And the *pardalis*, whenever it eats the drug which is called *pardalianches*, seeks human dung, for it helps it.

Although Cicero's inclusion of the ibex appears to depart from his source, it is possible that he used Aristotle, or, at the very least, an unknown intermediary source. He includes vomiting dogs and the she-goats who are able to expel the poisoned arrows from their body; and more importantly for us, there is the inclusion of the *panthera*. Although Aristotle uses *πάρδαλις* to describe the animal, Cicero prefers the use of *panthera*. Since Pliny adopts a similar strategy, it would appear that the word *panthera* was preferred by the Romans for *πάρδαλις* as opposed to *pardus*; regardless of whether Pliny used Cicero as a source or not (which is debatable),¹⁶³ he obviously did not recognize a need to correct his Roman predecessors in vocabulary usage. Moreover, we can see that even in the mid-1st century B.C., one hundred years before Pliny wrote his *Natural History*, a connection between *πάρδαλις* and *panthera* exists.

¹⁶³ I am reluctant to say that Pliny uses Cicero as a source for his zoological books since Pliny himself does not say he does when he lists his authorities for Books 8-11.

Any doubt that might still persist concerning this correlation ought to be dispelled when Pliny relates a similar passage, in which he explains the origin of the name for a particular plant:

pantheras per fricatas carnes aconito (venenum id est) barbari venantur. occupat ilico fauces earum angor, quare pardalianches id venenum appellavere quidam; at fera contra hoc excrementis hominis sibi medetur (...) (NH 8.41.100)¹⁶⁴

Foreigners hunt *pantherae* by meat rubbed with aconite (which is a poison). Suffocation instantly takes hold of their throat, for what reason certain people call this poison *pardalianches*; and the wild beasts cure themselves against this with human excrement (...)

The plant in question is *pardalianches* which is another name for aconite, according to some people. One questions how well known the plant was to the Romans, whether it is a vernacular name (or at least familiar) or if Pliny is simply repeating an earlier source. For the reader of the *Natural History* the origin of the plant's name is only meaningful if the name carries weight behind it. For example, to an English speaker, the name *pardalianches* means nothing. Perhaps he might infer from the anecdote what is meant, but the point is nonetheless lessened. Now, if the translator were to say the name is "choke-leopard" the reader would immediately draw the connection between the plant's name and it causing suffocation to the *panthera*. The same applies to Pliny's Roman readers. Whether or not the plant *pardalianches* was familiar to them, they must have been able to recognize its etymological connection. The interplay between *pardus* and *panthera* becomes quite interesting: although Aristotle uses *πάρδαλις* here, both Pliny and Cicero choose to use what appears to be the less literal *panthera* instead. One would think that when describing the origins of this plant's name, Pliny would wish to retain the original *pardus* element particularly when we consider that that the word *pardalianches* contains the word component *pardali-*. This is not a *panthera*-choker, but a *pardali*-choker. The Roman reader would have recognized the connection between the two words, both of which can be seen to describe the same animal. This confirms the

¹⁶⁴ *tangunt carnes aconito necantque gustatu earum pantheras, nisi hoc fieret, repleturas illos situs. ob id quidam pardalianches appellavere* (NH 27.2.7: they smear meat with aconite and kill *pantherae* through them eating [it]; if this was not the case, *pantherae* would overrun these regions. On account of this some call it *pardalianches*).

translations of Pliny and Cicero for *πάρδαλις*, as well as further attesting that *pardus* and *panthera* are the same animal.

This issue also arises in Aelian’s *De natura animalium*, but the result is different:

ἡ *πάρδαλις* πέντε ἔχει δακτύλους ἐν τοῖς ποσὶ τοῖς προσθίοις, ἐν δὲ τοῖς κατόπιν τέτταρας. ἡ δὲ θήλεια εὐρωστοτέρα τοῦ ἄρρενος. ἐὰν δὲ γεύσῃται ἀγνοοῦσα τοῦ καλουμένου *πάρδαλιάγχου* (πόα δὲ ἐστίν), ἀποπάτημα ἀνθρώπου ποθὲν ἀνιχνεύσασα διασώζεται. (*De natura animalium* 4.49)

The *pardalis* has five toes on its front feet, but on its hind feet, four. The female is stronger than the male. But if it should ingest unknowingly that which is called *pardalianches* – this is a grass – it is saved by searching out human dung.

Unlike Pliny, Aelian’s passage remains closer to Aristotle’s original text with the use of *πάρδαλις*, but this is likely due to his following of normal Greek practice more than anything else.¹⁶⁵ Although he does not explicitly address the issue concerning the name *pardalianches*, his description provides enough for his reader to draw the implicit connection between the plant and the *pardalis*. A question arises: did Aelian consider the *pardus-panthera* relationship that is present in Pliny’s *Natural History*? Since Aelian uses the word *πάνθηρ* once (*De natura animalium* 15.14),¹⁶⁶ we cannot say that he was simply unaware of the relationship between the words because he himself was a Roman who knew both Latin and Greek. He even uses the word *πάρδος* once (*De natura animalium* 1.31) which appears to have been influenced by the Latin *pardus* more than the Greek *πάρδαλις*. This is surely the case, when we consider that in extant Greek literature Aelian is the only author who uses *πάρδος* when describing this animal. Using *πάνθηρ* in the above passage would not have been too much of an abnormality then; but it would nevertheless appear that his word choice is dependent on Greek preference for

¹⁶⁵ Aelian most likely uses Aristotle as a source for this passage, especially when one considers the inclusion of “the female is stronger than the male” which also appears in Aristotle (*HA* 9.1 608a33). Of course, though, this information also appears in Pliny’s *Natural History*; yet Aelian’s choice of *πάρδαλις* seems to suggest Aristotle (or another Greek writer) as the source and not Pliny.

¹⁶⁶ κομίζουσι δὲ ἄρα τῷ σφετέρῳ βασιλεῖ οἱ Ἴνδοι τίγρεις πεπωλεμένους καὶ τιθασοὺς πάνθηρας καὶ ὄρνας τετράκερας, βοῶν δὲ γένη δύο, δρομικούς τε καὶ ἄλλους ἀγρίους δεινῶς (*De natura animalium* 15.14: well then, the Indians gave to their king trained tigers and tame *panther[es]* and four-horned gazelles, and two kinds of oxen and still other wondrous wild beasts). It is interesting to note that Aelian uses *πάνθηρας* for what is clearly an “Indian” animal. More important, perhaps, is his inclusion of *τιθασοὺς* to describe the animal in question, which, upon first glance, might have us consider translating it as “cheetah” due to its characterization as more docile than the leopard and its “tameable” nature.

πάρδαλις, since πάρδος is an anomaly if anything. This is unlike the Latin practice of using *panthera* for πάρδαλις when translating or relying upon Greek sources as seen in Pliny and Cicero. Thus, we can see what, in a modern view, might be deemed an inconsistency: πάρδαλις does not precisely equal *pardus*, nor does πάνθηρ match up with *panthera*, in the Roman mind.

The word πάρδαλις and related forms appear early and frequently in extant Greek texts, notably in both the *Iliad* and *Odyssey*: πάρδαλις (*Il.* 13.103, 17.20, 21.573; *Od.* 4.457)¹⁶⁷ and παρδαλέη (which is the skin of the animal: *Il.* 3.17; 10.29). The word continues to see use, particularly in Aristophanes (*Nubes* 347; *Lysistrata* 1015), Theophrastus (*De causis plantarum* 6.5.2, 6.17.9), and most importantly in the corpus of Aristotle (παρδάλειος: *Mir.* 6 831a5; παρδάλια: *HA* 2.11 503b5; παρδαλιαγχές: *HA* 9.6 612a7; πάρδαλις: *HA* 2.1 500a28). On the other hand, the word πάνθηρ does not make an appearance until Herodotus (4.192),¹⁶⁸ appearing also in Xenophon (*Cyn.* 2.1), Aristotle

¹⁶⁷ See Voultziadou (2005: 1875-1882): the word πάρδαλις appears seven times in Homeric poetry, including the Homeric poems (authorship is not a concern for this study, but rather that the word appears in early Greek literature).

¹⁶⁸ κατὰ τοὺς νομάδας δὲ ἐστὶ τούτων οὐδέν, ἀλλ' ἄλλα τοιάδε, πύγαργοι καὶ ζορκάδες καὶ βουβάλιες καὶ ὄνοι, οὐκ οἱ τὰ κέρρα ἔχοντες ἀλλ' ἄλλοι ἄποτοι (οὐ γὰρ δὴ πίνουσι), καὶ ὄρυες, τῶν τὰ κέρρα τοῖσι φοινίξει οἱ πήχες ποιεῦνται (μέγαθος δὲ τὸ θηρίον τοῦτο κατὰ βοῦν ἐστὶ), καὶ βασσάρια καὶ ὕαιναί καὶ ὕστριχες καὶ κριοὶ ἄγριοι καὶ δίκτυες καὶ θῶες καὶ πάνθηρες καὶ βόρυες, καὶ κροκόδειλοι ὅσον τε τριπήχες χερσαῖοι, τῆσι σαύρησι ἐμφερέστατοι, καὶ στρουθοὶ κατάγαιοι, καὶ ὄφεις μικροί, κέρρας ἐν ἑκάστος ἔχοντες: ταῦτά τε δὴ αὐτόθι ἐστὶ θηρία καὶ τὰ περ τῆ ἄλλῃ, πλὴν ἐλάφου τε καὶ ὑὸς ἀγρίου: ἔλαφος δὲ καὶ ὑς ἀγρίου ἐν Λιβύῃ πάμπαν οὐκ ἐστὶ (4.192.1-13 [my translation of the various animals in this passage is loose since an accurate identification of these animals is not necessary for this study]: among the nomads there are none of these, but there are others such as the following: white-rumped antelopes and gazelles and the *boubalis* and asses, not those having horns, but different ones called never-drinkers [for they really do not drink], and antelopes, the horns of which are made into the horns of the lyre by the Phoenicians [this animal is the size of a bull], and little foxes and hyenas and porcupines and wild rams and the *diktys* and jackals and the *panther* and land crocodiles as long as five feet, resembling the lizard, and ostriches, and small serpents, each possessing one horn; indeed such wild beasts are there and all those elsewhere, except the deer and wild hog: both the deer and wild hog are altogether absent in Libya). It is important to note that this list of animals follows Herodotus' discussion of Libya, suggesting that the πάνθηρ is an African animal. Whether or not this view continues into the Roman period is less discernible; Jennison (1937: 184) and, to a lesser degree, Brown (1960: 170) and Rice (1983: 96) suggest that the πάνθηρ is the genet (and later becomes identified with the cheetah). Jennison bases his argument on the description of Oppian (*Cynegetica* 2.570-3) where it is mentioned in association with the domestic cat. He reasons that it could not have been any of the large cats (i.e. leopard). Although I think Jennison's suggestion has some merit, I think there are two issues that complicate this assessment: one, Oppian is writing in the 3rd century A.D. His views can certainly not be applied to Greeks five or six centuries earlier. And two, Jennison says that the genet is quite common in the forests of Greece and Italy. Why then would the word πάνθηρ not appear in extant Greek literature until Herodotus? Nevertheless, I do agree that the genet, although smaller, bears some resemblance to the larger spotted cats. This similarity may have resulted in similar names.

(*HA* 6.35 580a25), and, rather later, Strabo (16.4.16). The Greeks clearly preferred to use *πάρδαλις*. This also reveals something concerning the construction of *παρδαλιαγχές* in that *πάρδαλις* is the more common word choice and appropriately describes the plant in question. One might argue that grammatically, *pardali-* works better as a prefix, and we do see it more frequently in compound words.¹⁶⁹ Still, *pantheri-* as a prefix is not entirely absent from the Greek language, appearing in the diminutive form of *πανθηρίσκος*.¹⁷⁰ The fact that it is a compound word (*παν-θηρ*), closely resembles the prefix *πανθ-*, and is used infrequently as opposed to *πάρδαλις*, most likely led to the creation of *παρδαλιαγχές*.¹⁷¹ Unlike the Greek writers, the Latin writers are much more familiar with the word *panthera* to the extent that some did not view it and *pardus* much differently, if at all.

In light of this connection, there exists a more difficult passage to reconcile with this theory. The passage in question is from Book 11 in which Pliny discusses the difference in strength between the sexes of animals after briefly discussing testicles in males (this passage, too, being influenced by Aristotle's *HA*):¹⁷² *mares in omni genere fortiores sunt praeterquam pantheris et ursis* (*NH* 11.110.263: males in every genus are stronger except the *panthera* and bear). We might expect Pliny to use *pardus* here since he is and has been talking about males, as when he uses *pardus* back in Book 8 to describe cross-breeding between the lion and *pardus*. But he is not talking about males specifically in this passage. He is talking about the entire *genus*. As he says earlier (*NH* 8.23.62-63) the *genus panthera* includes both the male and female sex and it is only the male to which some people give the name *pardus*. Thus, in this instance, *panthera* and *ursus* are on par as descriptive forces.¹⁷³ Pliny's use of *mares* permits his inclusion of both the *panthera* and bear in his description. He is also able to consistently translate *πάρδαλις* as *panthera* which Aristotle uses in his corresponding passage.

¹⁶⁹ For example, the *camelopardalis* and *leopardus*.

¹⁷⁰ See Heron of Alexandria, *De automatis* 4.1 (1st century A.D.).

¹⁷¹ Keller (1909: 62) reasons that the entymological meaning of *πάνθηρ* led, in part, to the word's eventual demise.

¹⁷² ἄθυμότερα δὲ τὰ θήλεα πάντα τῶν ἀρρένων πλὴν ἄρκτος καὶ παρδάλις (*HA* 9.1 608a33: all females are less spirited than males except the bear and *pardalis*).

¹⁷³ I am careful not to put too great an emphasis on this because I have shown in the previous chapter that Pliny's use of *genus* is not taxonomic.

In comparison to *pardus*, Pliny does not incorporate the term *varia* nearly as often (see *NH* 8.23.62-63).¹⁷⁴ He is content to merely mention it in conjunction with the male *pardus* and then leave it at that. One may see this as an indication that *varia* is used to describe the female *panthera*, but we have already seen an opportune time to use *varia* in *NH* 11.95.233; nor is that the only place where it would be possible to do so. In *NH* 8.21.59-60, Pliny relates a story that was first told by Demetrius¹⁷⁵ about a certain Philinus who comes across a *panthera* lying in the middle of the road in order to attract his attention. Her cubs had fallen into a pit and she was seeking human aid to save them. In return, the *panthera* escorts Philinus to the edge of the desert; the merit of which action Pliny does not fail to emphasize and compares it to men, who rarely do such things. It is safe to assume that the *panthera* in question is a female, not necessarily based on the use of *panthera* instead of *pardus*, but because of her cubs which need saving. Why then no *varia*? There is one key difference between the two gender associated words: *varia* is a less recognizable description than *pardus* not only because *varia* is an adjective but because of *pardus*' roots in the Greek language. Furthermore, Pliny's description only attributes the word *pardus* to the male *panthera*, and although we might be eager to attribute *varia* to the female *panthera* to create symmetry in the masculine-feminine pair, Pliny does not specifically state as much. It is likely that the term *varia* was not as clear or specific as *panthera* to his readers, perhaps because it is adjectival, since he refrains from using *varia* all but once: *primus autem Scaurus in aedilitate sua varias CL universas misit, dein Pompeius Magnus CCCCX, divus Augustus CCCCXX* (*NH* 8.24.64: first, moreover, Scaurus in his aedileship presented sixty *variae* as a group, then Pompey the Great presented 410, and the divine Augustus presented 420).¹⁷⁶ It is ridiculous to suggest that, with the emperors presenting so many of these spotted cats, they were all females. The term *varia* is therefore just another word to describe the *panthera* which arose from the spotted nature of these cats; and while it is tempting to see gender redundancy in that both words are feminine, this is probably nothing more than

¹⁷⁴ See OLD s.v. *varius* I.1d.

¹⁷⁵ Pliny is likely referencing Demetrius of Phalerum who lived c. 350-280 B.C.

¹⁷⁶ This section immediately follows his passage on the different names of the *genus panthera*, so the concept is fresh in the reader's mind, allowing him to utilize *varias* here.

varia simply agreeing with its noun counterpart *panthera* rather than *varia* representing the female of this animal.

Pardus, on the other hand, is present in Aristotle, albeit as *πάρδαλις*, providing greater exposure to the word. Romans were obviously familiar with the word *πάρδαλις*, associating it with *panthera* as Cicero and Pliny display in their writing. *Varia* on the other hand is a Latin word. Perhaps some felt the need to balance out *pardus*. But as seen with *leo* and *leaena*, language does not require gender-specific terms for both sexes, since the former can represent the *genus leo* or simply a male lion, while the latter is specifically a female lion. Although this phenomenon prevails throughout the English language where we possess names for both sexes of many species (thanks in large part to scientific and taxonomic need), in Latin it is not as widespread. As seen in Pliny's *Natural History*, this phenomenon occurs commonly with domestic animals like cattle, sheep, goats and horses. For horse, Pliny merely uses the feminine form *equa* for *equus*. Exposure and necessity would have bred these terms for these animals, to differentiate between the sexes in a convenient manner.¹⁷⁷ The fact that the *panthera* is exotic would lead me to be initially cautious of Pliny's claims in *NH* 8.23.62-63, since he is content to use *mares* and *feminae* in most of his descriptions of other exotic animals. Nevertheless, Pliny's description of the *panthera* elsewhere in the *Natural History* validates his claim that *pardus* is a male *panthera*, and *leaena* as the feminine signifier for *leo* provides a comparable example. In reality, the very fact that *panthera* is a feminine word might have caused some Latin writers to consider the need for a masculine equivalent to describe the males of this *genus*. We can therefore take Pliny at his word concerning the relationship between *pardus* and *panthera*. Moreover, there is a differing degree of recognition in names by some Romans, at least, with the inclusion and near-exclusion of *pardus* and *varia* respectively, which is dependent upon the history of word usage.

Although he states that he is unable to discern any visible difference between the *panthera* and *pardus* except for a lighter background colour, did Pliny see the animals for

¹⁷⁷ Corbeill (2008: 78) informs us that there are examples of biological sex trumping grammatical necessity: the word itself may be neuter, but a feminine adjective is used. Corbeill (p. 97) also cites Varro (*De lingua latina* 9.56) where Varro describes male and female doves (*columbus* and *columba* respectively). Although not originally distinguished by separate words, they were later differentiated because of domestication and need.

himself? It is unlikely that he had seen firsthand many of the exotic animals he includes in his *Natural History* since his sources are primarily literary. Nevertheless, in light of his claim, he may have actually seen the *panthera* and *pardus*, perhaps in games, shows or triumphs in Rome.¹⁷⁸ This possibility does not mean, however, that he was able to inspect the animals thoroughly and close up. In fact, when he informs his reader of next to no visual differentiation between the two animals, he could have been looking at two *pardis* or two *pantherae* to which their handler or owner merely attributed the wrong name.¹⁷⁹ But as we have seen, the two terms appear almost interchangeable for the Romans. Some Romans may have felt the two were distinct, which Pliny suggests in *NH* 8.23.62-63 when he states that “some” call the male *pardus*; yet, by not referencing common thought or belief, Pliny appears to agree or at least give credence to this train of thought. We also cannot discern whether his experiences with the two animals, if any such encounters actually existed, occurred at the same time or location. If not, he might have easily overlooked any slight variations in spots, shape, colour and other characteristics. Despite the presence of these animals in Rome on occasion, it is much more likely that Pliny’s exposure to Roman and Greek art influenced his understanding of the *panthera* and *pardus*, especially when he devotes part of his *Natural History* to art.¹⁸⁰ On multiple occasions he relies upon art to validate the stories and facts he presents.¹⁸¹ In the long-

¹⁷⁸ I am nonetheless still hesitant to say that Pliny had actually seen a *panthera*. Cf. introduction, n. 6.

¹⁷⁹ Weigel (1972b: 371) touches upon the cheetah’s preference to avoid other large predators, which includes leopards. It is reasonable to think that these two animals were rarely together in one place for someone to discern the slight variation between the two animals. In fact, the two key differences between the two would appear to be the ability to “tame” the cheetah and the hunting habits of both animals (the cheetah pursuing prey in contrast to the leopard stalking its prey and then safely storing the dead animal in a tree away from other scavenging predators); Gilhus (2006: 30): there is a connection between “unapproachable” animals and status, in that control over a dangerous or exotic and rare animal would show one’s wealth and power. It is fair to assume that the *panthera* and *pardus* would have belonged to this category, again, limiting Pliny’s access, if any, to this animal. Furthermore, the rarer an animal, and the higher its status, surely gave rise to misconceptions and rumours, even if unintentionally.

¹⁸⁰ The relationship between nature and art for Pliny is quite pronounced if we agree with Bradley (2009: 88) who characterizes art as a *spectaculum* in the *Natural History*. For a discussion on the leopard in Greek and Etruscan art, see Brown (1960: 171-176).

¹⁸¹ One notable example involves a suppliant lion and a certain Syracusan: *sunt vero et fortuitae eorum quoque clementiae exempla. Mentor Syracusanus in Syria, leone obvio suppliciter volutante, attonitus pavore, cum refugienti undique fera opponeret sese et vestigia lamberet adulanti similis, animadvertit in pede eius tumorem vulnusque; extracto surculo liberavit cruciatu. pictura casum hunc testatur Syracusis* (*NH* 8.21.56: but there are even examples of their random mercy. The Syracusan Mentor in Syria stricken with fear by a lion as a willing suppliant, but noticed swelling and a wound on its foot when the wild beast

standing art-historical and mythical relationship between Dionysus and the “panther”, Pliny had a prime opportunity. Unfortunately, art brings with it its own problems, since artists possess their own styles. Realistic renditions are not necessarily their primary purpose and sometimes they yield to religious symbolism and representation.

This same issue does not just occur in Roman and Greek art. In a recent study,¹⁸² Elisa Castel analyzes the depictions of leopards, panthers and cheetahs in Egyptian reliefs, paintings and hieroglyphs to better differentiate between the various species of big cat and appropriately label them. Castel considers that the modern day species are too inconsistently attributed in Egyptian art, especially from modern taxonomic understanding in which the cheetah belongs to a separate genus from that of the leopard.¹⁸³ We have distinctly different approaches – Castel starts from the basis of modern taxonomy concerning the leopard and cheetah which views them as two separate species.¹⁸⁴ I can appreciate the effort undertaken to categorize the cats in Egyptian art whenever possible. More importantly, her work clearly demonstrates that in some of the artistic representations of the animal skins worn by Egyptian priests, a distinction can be seen between the skin of a leopard and that of a cheetah; the former possesses crescent spots, while the latter pinpoint black spots, non-retractable claws, striped tail and the characteristic black tear drops on its face.¹⁸⁵ I am convinced, as is Castel, that the artists would have possessed a physical specimen to work from, particularly when the skins held religious importance for the priests, thus allowing for these realistic renditions.

Although there are clear renditions of either species individually, other examples are present with characteristics of both the leopard and cheetah.¹⁸⁶ I argue that this is the

placed itself wherever he tried to flee and licked his footsteps imitating fawning; he freed it from its torture after the stick was removed. A painting in Syracuse proves this event).

¹⁸² Castel (2002: 17-28).

¹⁸³ Castel (2002: 17-18).

¹⁸⁴ *Panthera pardus* (leopard) and *Acinonyx jubatus* (cheetah); not only are they distinct species, but they do not belong to the same genus.

¹⁸⁵ Castel (2002: 21-23) relies in part on Edouard Naville’s catalogue of the temple of Deir el-Bahari and the Egyptian artwork up to the Ptolemaic period; Keller (1909: 62) relates skins being sent north to Egypt as tribute and worn by the priests of Dionysos.

¹⁸⁶ Castel (2002: 25); Arnold (1995: 19) recognizes that not all Egyptian artistic representations of these cats distinguish between the two species well. She also says that the “Egyptians understood the leopard and

result of the artist in question not using a particular skin as a template, but rather relying on his own memory or other artistic depictions. Surely some artists took artistic liberties when working. Castel concludes that it is curious that the Egyptians, whom she argues are able to render accurate paintings of the two animals as alive, are not so careful to distinguish the two when it comes to their skins. Castel argues this is because the skins



Figure 1 Pebble mosaic: Dionysos riding a panther. c. 300-280 B.C. Pella.

have a religious and apotropaic purpose for the Egyptians and therefore little emphasis is placed on rendering the appropriate animal – either the cheetah or leopard – but rather on the fact that it is simply an animal skin belonging to one of Africa’s spotted cats.¹⁸⁷

Although I readily admit that as with the skins, exposure to live specimens would have provided the artists with the opportunity to more

accurately represent these animals, I am not entirely convinced by Castel’s claim that Egyptian art realistically renders live cheetahs and leopards. She presents two categories in her study: the slouched leopard, with hunched shoulders, and the near-proud cheetah, with neck held high.¹⁸⁸ Features, nonetheless, do overlap, while these “templates” are probably just that – templates – and not meant to represent each species of cat.

the cheetah as the Upper and Lower Egyptian versions of the same animal.” It would seem that any discrepancy between the two is rooted more in geography than the physical.

¹⁸⁷ Castel (2002: 28); Arnold (1995: 19).

¹⁸⁸ Castel (2002: 22-23).

Since I lack a background in Egyptology, I can only adequately defend my reasoning through later Greek and Roman art, in which renditions can be found of what are commonly referred to as a “panther”, often in association with Dionysus. Two examples in particular draw quite the comparison: the first, a pebble mosaic from Pella depicting Dionysus riding

a “panther”, which dates to the early-3rd century B.C. (fig. 1, p. 83); and the second, a peristyle mosaic from the House of Masks at Delos, of Dionysus mounted upon a “panther”, dating to the 2nd half of the 2nd century B.C. (fig. 2).

The animals in both mosaics follow Castel’s classification of the cheetah as one possessing an upheld head, with black spots (although crescent



Figure 2 Peristyle mosaic: Dionysos mounted upon a panther. 2nd half 2nd century B.C. Delos: House of the Masks.

shaped, they lack the leopard’s orange inner marking).¹⁸⁹ Nevertheless, only one shows very evident claws (fig. 2), and neither has a striped tail. Even though the faces are quite prominent, particularly the one in the mosaic from Delos, they lack the characteristic black tear drop markings on their faces, a trait which we would expect if the animal is indeed a cheetah. It is fair to suggest, therefore, that the Greeks, because of less frequent exposure to the cheetah or leopard than the Egyptians, favoured a more stylized representation of the cats, rather than a perfectly accurate depiction.

¹⁸⁹ Dunbabin (1999: 13) says that it is difficult to know whether this particular animal is a leopard or a cheetah.

Ann Ashmead explores the idea of cheetahs as semi-domestic pets in 5th century B.C. Greece based upon Greek vase paintings.¹⁹⁰ Ashmead's study appears to have been a forerunner to Castel's treatment of the cats in Egyptian art. Again though, I am not thoroughly convinced by Ashmead's argument, as her basis for classifying the cats as cheetahs is weak at times. Her primary method of identification is through body shape and tail length (a cheetah's tail is half the length of its body and head),¹⁹¹ but on one vase what she identifies as a cheetah has a tail almost as long as its entire body plus head, undermining the worth of using tail length as a criterion for identification.¹⁹² There are also two other vases which reveal the weakness in her argument, the first of which shows a spotted cat climbing.¹⁹³ Ashmead defends her classification by arguing that cheetahs can climb, although not nearly as well as their smaller cat counterparts, with visual evidence; but leopards are superior climbers and commonly drag their prey up the tree with them.¹⁹⁴ The second vase depicts a cat with the black, crescent-shaped spots more appropriate to the leopard than the cheetah. It is fair to say that some of these may in fact be cheetahs, as recognized by our modern understanding, indicated by their longer neck and smaller head shape. Ashmead's strongest argument is that some are shown on leashes, attesting to their well-known tameness and ability for domestication in contrast to the less docile leopard.¹⁹⁵ It would appear that Ashmead is right to think that the artists did have some live specimens to work from, or at least some exposure to them.¹⁹⁶ Ultimately though, these artistic renditions do little to discern between the *pardus* and *panthera*, since even in art, the distinction between the various spotted cats is anything but clear and consistent. If Pliny had based his description on artistic sources, these

¹⁹⁰ Ashmead (1978: 38-47); Bodson (1998: 62) cites Ashmead for the presence of cheetahs in Greece at this time. Although Bodson recognizes it as a very plausible idea, she admits that there is no literary evidence for it (p. 77).

¹⁹¹ Ashmead (1978: 38).

¹⁹² Ashmead (1978: 42).

¹⁹³ Ashmead (1978: 39): fig. 2 in her article is a black glazed *pelike* belonging to the University of Pennsylvania Museum.

¹⁹⁴ Ashmead (1978: 40).

¹⁹⁵ Hull (1964: 100); Weigel (1972b: 364) cites examples of the cheetah being tamed for hunting purposes throughout history, including the Sumerians (3000 B.C.), Egyptian pharaohs (1600-1200 B.C.) and more recently the Mongols (13th century) under Kublai Khan, who hooded cheetahs as falconers do with birds of prey; regarding this custom of the Mongols, see also Keller (1909: 87); Clutton-Brock (2001: 214).

¹⁹⁶ Ashmead (1978: 45); Brown (1960: 171).

depictions would not have helped him in distinguishing much difference.¹⁹⁷ Furthermore, it was not simply the Romans who display “confusion” concerning these cats, as both Greek and Egyptian art show images of these animals with traits of both. It would seem that any accurate depictions ought to be considered the product of exposure to a living specimen rather than a conscious attempt to distinguish either animal on the part of the artist.¹⁹⁸ Ancient artists and writers seem to have viewed the variations no differently than gender distinctions in other animals, like the lion and the mane-less lioness; we should not interpret them any other way. This explains Pliny addressing the differences between the *pardus* and *panthera* not as a means to distinguish them as two separate animals, but to relate variations among one single *genus*, no differently than the physical differences among any other animal, such as lions, elephants, or dogs.¹⁹⁹

3.1 Identification of the *Panthera* and *Pardus*

The identification of the *panthera* and *pardus* from a modern perspective is a topic which has received more attention, from scholars Otto Keller, George Jennison, Helmut Leitner and J. M. C. Toynbee.²⁰⁰ I address this issue cautiously lest I impose any pre-conceived notions on the Roman perception, which I mentioned briefly when discussing the studies of both Castel and Ashmead above. That is why I shall start from what has already been established: *pardus* is what Romans consider the male descriptor for *pantherae* as a whole. It is tempting to find a corresponding modern term for each word, particularly in light of our own taxonomic knowledge. And since Pliny uses both terms, it would be easy enough to simply attribute each word to a separate species or subspecies of animal.

¹⁹⁷ I do not suggest that Pliny had actually seen these particular works of art, but the possibility remains nonetheless.

¹⁹⁸ Gilhus (2006: 18) points out a similar observation in some other mosaics (from the House of the Faun and House VIII in Pompeii) in that, although reproduced, they appear to be based upon accurate observations. This appears to support the argument I made previously (see pp. 82-83) that the overlap of cheetah and leopard characteristics in Egyptian art is probably the product of artists simply reproducing parts of earlier, accurate depictions.

¹⁹⁹ This would seem to fit with the population concept (variation among individuals) as presented by Mayr, et al. (1953: 15).

²⁰⁰ Keller (1909: 62-64); Jennison (1937: 183-187); Leitner (1972: 188-189); Toynbee (1973: 82).

Nevertheless, such a practice overlooks what we have learned from Pliny.²⁰¹ Leitner briefly explores the issue of *panthera* and *pardus*, and ultimately arrives at a similar conclusion that the two words represent the same animal.²⁰² Leitner, however, pursues the question of why the two words exist in the *Natural History*, influenced largely by Keller.²⁰³ This leads him to suggest that the sub-species of leopards are the cause of the existence of the two words, *pardus* and *panthera*, attributing the confusion to their various colours, including the lighter-hued subspecies and darker, melanistic individuals of India with the brightly coloured African variant.²⁰⁴ Pliny himself suggests some difference between the two as we saw earlier:

nunc varias et pardos, qua mares sunt, appellant in eo omni genere, creberrimo in Africa Syriaque; quidam ab his pantheras candore solo discernunt, nec adhuc aliam differentiam inveni. (NH 8.23.63).

They call them spotted, and *pardi* where there are males, those in this entire group, most frequent in Africa and Syria; certain people distinguish *pantherae* from these by their brightness alone, but I have yet to find any other difference.

Leitner's reasoning appears sound at first, but ultimately fails to agree with Pliny's statement. First and foremost, Pliny recounts the general range of the animal, stating that

²⁰¹ Simpson (1961: 11) raises the general rule in taxonomy that the vernacular name for a particular animal rarely coincides with what we would deem the scientific species, which is especially important to remember when dealing in Roman ethnozoology; this notion is also briefly addressed by James Higginbotham (1997: 43) who argues that ancient names frequently describe multiple species (the tunny is a notable exception, but this can be attributed to its widespread prevalence and use). This pattern more appropriately applies to exotic animals, which the Romans had less interaction with and therefore less opportunity to distinguish any differences, if they bothered at all. For example, just because the Romans recognize that the African and Indian elephants are different in some respects, how important were these differences to them? Unlike the modern view which sees them as two (possibly three) distinct species (there is debate concerning two African species), I would argue that the elephants may not have been viewed more differently than the black lions of Syria with respect to regular lions. Such a question is, nevertheless, quite difficult to answer.

²⁰² It should be mentioned that Leitner (1972: 188-189) incorrectly says that Pliny informs us that *panthera* is the female version of *pardus*. He unfortunately misconstrues Pliny's words and arrives at the wrong conclusion, since it is clear that every *pardus* is a *panthera* (since *panthera* is used to describe the spotted cats as a whole); in other words, only a male *panthera* can be a *pardus*.

²⁰³ Keller (1909: 62-64) specifically addresses *pardus* and *panthera*.

²⁰⁴ This modern-day distinction between the leopard subspecies is also put forward by Weigel (1972a: 341): "light-hued subspecies of the (Asian) steppes and brilliantly coloured subspecies from (the African) savannah." Although there is a noticeable difference, it is not great enough to be evident except when two subspecies are set side-by-side. I think it goes too far to think that the ancients would have perceived these subtle differences, let alone used another name to describe the leopard subspecies. If anything, the Romans would have used geographical markers to distinguish between different leopards, as we see with other animals.

it appears most often in Africa and Syria.²⁰⁵ *Creberrimo* is without a doubt tied to the preceding *genere*, but it is less certain what he means by *genere*. Leitner would have us believe that Pliny is talking about the *pardus*. I suggest, however, that Pliny is talking about *pantherae*, as Pliny's description of them up to this sentence supports.²⁰⁶ Leitner's assessment hinges upon two factors: the geographical and colour differences between the leopard subspecies.

Nowhere in the *Natural History* does Pliny imply a differentiation in geographical range for the *pardus* and *panthera*. He simply states that the *genus* of *panthera* as a whole, which includes *pardus*, is more common in Africa and Syria, suggesting that it can be found less frequently elsewhere. It is not bound to these regions. I realize that this statement of Pliny cannot disprove Leitner's suggestion; nor should it alone be support, since it is unclear at best, and at worst, does not support his argument. As for colour and brightness, Pliny characterizes the tiger and the *panthera* in a specific way:

panthera et tigris macularum varietate prope solae bestiarum spectantur; ceteris unus ac suus cuique generi color est, leonum tantum in Syria niger. pantheris in candido breves macularum oculi. (NH 8.23.62)

The *panthera* and tiger nearly alone of beasts are beheld with a variety of markings; to the rest is one colour according to their kind; of lions, only in Syria is there a black one. *Pantherae* have small eye-like spots on a light [background].

This description appears to dismiss any notions that the *panthera* is the black variant of the leopard as Leitner would have it, even if black leopards naturally possess spots, despite being faint.²⁰⁷ To Pliny, a *panthera* is recognizable as a *panthera* by its markings. If the *panthera* is indeed just a black version of the *pardus* as Leitner suggests, we would

²⁰⁵ Weigel (1972a: 341) groups the leopard subspecies (currently) found in Syria with the other Asian subspecies. These seem to be marked by the same distinction that is supposedly evident between the African and Asian subspecies (cf. chapter one, n. 45). This also appears to undermine Leitner's argument that the two words arise from the discrepancies between the leopard subspecies.

²⁰⁶ One might argue that the following sentence *quidam ab his pantheras candore solo discernunt (NH 8.23.63)* necessitates that the preceding *genere* can only refer to *pardus*; otherwise, how would *ab his* make grammatical sense? Following such an approach would lead us to a point of interest: the light-coloured *panthera* would then be Leitner's Indian leopards, rather than the darker *pardus*. Of course, we cannot render an appropriate translation based on Leitner's attribution of recognizable species, but in light of my examination in its entirety, I believe this to be incorrect.

²⁰⁷ Clutton-Brock (2001: 214): the black panther is not unique, in that its colouration derives from a genetic mutation: melanism. It was, at one time, considered a separate species from the leopard, which may have inspired Leitner's attribution of *panthera* to it.

expect Pliny to say as much since he does so regarding the lion and its black version inhabiting Syria. Pliny still refers to the black lion as a lion, so why would *panthera* require a separate word for a black variant? Furthermore, any black panthers may have been confused for the black lions which Pliny describes, albeit only mane-less females. This perception is not hard to imagine since we already know that the idea existed of interbreeding between the species in Africa, resulting in mane-less male lions.²⁰⁸ Lastly, Pliny's use of *candidus* when describing the *panthera* suggests otherwise: *pantheris in candido breves macularum oculi* (NH 8.23.62: the *panthera* has small eye-like spots on a bright background [of fur]). From this description it is the *panthera* which has the light-backing colour, agreeing with *ab his pantheras candore solo discernunt* (NH 8.23.63).²⁰⁹ This contradicts Leitner, since, as Pliny takes it, the darker *pardus* would have to inhabit Africa and Syria while the lighter *panthera* would have to dwell in India (by assumption).²¹⁰ We cannot assume any other major difference between *pardus* and *panthera* since Pliny says that he himself cannot discern any other visible difference.²¹¹

J. M. C. Toynbee suggests regarding the pair that the *panthera* may be a cheetah, arguing on the basis of Athenaeus' description of Ptolemy's triumph in which several different animals were on display.²¹² In this description, Athenaeus uses both the Greek

²⁰⁸ As Leitner, Friedman (1966-1967: 50) makes this same argument, considering "panther" as simply the name for the black variant of the leopard. However, after considering that Friedman suggests that the erroneous notion of lions crossbreeding with leopards arose from the misunderstanding of spotted lion cubs, I consider my argument that the Romans viewed any large, black cat as the Syrian black lion which Pliny describes as all the stronger. If spots on cubs would have created the idea that one of the parents was a leopard, surely a dark, unspotted variant of the leopard would have been characterized as a black lion by the Romans. Friedman also touches upon the lack of distinction between the *pardus* and *panthera* in Roman art, but then immediately proceeds to characterize the *panthera* as a black variant of the *pardus*. Not only is he subjecting these Latin words to modern notions of the leopard, but also suggests a greater deal of differentiation than Pliny would have us believe and a study of Latin literature shows.

²⁰⁹ Jennison (1937: 185) makes the point that this description of small spots on a bright background suggests a cheetah and I would agree with him except for the description of the *panthera*'s spots at NH 8.23.62 where Pliny describes the crescent-shaped spots indicative of the leopard.

²¹⁰ Nor can the *pardus* be the Asian subspecies, since in one of Pliny's descriptions, the *pardus*, in Africa, lies in ambush in trees (NH 10.94.202).

²¹¹ Scarborough (1977) concludes in his brief consideration of beetles that both the Greeks and Romans primarily classified animals based on visible characteristics and habits. This is plain to see in the way Pliny describes the *pardus-panthera* relationship, emphasizing what he can visibly note in their appearance. I agree with this assessment, for how else would we expect them to classify the world around them, particularly those animals belonging to the exotic?

²¹² Toynbee (1973: 82); see also Jennison (1937: 184-185) who regards the Greek word πάνθηρ as representing the cheetah at times (notably in the description of the Ptolemaic procession) and therefore

words *παρδάλεις* and *πάνθηροι*, which Toynbee regards as evidence for two distinct animals; except, Athenaeus is, however, writing over a hundred years later than Pliny, and in Greek (which favoured *πάρδαλις*).²¹³ Pliny also uses the two words side-by-side, but we have already seen that this does not necessarily indicate two separate animals, since the *pardus* is a male *panthera*. What we are seeing here is the evolution of the word *pardus*, at which Toynbee hints, but overlooks, when she asserts that the term *pardus* is first used in extant Roman literature during the Neronian period.²¹⁴ This would seem to be the explanation for Cicero's use of *panthera* when translating Aristotle (or an intermediary source); regardless, Cicero seems to have had no need for *pardus* in his writing. Even in Pliny's own time, *pardus* is a gender qualifier rather than a *genus* distinguisher, or at least beginning to be used in such a way, as the *Natural History* suggests. Pliny himself does not indicate two separate animals. This evolution is not surprising since *leopardus* shows up and predominates within the next two centuries,²¹⁵ while *Africanae* also becomes a term to describe the large cats in general; Pliny even uses *Africanae* at *NH* 8.24.64.²¹⁶ Toynbee also incorrectly correlates *panthera* with *πάνθηρ* and *pardus* with *πάρδαλις* (perhaps misled by the orthographic similarities). I have

incorrectly recognizes the Latin word *panthera* as the cheetah because of etymological similarity; Brown (1960: 170) favours this idea as well; Hull (1964: 99-100) argues that the Romans viewed the panther and leopard as the same animal (but says the Greeks rarely did – he suggests the wildcat [*Felis silvestris*] as a possible identification for the Greek word *πάνθηρ* which seems a stretch to me). He continues by saying that the Greeks, at any rate, must have known about the cheetah because they had been domesticated for so long. Although his focus is on the Greeks, I have to wonder what he makes of the Roman perception of this animal. Hull, however, in my opinion, makes a large oversight when he fails to cite any ancient writers, taking the cheetah's domestication as a given.

²¹³ Athenaeus, *Deipnosophistae*, 200c-201c: it is also worth noting that in addition to both *παρδάλεις* and *πάνθηροι* appearing in the text, we also see *ἄρκηλοι* which are said to be the young of the *πάρδαλις* by Aelian (*De natura animalium* 7.47). We should therefore be a little cautious in assuming that each listed name necessarily represents a distinct species of animal.

²¹⁴ Toynbee (1973: 82); see also Jennison (1937: 185); Brown (1960: 170); *pardales*: Q. Curtius Rufus, *Historiae Alexandri Magni* 5.1.21; *pardus*: M. Annaeus Lucanus, *Bellum civile* 6.183; M. Valerius Martialis, *Spectacula* 15.7, and *Epigrammata* 1.104.2; *panthera*: Plautus, *Epidicus* 18 (*pantherinum genus*); Lucretius, *De rerum natura* 4.1016.

²¹⁵ Ling (1998) cites one mosaic found at Smirat, Tunisia, on which *venatores* and *leopardi* are depicted and the word *leopardo* is present. According to Ling, its date is the mid-2nd century A.D.

²¹⁶ *Africana* is used by Pliny at *NH* 8.23.64, a term which is likely used to describe the *panthera*. See Jennison (1937: 46); Dodge (2011: 52) says the term *Africanae* came to represent any large cat, including those not from Africa.

already shown that Pliny does not exhibit this connection in his *Natural History*, instead translating *panthera* from *πάρδαλις*. Toynbee's oversight reveals how modern conceptions, influenced heavily by an awareness of present-day taxonomic associations, may affect our judgment. The chief criticism I would make of differentiating between the two is Toynbee's own assessment that Roman art does not distinguish them well, as I too have shown previously. This is the visual support for my argument, that the *pardus* and *panthera* were not seen by the Romans as two separate entities, specifically during Pliny's own time when the Latin word *pardus* appears to have entered the scene, beginning its transformation to its eventual end as *leopardus*. Toynbee's suggestion raises another view regarding the cheetah in the ancient world: that the original use of *tigris* represents the cheetah, and does not come to mean tiger (*Panthera tigris*) until later, within the first couple centuries A.D. I digress only because of the cheetah's relevance to our understanding and recognition of the *pardus* and *panthera*.

The argument that the word *tigris* originally represented the cheetah is propelled by Angela Steinmeyer-Schareika in her study of the Nile Mosaic of Praeneste,²¹⁷ and more recently in P. G. P. Meyboom's work on the same mosaic.²¹⁸ Steinmeyer-Schareika is familiar with Keller's earlier work. However, she argues that



Figure 3 Nile mosaic: *tigris*. c. 80 B.C. Praeneste: Sanctuary of Fortuna Primigenia.

the *tigris* cannot mean tiger, at least at the time of the Nile Mosaic's creation.²¹⁹ She bases her argument largely on the animal labelled as *tigris* depicted in the mosaic (fig. 3).

²¹⁷ Steinmeyer-Schareika (1978: 60).

²¹⁸ Meyboom (1995: 122-123).

²¹⁹ Dunbabin (1999: 51) gives a very large date range for the Nile Mosaic, from the 2nd quarter of the 2nd century B.C. to the early-3rd century A.D. The earlier dates are based on a perceived association between

It hardly resembles what we would consider a tiger; rather, it appears lighter, with black “flecking” and a long tail. Due to these characteristics, Steinmeyer-Schareika reasons it is likely a large, spotted cat, probably the cheetah due to its long legs.²²⁰ Once again, however, it is important to remember that, as with Castel, it is dangerous to put too much trust in the accuracy of artistic renditions. I, nevertheless, agree that the *tigris* appears to be a large, spotted cat such as a leopard or cheetah in the Nile Mosaic, and not the tiger as we might expect. Steinmeyer-Schareika also relies upon Ptolemy (*Geographia* 4.8.4) in which an animal called the *tigris* is located in east Africa and can therefore not be a tiger since the latter is native to Asia and not Africa.²²¹ The Nile Mosaic seems to support this understanding of the word *tigris*. Meyboom expands on this argument, saying that *tigris* in Greek and Latin literature is misapplied to the tiger.²²² First, *tigris* is thought to derive from the Persian word for arrow, a description Meyboom sees as unsuited for the apparently “slow” tiger.²²³ But the tiger is not a “slow” animal. The only way it could be considered slow would be when compared to another, faster animal, perhaps the cheetah. Although Pliny’s own description of the *tigris* characterizes an animal of incredible speed, he also says that it is found in Hyrcania and India.²²⁴ Geography alone cannot

the exotic animals located at the top of the mosaic (Aethiopia) and the expedition of Ptolemy II Philadelphus c. 280 B.C. Dunbabin proposes that this mosaic continues to preserve the exploits of this expedition through illustration. In addition, Dunbabin draws comparisons to the Fish Mosaic which itself dates to the last quarter of the 2nd century B.C. This appears to be the most common view for the Nile Mosaic’s date: late-2nd century to early-1st century B.C. Ultimately, a precise date does not matter all that much for my study beyond the fact that the mosaic was almost assuredly completed before Pliny’s *Natural History*; see also Hull (1964: 100) who reasons that because the *tigris* is described so unfamiliarly by the Greeks and Romans that it must have been known only through its reputation.

²²⁰ Steinmeyer-Schareika (1978: 60).

²²¹ Ptolemy also says that elephants are born entirely white in this region; so unless we are to understand that these elephants are all albinos, I think we should approach Ptolemy’s words with some caution since there is no indication that he is referencing a spotted cat when he uses the name *tigris*. He is also writing more than seventy-five years after Pliny, which makes the idea of using Ptolemy as support for this idea even less credible.

²²² Meyboom (1995: 122).

²²³ Meyboom (1995: 123); Keller (1909: 62) has no problem with this attribution.

²²⁴ *NH* 8.25.66; see Athenaeus, *Deipnosophistae* 13.57.5-8: ὡσπερ Σέλευκος δεῦρ' ἔπεμψε τὴν τίγριν, ἣν εἶδομεν ἡμεῖς, τῷ Σελεύκῳ πάλιν ἔδει [τι] ἡμᾶς παρ' ἡμῶν ἀντιπέμψαι θηρίον τρυγέρανον· οὐ γὰρ γίγνεται τοῦτ' αὐτόθι (just as Seleucus sent a *tigris* here, which we saw, it is fitting that we send some wild beast back to Seleucus, from you: the *trygeranos*. For it is not known there). Geographically speaking, it makes

support this argument, since Pliny is relying heavily upon earlier sources.²²⁵ If anything, this may indicate that, at least, by Pliny's own time, the *tigris* was considered a tiger and not just a spotted cat.

On the other hand, it is unclear what is meant by *panthera et tigris macularum varietate prope solae bestiarum spectantur, ceteris unus ac suus cuique generi color est* (NH 8.23.62: the panthera and tiger nearly alone of beasts are beheld with a variety of markings; to the rest is one colour according to their *genus*). Are the *panthera* and *tigris* regarded as having spots (which would support the argument of Meyboom) or are they distinguished simply by the variety of their markings? Naturally these two are not the only animals noted for their markings. Therefore one cannot take this statement as all-encompassing.

This question of the *tigris*' identity appears to have been present among Romans, since Arrian addresses an apparent confusion between actual tigers and what the Romans called tigers:

τοῦ δὲ ἐλέφαντος τὴν τίγριν πολλὸν τι ἀλκιμωτέραν Ἴνδοι ἄγουσι. τίγριος δὲ δορὴν μὲν ἰδεῖν λέγει <Νέαρχος>, αὐτὴν δὲ τίγριν οὐκ ἰδεῖν· ἀλλὰ τοὺς Ἴνδους γὰρ ἀπηγγέσθαι, τίγριν εἶναι μέγεθος μὲν ἡλίκον τὸν μέγιστον ἵππον, τὴν δὲ ὠκύτητα καὶ ἀλκὴν οἷον οὐδενὶ ἄλλῳ εἰκάσαι (...) ταύτας δέ, ἄστινας καὶ ἡμεῖς ὀρέομεν καὶ τίγριος καλέομεν, θῶας εἶναι αἰόλους καὶ μέζονας ἤπερ τοὺς ἄλλους θῶας. (*Indica* 15.1-3)

The Indians consider the *tigris* as much stronger than the elephant. <Nearchus> says that he saw the skin of a *tigris*, but not a *tigris* itself. But the Indians tell that the *tigris* is as big as the largest horse, and such are its swiftness²²⁶ and strength, alike to nothing else (...) But these, whichever we see and call *tigreis*, are jackals, speckled and greater than other jackals.

sense for a tiger to be sent from Seleucus and (by assumption) the Seleucid empire. But I must stress that by the time of Athenaeus' writing there is no question that *tigris* means anything but tiger.

²²⁵ The misapplication of geography is the subject of my next chapter on the *crocota*.

²²⁶ It is doubtful that αἰόλους means quick-moving in this instance since Arrian uses it elsewhere in combination with the adjective for swift: καὶ ὄφιας δὲ λέγει <Νέαρχος> θηρευθῆναι αἰόλους μὲν καὶ ταχέας (*Indica* 15.10: and Nearchus says that serpents were hunted, spectacled and swift). I think we are safe to assume that αἰόλους means something akin to speckled. See LSJ s.v. αἰόλος 1.Π.1-2.

Arrian informs his reader that what he and his contemporaries see and call *tigreis* are, in fact, jackals, albeit speckled and larger than normal jackals. We can discern two things from this comment. First, Arrian must have understood what a true tiger was or at least recognized that other Romans were misapplying the name to the wrong animal. It would seem that there is some merit to the idea that the word *tigris* represents an animal other than the tiger. Whether or not it ever meant tiger from its origin is another matter entirely. It is difficult to answer this question definitively because of the lack of concrete description concerning this word in extant Greek texts. At the very least, by the time of Arrian (and I would even suggest earlier than the time of Pliny) *tigris* means tiger as we know it; although some Romans, nevertheless, appear to exhibit a general confusion about this animal, probably because of its relative scarcity in the Roman world. On the other hand, Steinmeyer-Schareika and Meyboom cannot be right about *tigris* representing the cheetah or even any spotted cat for that matter.²²⁷ We also learn from Arrian that the *tigris* in the Nile Mosaic is not a tiger, but a jackal. These jackals were spotted, justifying the presence of spots on these animals in the mosaic. Once again this serves as a cautionary tale for us modern scholars in attempting to identify animals solely upon their appearances in art. Just for good measure, I should also like to add that Arrian comments on the *tigris*' unmatched speed agreeing with Pliny's remark that its speed is unparalleled. This addresses Meyboom's view that the tiger is not a fast animal. Regardless of the accuracy of the characterization, Arrian describes the tiger as a fast animal.

Although I wish to refrain from the mistake of some earlier scholars who have attempted to apply each Roman and Greek term to a separate species as recognized today (as we have seen in my discussion on the identification of the *pardus* and *panthera*), I

²²⁷ I find it remarkable that Meyboom (1995: 115, 122-123) references this passage in Arrian twice when discussing the identification of the *thoantes* and *tigris* on the Nile Mosaic, but still argues that *tigris* is the cheetah. It would seem that Meyboom rationalizes that these jackals are called *tigreis* by Arrian because they are spotted and are therefore named in light of their similarity with the spotted cheetah. Meyboom suggests that these *tigreis* may be wild hunting dogs or possibly the spotted hyena (I accept that he may be right about the wild hunting dogs). Nevertheless, his argument is faulty. Arrian's *tigreis* are not named after the *tigris* "cheetah" but are themselves the misidentified *tigris*. If Arrian had meant the cheetah, we would expect him to have used one of πάνθηρ or πάρδαλις rather than θώς. I also have to wonder whether these speckled jackals were named *tigreis* not because of their markings, but from a lack of familiarity of these animals and the name *tigris* among the Greeks and Romans.

shall point out only briefly that the term *mantichora* (NH 8.30.75) has been regarded as a tiger, albeit overly stylized.²²⁸ Pausanias (2nd century A.D.) presents this same idea that the *mantichora* is the tiger.²²⁹ This could explain the use of *tigris* for another animal if *mantichora* was used to mean the tiger. Since the Greeks and Romans would have been largely unfamiliar with the tiger because of its remoteness and rarity, they had no need for further clarification for quite some time.²³⁰ In response to the arguments of Meyboom and Steinmeyer-Schareika, I have to ask one important question: if *tigris* did in fact mean cheetah at one time, what sparked the change? The cheetah was obviously familiar to the Greeks and Romans as seen in art, even if often confused with the leopard. Nor would the cheetah have been a rarer sight to the Romans, so it would seem unlikely that the absence of this one animal permitted the arrival of the tiger to take its name. Despite the fact that the two are both large cats, it would also be unnatural for the tiger to assume the name of the cheetah when the two are distinctly different from each other.

Still, it is not entirely inconceivable to think that because of the tiger's relative unfamiliarity to the west, the term *tigris* changed hands so to speak, since I have shown a similar pattern with the use and identification of *pardus* and *panthera* along with their Greek counterparts. On the other hand, it is just as likely that the artists of the Nile Mosaic, in their unfamiliarity with the *tigris*, depict the animal incorrectly, basing it upon the only big cats they knew: the spotted cheetah and leopard, or as Arrian says, the jackal. Nevertheless, the answer to this question does not ultimately change the way Pliny presents the *pardus* and *panthera* in his *Natural History*; rather, it characterizes Meyboom's statement that the names of predatory beasts are often confused, surely on account of their obscurity and scarcity to both the ancient Greeks and later to the Romans.²³¹

²²⁸ Bali (1879-1888: 310).

²²⁹ θηρίον δὲ ἐν τῷ Κτησίῳ λόγῳ τῷ ἐς Ἰνδοῦς – μαρτιχόρα ὑπὸ τῶν Ἰνδῶν, ὑπὸ δὲ Ἑλλήνων φησὶν ἀνδροφάγον λελέχθαι – εἶναι πείθομαι τὸν τίγριν (*Discriptio Graecia* 9.21.4: the beast in Ktesias' account which is in India – he says it is called *martichora* [*mantichora*] by the Indians, but man-eater by the Greeks – I believe it is the *tigris*).

²³⁰ Meyboom (1995: 122) also raises the tiger's rarity in the Hellenistic world. In the Roman world, Meyboom finds the idea that Heliogabulus had 51 tigers killed in 218 A.D. hard to believe, although by this time I would argue that *tigris* means tiger. The story, therefore, cannot be interpreted as the misidentification of 51 leopards as tigers.

²³¹ Meyboom (1995: 122).

Unlike Steinmeyer-Schareika and Toynbee, I argue that, although the Romans encountered the two species of spotted big cat recognizable to the modern eye – the cheetah and leopard – as they expanded and exploited the resources of conquered lands, the close appearance of the cheetah and leopard is comparable to the similarities that existed in other related animals, such as the existence of mane-less or black lions in relation to the common tawny lion. It is understandable that the Romans viewed the large cats in a similar way.²³² To the Romans, the *pardus* is simply the male *panthera*, and it is during the period of the 1st-3rd century A.D. that the evolution of the word was taking place.

²³² In anticipation of criticism for assuming that the Romans could have either confused these animals or willingly perceived them as one, we have to remember that classifications are not universally the same. Lloyd (2004a) examines this very issue in his examination of the differences between ancient Greek and Chinese classification systems. At one point he illustratively asks the scientist, who is so readily able to recognize a tiger or lion, “to ponder whether classes are relational and culturally induced” (p. 113); see also Mayr, et al. (1953: 5) who raise a noteworthy point in the discussion of alpha taxonomy: they cite the example of one particular tribe in Papua New Guinea who possesses 137 names for 138 species of birds (as recognized by modern taxonomy). Their purpose is to show the observational skill of this tribe and the high similarity between their naming recognition and ours. Mine, however, is to point out that two species were nevertheless identified as one. Furthermore, the tribe is identifying and naming local and familiar birds. We have to remember that the leopard and cheetah cannot be rightly considered overly familiar to the Romans. Mayr, et al. also discuss the population concept which means that there is variance amongst individuals and population groups, something which could further explain the identification of the cheetah and leopard as one animal.

Chapter 4

4 The *Crocota*, Hyena and Aethiopia

Unlike his description of *pardus* and *panthera*, Pliny's portrayal of the animal called the *crocota*²³³ is significantly sparser in information. Mention of this animal occurs only twice in the *Natural History*, once as the *crocota* and another instance as the *corocotta*. These two "animals" are, in fact, the same animal, albeit just spelling variations or corruptions of each other. The *leucrocota*, on the other hand, appears just once. In fact, the *crocota* makes very few appearances in extant Greek and Latin literature, providing little insight into this animal's identity.²³⁴ But once again, it is not necessarily my aim to identify the *crocota* with an animal we recognize today; rather, I seek to examine the way in which the ancient Romans viewed the animal, with emphasis placed on Pliny's *Natural History* and the other few extant Latin authors who write about it. This study also provides an opportunity to address the issue of Pliny's recognition and unfamiliarity, which some scholars have already discussed, particularly in botany.²³⁵ The lack of information on the *crocota* allows one to filter and examine the sources Pliny uses when writing about the animal in the *Natural History*, as well as how he and other Romans

²³³ Multiple spelling variations of *crocota* exist in extant Greek and Latin literature. For the most part, I use *crocota* except where I am stressing the importance of a specific spelling. It is noteworthy that Cassius Dio tells the story of a bandit in Spain named Corocotta for whom Augustus once offered a bounty of a million sesterces (56.43.3). Champlin (1987: 179) regards this story as part of the inspiration for the later character M. Grunnius Corocotta (also a brigand) in the *Testamentum porcelli* (5th century A.D.). Did the name arise independently of the animal *crocota*, or did the name shape the Romans' understanding of the *crocota* (or vice versa)? Since Pliny writes earlier than Dio Cassius and makes no mention of any Spanish bandit named Corocotta, we can assume that it likely did not shape his understanding of the *crocota*. Nevertheless, it is something to consider in light of the relative rarity of this particular animal in ancient texts, and Champlin explores the impact that this word has as part of the protagonist's name.

²³⁴ Ctesius *FGrHist.* 688 F87; *Periplus Maris Rubri* 50; Strabo 16.4.16; Aelian *De natura animalium* 7.22; Porphyry *De abstinentia* 3.4; Pliny *NH* 8.107.

²³⁵ This follows the argument of Doody (2011) in which the similarity between the Greek names of two plants, κισσός and κίσθος (ivy and rock-rose respectively) in the *Natural History* is addressed (pp. 116-118). Pliny confuses the traits of the two and, although the Latin names *hedera* and *cisthus* bear no resemblance, it is easy to see how a mix-up could ensue when reading or being dictated to from Greek sources; see also Stannard (1965: 420-425) who explores this issue, although much earlier, in which he argues that *helxine* is surely an error for *ixine* (p. 420) considering that the passage in question is taken from Theophrastus, who uses the word *ixine*. Stannard attributes errors such as these to Pliny's writing method, rather than as an indication of Pliny's own validity. If, however, Pliny was knowledgeable about *helxine* and *ixine*, we might not expect him to have made such a mistake, but naturally, it could have arisen from his scribes or those to come.

portray an animal about which so little was known in their own time, in terms of description, identification, and recognition.

Since the animal makes so few appearances in the *Natural History*, there appears superficially to be significant confusion concerning it, which no doubt characterizes a general lack of knowledge and of recognition of it by contemporary Romans. The first passage in the *Natural History* is short and succinct: (...) *crocotas velut ex cane lupoque conceptos, omnia dentibus frangentes protinusque devorata conficientes ventre* (NH 8.30.72: [...] *crocotae*, as if born from a dog and wolf, break everything with their teeth and they complete digestion of what had been swallowed in their stomachs). Although Pliny presents to his reader not even a full sentence in this description of the *crocota*, we can nevertheless discern some information. First, its appearance is that of a canine, because it looks to be a cross between a dog and wolf. Second, and most importantly, the *crocota* is known for its voracious appetite, devouring everything. Beyond that, it is just another animal in a list of other Aethiopian marvels.

Although the second passage is not much longer, it does reveal a little more about the *corocotta*:²³⁶

huius generis coitu leaena Aethiopica parit corocottam, similiter voces imitantem hominum pecorumque. acies ei perpetua in utraque parte oris nullis gingivis, dente continuo: ne contrario occurso hebetetur, capsarum modo includitur. (NH 8.45.107)

The Aethiopian lioness produces the *corocotta* through breeding with this type [of hyena], which similarly imitates the voice of men and cattle. There is an unbroken point in either point of its mouth with no gum, a continuous tooth: lest it be blunted by contacting the opposite tooth, it is shut up in some manner of a box.

Unlike the *crocota* in the earlier passage, the *corocotta* presented here is a hybrid between a lion and hyena. The inclusion of the adjective *Aethiopica* presumably denotes the region where these *corocottae* can be found rather than a specific type of lion necessary to produce this hybrid. The connection between the *corocotta* and hyena is emphasized further in the *corocotta*'s ability to imitate voices of men and cattle just like the hyena. Pliny may have thought that the *corocotta* derives its nature from its hyena

²³⁶ As I mentioned (cf. n. 233), I use the variant *corocotta* to emphasize what we know attached to this spelling. It is still, nevertheless, the same animal as the *crocota*, as I demonstrate.

parent and therefore he assumes it is able to perform this same imitation, or, if through rumours of such ability, he makes a connection between it and the hyena, which is supported by a perceived similarity in appearance. The former is probably closer to the truth, except that said characterization was likely present in Pliny's sources and not a conscious correlation on his own part (we shall see that by the time of Aelian and Cassius Dio, the association between the two animals is firm). Pliny also offers a description of the animal's teeth which echoes his earlier description of the *crocota*'s digestive capabilities. It would seem that the two words represent the same animal. It would not be a surprise if someone unfamiliar with the names should miss the difference entirely upon a quick reading of the text. Although the *crocota* is said to resemble something between a dog and a wolf, while the *corocotta* is a cross between a lion and hyena, and neither share similar traits (not that Pliny provides much to go on), a quick examination of a third supposed variant of the *crocota* will address any doubts.

Let me first introduce the passage on *leucrocota* which, I fear, may at first confuse the issue. This description is part of a greater list of Aethiopian animals where we find the passage concerning the *crocota* (NH 8.30.72):

(...) *leucrocotam, perniciosissimam feram asini feri magnitudine, clunibus cervinis, collo, cauda, pectore leonis, capite melium, bisulca ungula, ore ad aures usque rescisso, dentium locis osse perpetuo – hanc feram humanas voces tradunt imitari.* (NH 8.30.72-73)

(...) the *leucrocota*, is a most destructive wild beast, the size of a wild ass, with haunches of a stag, neck, tail and breast of a lion, the head of a badger, cloven hoof, mouth open even to the ears, and an unbroken bone in the place of teeth – they say this beast imitates human voices.

Despite its similarity in name to the *crocota*, the *leucrocota*'s characterization is much closer to the animal referred to in name as the *corocotta*. They are described as having a similar unbroken bone for teeth, in addition to being able to imitate human voices. Of the three, we are given the most information regarding the *leucrocota*'s appearance, with characteristics of an ass, stag, lion and badger, in a manner following Pliny's descriptions of other animals, such as the giraffe (NH 8.37.69).

The etymology of *leucrocota* is explored briefly by Leitner, with two reasonable suggestions: either "leuco-crocota" for white-*crocota*, or "leo-crocota", suggesting a lion-

crocota hybrid.²³⁷ It is interesting that Pliny does not discuss either explanation, since he often takes the opportunity to display his knowledge on the origin of words and foreign names when appropriate.²³⁸ If he had recognized the prefix “*leu*” as deriving from “*leuco*” we should expect him to have elaborated on its white or light colour, if only briefly. On the other hand, he includes in his description mention of a lion, through the *leucrocota*’s possession of a lion’s neck, tail and breast. At first this might seem quite similar to Pliny’s description of the giraffe,²³⁹ in which Pliny directly attributes its name to its spotted pattern, yet he is surprisingly silent about the *leucrocota*’s name. As a prefix, “*leo*” draws a strong connection with the lion-hyena hybrid *corocotta*. In fact, it appears that what he calls the *corocotta* is a better candidate to be called the *leucrocota*. This is particularly evident when we consider that scholars generally recognize the *crocota* as a hyena species.²⁴⁰ Once again however, I am cautious about introducing modern characterizations of these animals, especially when Pliny does not specifically state as much. Since he does not inform us that the *leucrocota* derives its name from the lion, I refrain from definitively stating as much, although it is the most likely origin. Still a connection can be seen: it seems clear that Pliny perceived an association between the hyena and the *corocotta* to the same extent he perceives exists between the *corocotta* and the lion, in addition to a close relation between the *leucrocota* and the *corocotta*. The former appears to be linguistically a lion-*crocota* hybrid, while the latter is described as a lion-hyena hybrid. The *leucrocota* also shares a similar spelling with Pliny’s *crocota*, further connecting the three terms. Thus, I shall, in the future, use *crocota* to denote this animal, regardless of spelling variations in the original text, for the sake of simplicity. Furthermore, despite the possibility that the *leucrocota* is the same animal as the *crocota*, not unlike the later Latin term *leopardus* coming to represent the *panthera* and *pardus*, I shall continue to distinguish it from the *crocota* because of the inconclusive evidence.

²³⁷ Leitner (1972: 154).

²³⁸ Pliny says that the Aethiopians call the giraffe the *nabun* (NH 8.37.69) and the Gauls call the *chama* (probably the lynx) *rufium* (NH 8.38.70).

²³⁹ If anything, the *camelopardalis* should caution us to associate animals by name alone, since we do not consider the *camelopardalis* and *pardus* to be closely connected.

²⁴⁰ Keller (1887: 140-154); Keller (1909: 62-64); Steier (1913: 18).

A close study of the passages and source material available to Pliny will help illuminate his methods in writing about the *crocota* in the *Natural History*. Diodorus Siculus (1st century B.C.) provides a strikingly similar account to Pliny's. Diodorus' description of the animal is as follows:

ὁ δὲ λεγόμενος παρ' Αἰθίοψι κροκόττας μεμιγμένην μὲν ἔχει φύσιν κυνὸς καὶ λύκου, τὴν δ' ἀγριότητα φοβερωτέραν ἀμφοτέρων, τοῖς δὲ ὀδοῦσι πάντων ὑπεράγει· πᾶν γὰρ ὀστῶν μέγεθος συντρίβει ῥαδίως. καὶ τὸ καταποθὲν διὰ τῆς κοιλίας πέττει παραδόξως· τοῦτο δὲ τὸ ζῷον τῶν ψευδῶς παραδοξολογούντων ἱστοροῦντες ἔνιοι μιμεῖσθαι τὴν τῶν ἀνθρώπων διάλεκτον ἡμᾶς μὲν οὐ πείθουσιν. (*Diodorus Siculus* 3.35.10)

And that which is called the *crocota* among the Aethiopians has a nature mixed of a dog and wolf. It has a more fearful wildness than either of these and surpasses all in regards to its teeth, for it crushes the strength of bones easily. Incredibly it digests through its gut that which is swallowed. Some inquirers, of those who falsely tell myths that this animal imitates the voice of humans, do not persuade us.

This description recalls Pliny's description at *NH* 8.30.72 where he says that the *crocota* is a hybrid of a dog and wolf. Diodorus' focus on this animal's teeth and its ability to crush bones with relative ease further displays a similarity. Both also address its ability to imitate human voice, but unlike Pliny, Diodorus does not believe this so-called myth. Interestingly, both of these writers also discuss a fierce, wild kind of bull in close proximity to their description of the *crocota* (*Diodorus Siculus* 3.35.9); Pliny calls it the forest bull (*NH* 8.30.74). This bull's strength, speed and gaping mouth are described, as well as its moveable horns. It possesses extremely hard skin which deflects blows and can only be caught by falling into a pit, but will, nevertheless, fight to the death. Although the passages are not exact copies of each other, it would be hard to imagine that Pliny was not influenced by Diodorus considering the similarities between the two. On the other hand, I wish to suggest that, even if Pliny did use Diodorus for these descriptions of the *crocota*, both he and Diodorus derive their information from an earlier source: Ctesias (late-5th century B.C.).

There are two main reasons for this conclusion. The first is that Pliny makes reference to Ctesias in the very same section as the *crocota* and *leucrocota* (*NH* 8.30.75), immediately following his description of the forest bulls. Although Pliny mentions him in

connection with the *mantichora*, we can nevertheless discern a loose connection between both of their descriptions of the *crocota*:

ἔστι δὲ ἐν Αἰθιοπία ζῷον λεγόμενον κροκόττας, κοινῶς δὲ κυνόλυκος· ἔστι δὲ τῆ δυνάμει θαυμαστόν· τοῦτο δὲ φασιν ἀνθρωπίνην μιμεῖσθαι φωνὴν καὶ διὰ νυκτὸς καλεῖν ἐξ ὄνοματος τοὺς ἀνθρώπους, ὡς ἐπ’ ἀνθρώπου φωνῆ καὶ προσιόντας· οἱ δὲ ἀθρόως ἐπιπίπτοντες κατεσθίουσιν. ἔχει δὲ τὸ θηρίον ἀλκὴν λέοντος, ταχύτητα ἵππου, ῥώμην ταύρου, σιδήρου δὲ ὑπεῖκον. (Ctesias *FGrHist* 688 F87)²⁴¹

In Aethiopia there is an animal called the *crocota*, but commonly the *kynolukos*. It is admirable in strength. They say this animal mimics human voice and calls men by name during the night, so that they draw near to this human voice. And the *crocota*, attacking in packs, eats these people. This wild beast has the courage of a lion, the swiftness of a horse, the strength of a bull, but it yields to the sword.

Ctesias, too, presents the animal as a “hybrid” of a dog and wolf through the vulgar name κυνόλυκος. Interestingly, he describes it as being able to imitate human voices just as Pliny does with the *crocota*. Unfortunately, Pliny’s first description of the *crocota* only incorporates this dog-wolf notion and nothing else of what Ctesias relates, while the second one, despite the human voice imitation, shares nothing else with Ctesias’ description. The claim that it is a lion-hyena hybrid even contrasts with Ctesias. It is quite likely that Pliny may be supplementing Ctesias with the later description of Diodorus. At the very least, it seems that Pliny is aware of Ctesias’ writing, whether in a firsthand account or repeated through intermediary sources. On the other hand, Diodorus appears to have been influenced by Ctesias when we consider the line immediately preceding his description of the *crocota*: ὡς ἂν τῆς φύσεως αὐτῷ δεδορημένης ἀλκὴν μὲν λέοντος, ἵππου δὲ τάχος, ῥώμην δὲ ταύρου, τῆς δὲ πάντων κρατίστης σιδήρου φύσεως οὐχ ἡττώμενον (*Diodorus Siculus* 3.35.9: since nature gave it the courage of a lion, the speed of a horse, the strength of a bull, and it is not inferior to the nature of iron which is the strongest of all). The association is immediate: ἀλκὴν μὲν λέοντος, ἵππου δὲ τάχος, ῥώμην δὲ ταύρου is a near exact rendering, except for τάχος, which nonetheless derives

²⁴¹ This fragment comes to us from Photius (*Bibliotheca* 73) but is itself an interpolation to Photius’ work. It is for the most part regarded as originating from Ctesias’ *Indica*, but the possibility remains that the passage comes from another unknown source. But if it does belong to Ctesias, we can see a probable origin for the later Greek and Latin authors’ descriptions of the *crocota*. Ctesias would have likely had more exposure to tales of this beast, since he spent time in Persia and was therefore closer to these eastern regions (I refrain from saying he witnessed the animal firsthand, since he provides few physical descriptions of the *crocota*).

from Ctesias' ταχύτητα. This cannot be mere coincidence. This indicates that Diodorus used Ctesias as a source, or a very accurate intermediary text. In addition, having already considered the possible and likely influence of Ctesias on Pliny, it is reasonable for us to regard both Diodorus and Pliny as having used Ctesias (or a different hypothetical source) which provides another explanation as to why Pliny's account is similar to that of Diodorus.

Another possible candidate as a source for Pliny is the geographer Artemidorus, whom Strabo frequently references (Strabo wrote not much more than fifty years prior to Pliny). In his *Geographica* Strabo relates similar stories about Arabian and Aethiopian animals (16.4.15-16), including the giraffe (although a more accurate description than Pliny's), a rhinoceros fighting with an elephant (including the same tactic of striking the elephant's underside with its horn), sphinxes and the fierce forest bulls. Still, Strabo relates very little about the *crocota*: (...) κροκούττας δ' ἐστὶ μῆγμα λύκου καὶ κυνός, ὡς φησὶν οὗτος (*Geographica* 16.4.16: (...)) and the *crocota* is a mix of a wolf and dog, as he [Artemidorus] says). We learn less about the animal from Strabo than we do from Pliny. Its dog-wolf nature is again emphasized, further highlighting the similarities between Pliny's list of Aethiopian animals and his first description of the *crocota* (*NH* 8.30.72) suggesting that Pliny utilized Strabo, or possibly Artemidorus, as a source for this section, which led to two similar yet distinct versions.

The number of spelling variations for the name *crocota* is evident in, but not only restricted to, the *Natural History*. We have already seen Pliny use both *crocota* and *corocotta* for what is almost assuredly the same animal, linked in part by the description of the *leucrocota*. Even Ctesias and Strabo use different variations of the name, the former *crocotta*, and the latter *crocoutta*. We cannot rightly expect that any direct translation of the name from Greek into Latin would yield a similar and accurate transliteration, considering the influence of oral practices and dialects, as well as the memory and literary capacity of the author; Pliny himself uses multiple variations of the *crocota* in the *Natural History*. It is possible that Pliny simply copied the name used by his sources, but Pliny was likely affected by his research practices, as Aude Doody

explores in her study of his botanical knowledge.²⁴² We will recall from Pliny the Younger that his uncle would often dictate to a scribe while listening to another reading the text out loud.²⁴³ Regardless of whether Pliny wrote in such a fashion all the time, we see that he is not free from error or misunderstanding. In all likelihood this practice would have compounded any mistakes made through transference, either by person, or aural miscommunications. This is especially true in the cases where Pliny is unfamiliar with the object in question, as appears the case with the *crocota*. We have already seen that Pliny does correct his sources at times, but without any reference point for the *crocota*, he cannot make emendations to his sources.²⁴⁴ It therefore seems likely, considering the spelling variations and lack of information concerning the *crocota* that Pliny was unfamiliar with the animal. Can the same be said about contemporary Romans?

Since so few references to the *crocota* exist in extant Latin literature it is difficult to answer this question. Aelian provides us with the greatest amount of information regarding the animal, writing just over over a hundred years later than Pliny. From Aelian's account we see that he recognizes that there was a strong connection between the *crocota* and the hyena similar to the perceived relation between the two in the *Natural History*:

κακόηθες δὲ ἄρα καὶ ὕαινα ἦν καὶ ὄν φασι κοροκότταν. ἡ γοῦν ὕαινα πρὸς τὰ αὐλῖα νύκτωρ φοιτᾷ, καὶ μιμεῖται τοὺς ἐμοῦντας. ἀκούοντες δὲ οἱ κύνες προσίασιν ὡς ἐπ' ἄνθρωπον· ἡ δὲ αὐτοὺς συλλαμβάνει καὶ ἐσθίει. πανουργίαν δὲ κοροκόττα, ἦν ἤκουσα καὶ αὐτήν, ἔοικα λέξειν νῦν. ἐς τοὺς δρυμοὺς ἑαυτὸν ἐγκρύψας εἶτα μέντοι τῶν ὑλουργούντων ἀκούει καλούντων ἀλλήλους ἐξ ὀνόματος καὶ μέντοι καὶ λαλούντων ἅττα. εἶτα μέντοι μιμεῖται τὰς φωνάς, καὶ φθέγγεται, εἰ καὶ μυθῶδες τὸ εἰρημένον, ἀνθρωπίνῃ γοῦν φωνῇ, καὶ καλεῖ τὸ ὄνομα ὃ ἤκουσε. καὶ ὃ κληθεῖς πρόσσεισιν, ὃ δὲ ἀναχωρεῖ καὶ πάλιν καλεῖ· ὃ δὲ καὶ μᾶλλον κατὰ τὴν φωνὴν ἔρχεται. ὅταν δὲ αὐτὸν τῶν συμπονούντων ἀπαγάγη καὶ ἔρημον ἀποφήνη, συλλαβῶν ἀπέκτεινε καὶ ποιεῖται τροφήν τὸ ἐντεῦθεν φωνῇ δελεάσας. (*De natura animalium* 7.22)

Both the hyena and that which they call the *crocota* are malicious. The hyena roams about near cottages at night, and imitates those vomiting. The dogs, hearing

²⁴² Doody (2011: 116).

²⁴³ For how Pliny went about finishing his writing as described by Pliny the Younger in a letter to Baebius Macer (*Epistulae* 3.5), see chapter one, p. 25.

²⁴⁴ I have to recognize that scribal errors in transmission of the original texts could also play a large part in spelling variations, especially if the scribes were unfamiliar with the animal.

this, go as if it is a person. It then takes and eats them. And the knavery of the *crocota*, which I have heard, seems to speak. Hiding itself among the homes, it listens to those calling each other by name and indeed those saying anything. Then it imitates their voices, and calls with a human voice – even if a myth is being related here – and calls out the name which it heard. And the one called draws near, but then withdraws, so it calls again; and the person goes closer to the voice. And when it leads him away from his companions and he appears alone, it seizes and kills him and considers him as food, having enticed him there by its voice.

The inclusion of the double καὶ in the first sentence suggests that Aelian views the two animals as distinct, but nevertheless closely linked. Unlike the hyena, the *crocota* is a relatively unknown animal as seen in Aelian’s use of καὶ ὄν φασι κοροκότταν. This is the “so-called *crocota*” known only through its connection with the hyena; they are both mischievous, causing havoc for humans and domestic animals alike.²⁴⁵ The hyena here acts in a way similar to the way in which Pliny describes it: it fools dogs into coming near through imitating a human vomiting in order that it might eat them (*NH* 8.43.106: *item vomitionem hominis imitari ad sollicitandos canes quos invadat*). Although the two passages are not rendered exactly the same, one cannot help but wonder if Aelian used Pliny as a source. Pliny does attribute some of his information about the hyena to popular belief (*vulgus credit*), displaying disbelief.²⁴⁶ Pliny’s description indicates that some contemporary Romans did have certain thoughts regarding the hyena, primarily as superstitious and mysterious: it alternates between male and female in consecutive years, possesses eyes of a thousand various colours, is able to strike dogs dumb, and cause animals to be rooted to the spot by merely its gaze. What is most striking, though, is Aelian’s description of the *crocota*’s πανουργίαν which is similar to that of the hyena in the *Natural History*, albeit in a slightly expanded version: (...) *sed maxime sermonem humanum inter pastorum stabula adsimulare nomenque alicuius addiscere, quem*

²⁴⁵ Fögen (2007: 187-188) sees Aelian as one not aiming for scientific precision, preferring anecdotal information with variation to not only emphasize moral *exempla*, but to present his writing in an interesting and entertaining way. Fögen also argues that Aelian’s lack of conformity, less structured organization, and emphasis on morals, suggest that Aelian’s readership was less specialized than Pliny’s. This may, in my view, be just an attempt to reconcile what a modern reader might consider a less scientifically accurate text, thus placing importance on its literary worth rather than its factual contributions.

²⁴⁶ *hyaenis utramque esse naturam et alternis annis maris alternis feminas fieri, parere sine mare vulgus credit, Aristoteles negat* (*NH* 8.44.105: popular belief is that the hyena is of both natures and is male one year and female the next and that it gives birth without a male; Aristotle denies this).

evocatum foris laceret (NH 8.44.106: [...] but the greatest [marvel] is that it imitates human speech among the homes of shepherds and learns the name of one and kills the one called outside). These are the actions of Aelian's *crocota*, which lies in wait until it can discern someone's name by listening to them call each other. Then, by imitating the human voice, it is able to call one of them out and, when the person is alone, the *crocota* kills its victim. It would be helpful if we could discern whether Aelian used Pliny as his source, because we could then say that he was correcting his predecessor's work by attributing this ability to the *crocota* rather than the hyena. This is, regardless, still not brand new information; only the similarities between the two are emphasized even more.

Another source who references this animal is Cassius Dio, who records its presence in Rome during the celebrations for Septimius Severus' tenth year as emperor (c. A.D. 203):

ἐν ταύταις ταῖς θέαις καὶ σύες τοῦ Πλαυτιανοῦ ἐξήκοντα ἄγριοι ἐπάλαισαν ἀλλήλοις ὑπὸ παραγγέλματος, ἐσφάγησαν δὲ ἄλλα τε πολλὰ θηρία καὶ ἐλέφας καὶ κοροκότας· τὸ δὲ ζῷον τοῦτο Ἰνδικόν τέ ἐστι, καὶ τότε πρῶτον ἐς τὴν Ῥώμην, ὅσα καὶ ἐγὼ ἐπίσταμαι, ἐσήχθη, ἔχει δὲ χροιάν μὲν λεαίνης τίγριδι μεμιγμένης, εἶδος δὲ ἐκείνων τε καὶ κυνὸς καὶ ἀλώπεκος ἰδίως πως συγκεκραμένον. (*Historiae Romanae* 76.1.3-4)

In these games sixty wild pigs of Plautianus fought with each other upon command, and the men slew many other wild beasts, even an elephant and *crocota*: this is an Indian animal – that time being the first instance it was led into Rome, as far as I know – and has the colour of a lion mixed with a tiger, and the appearance of these and both a dog and fox, distinctly blended.

We are finally presented with an account that may lead to something concrete. It is possible that Cassius Dio witnessed the animal first hand, or at the very least knew someone who had, considering that these games took place in his own lifetime, although the same could be said about Aelian. The difference, however, is that Aelian is preoccupied with the fantastical associations with the *crocota*, while Cassius Dio provides only the visible physical characteristics. It is evident that Dio thought most of his readership was unfamiliar with the animal's appearance, otherwise why describe it? Nor does it seem that they knew of its origins, since he states that it comes from India. What is important here, however, is that according to Cassius Dio, this is the first time those located in Rome have been able to see it, which means that Pliny's knowledge was

almost assuredly not based upon first-hand experience. In all likelihood, there would have been very few, if any, contemporaries available to Pliny who had seen the *crocota* for themselves and only a handful throughout the Empire. Even then, he would have been restricted to their descriptions. All Pliny had were his sources, scant as they might be, since there are nearly no known artistic renditions of the *crocota*. It is unclear, however, whether Dio and Pliny are talking about the same animal. They may use the same name, but the question remains: is the animal mentioned by Dio the same one described by Pliny's sources? The only comparison is the animal's doglike appearance and its similarities to the lion and hyena.

The major difference between the two accounts is that Cassius Dio calls the *crocota* an Indian animal, while in the *Natural History* it is referred to as Aethiopian. Geographically speaking these two regions are quite separate, yet this means little since we see many animals being described as native to multiple regions: the African and Indian elephant (*NH* 8.11.32), for example, bears in Europe and North Africa (*NH* 8.54.131), various snakes throughout the world (*NH* 8.14.36-37), and so forth. There is thus no reason to suppose that the *crocota* could not be found in both Aethiopia and India. I wish to pause briefly to consider the evidence regarding an ancient view situating Aethiopia's geographical position elsewhere than our own modern understanding of Ethiopia.²⁴⁷ This perception also re-emerges during the later Byzantine period,²⁴⁸ which manifests itself in the portrayal of two distinct Aethiopian races: eastern and western.²⁴⁹ This idea is often traced back to Homer's *Odyssey*: ἀλλ' ὁ μὲν Αἰθίοπας μετεκίαθε τηλόθ' ἔοντας, Αἰθίοπας τοὶ διχθὰ δεδαίαται, ἔσχατοι ἀνδρῶν, οἱ μὲν δυσομένου Ὑπερίονος οἱ δ' ἀνιόντος (*Odyssey* 1.22-24: but he, going, sought the Aethiopians, the

²⁴⁷ Wittkower (1942: 160-161) represents the older view of Pliny as a mere collector of information, uncritical and receptive of everything fabulous (see *NH* 10.70.136-138 where Pliny shows himself as not easily believing popular thought). Wittkower, nevertheless, entertains this confusion between Aethiopia and India.

²⁴⁸ According to Mayerson (1993: 169, 171), the confusion is more prominent after the 4th century A.D., notably in later Byzantine texts, when the name *India* is applied to the geographical regions of India, Arabia and Ethiopia. Of course, we cannot interpret the confusion of the later Byzantines as belonging to the Romans and I do agree with Mayerson in that the term *India* was more accurately defined in the 1st century A.D. evidenced by the *Periplus of the Erythraean Sea*, as well as Pliny's own work. The issue, however, arises through the misunderstanding of their Greek sources when interpreting the use of *India* as they considered its meaning.

²⁴⁹ Rawlinson (1926: 18).

Aethiopians who had been divided in two, the farthest of men, those of the setting Sun and those of its rising). From Homer's description we get the sense that the Aethiopians are found both in the farthest west and the farthest east of the known world. It is possible that Homer simply means that the Aethiopians were the most remote of peoples, dwelling south of the Egyptians, but still encompassing the whole breadth of the African continent from what we now consider Ethiopia in Eastern Africa near the Red Sea all the way to Western Africa and the Atlantic Ocean. In fact, this does not seem too outrageous since there is at least one ancient suggestion that the Aethiopians were viewed as dwelling on both sides of Africa.²⁵⁰ But this understanding does not locate the one group of Aethiopians at the sun's rising, since Asia lies further east than Africa, nor does it depict an Aethiopian race "divided in two" unless we are to expect that the two races did not constitute a continuous, unbroken chain across Africa. Of course, Homer could be simply poetic in his description and I do not believe that the *Odyssey* itself provides enough evidence for this concept of two Aethiopian races. It does, however, provide a glimpse into where this idea originates.

The two-raced Aethiopians are later featured by Herodotus in troop-lists under the Persian Empire, with their appearance and origin. The one group clearly inhabits Libya in the region south of Egypt, while the second group is referred to as the Aethiopians of the east or Asia:

τῶν μὲν δὴ ὑπὲρ Αἰγύπτου Αἰθιοπῶν καὶ Ἀραβίων ἦρχε Ἀρσάμης, οἱ δὲ ἀπὸ ἡλίου ἀνατολέων Αἰθιοπεῖς (διζοὶ γὰρ δὴ ἐστρατεύοντο) προσετετάχατο τοῖσι Ἰνδοῖσι, διαλλάσσοντες εἶδος μὲν οὐδὲν τοῖσι ἑτέροισι, φωνὴν δὲ καὶ τρίχωμα μῦνον· οἱ μὲν γὰρ ἀπὸ ἡλίου Αἰθιοπεῖς ἰθύτριχες εἰσι, οἱ δ' ἐκ τῆς Λιβύης οὐλότατον τρίχωμα ἔχουσι πάντων ἀνθρώπων. οὗτοι δὲ οἱ ἐκ τῆς Ἀσίας Αἰθιοπεῖς τὰ μὲν πλέω κατὰ περ Ἰνδοὶ ἐσεσάχατο, προμετωπίδια δὲ ἵππων εἶχον ἐπὶ τῆσι κεφαλῆσι σύν τε τοῖσι ὡς ἐκδεδαρμένα καὶ τῆ λοφιῇ· καὶ ἀντὶ μὲν λόφου ἢ λοφιῆ κατέχρα, τὰ δὲ ὅτα τῶν ἵππων ὀρθὰ πεπηγότα εἶχον· προβλήματα δὲ ἀντ' ἀσπίδων ἐποιεῦντο γεράνων δοράς. (*Herodotus* 7.70)

Indeed, Arsames led the Aethiopians, who were beyond Egypt, and the Arabians, but the Aethiopians who were from the sun's rising (for indeed they campaigned as two) were assigned with the Indians, differing in appearance to the others in no way, except voice and hair alone; for the Aethiopians from the east are straight-haired, but the ones from Libya have the woolliest hair of all men. These

²⁵⁰ See Diodorus Siculus 3.38.1; Pliny appears to present a similar geographical description (*NH* 6.36-37).

Aethiopians from Asia were equipped much like the Indians, but had on their heads the forehead of horses, having been stripped with the ears and mane: the mane was in place of a crest, and the horse ears stood straight up, stiffened. Instead of shields they made a screen with the skin of cranes.

As mentioned previously, the first group is without question from Africa.²⁵¹ Not only does Herodotus state that these Aethiopians are located beyond Egypt (to the South) and Libya, we can infer from their association with the Egyptians and Arabians that they are geographically close, especially since they are under the same general (who probably governed over a relatively continuous region of land which encompassed at the very least these three areas). It appears reasonable to conclude that these other Aethiopians are at least farther east than Arabia, and in consideration of the close description between them and the Indians in the text, it is likely that they lie quite near to the Indian sub-continent (fig. 4, p. 110).

It is also important to note that both groups of Aethiopians are not depicted that much differently from each other. Except for hair and language, they are described as essentially the same race. This is consistent with Homer's description in the *Odyssey*: the Aethiopian race divided in two, one in the west and one in the east. Herodotus refers to the Aethiopians of Asia elsewhere: Παρικάνιοι δὲ καὶ Αἰθίοπες οἱ ἐκ τῆς Ἀσίας τετρακόσια τάλαντα ἀπαγίνεον (*Herodotus* 3.94: the Paricanii and Aethiopians from Asia paid four hundred talents). We might consider the Aethiopians' proximity to the Paricanii within the text, in addition to paying the same tribute, as an indication of close geographical ties. The Paricanii are thought to have been located around the area of Afghanistan.²⁵² If we do subscribe to this view, the Aethiopians may have inhabited the region between Afghanistan and the Indian sub-continent; although I hesitate to make any

²⁵¹ Arrian provides a similar example in comparing the Aethiopians with the Indians: τῶν τε ἀνθρώπων αἱ ἰδέαι οὐ πάντη ἀπάρδουσιν αἱ Ἰνδῶν τε καὶ Αἰθιοπῶν. οἱ μὲν πρὸς νότου ἀνέμου Ἰνδοὶ τοῖς Αἰθιοπι μᾶλλον τι εἰκόμασι μελανέες τε ἰδέσθαι εἰσὶ καὶ ἡ κόμη αὐτοῖς μέλαινα, πλὴν γε δὴ ὅτι σιμοὶ οὐχ ὡσαύτως οὐδὲ οὐλόκρανοι ὡς Αἰθίοπες. οἱ δὲ βορειότεροι τούτων κατ' Αἰγυπτίους μάλιστα ἄν εἶεν τὰ σώματα (*Indica* 6.9: the appearances of Indian and Aethiopian people is not altogether different. The Indians from the south are much more alike to the Aethiopians, dark to behold and with dark hair, indeed except that they are not as snub-nosed or curly-haired as the Aethiopians. The more northern of the Indians are more alike to the Egyptians in body). Arrian recognizes the similarities between the southern Indians and Aethiopians, likely influenced by the similarity in geography as displayed in his inclusion of the northern Indians and Egyptians.

²⁵² Brill Online (2012) "Paricanii".

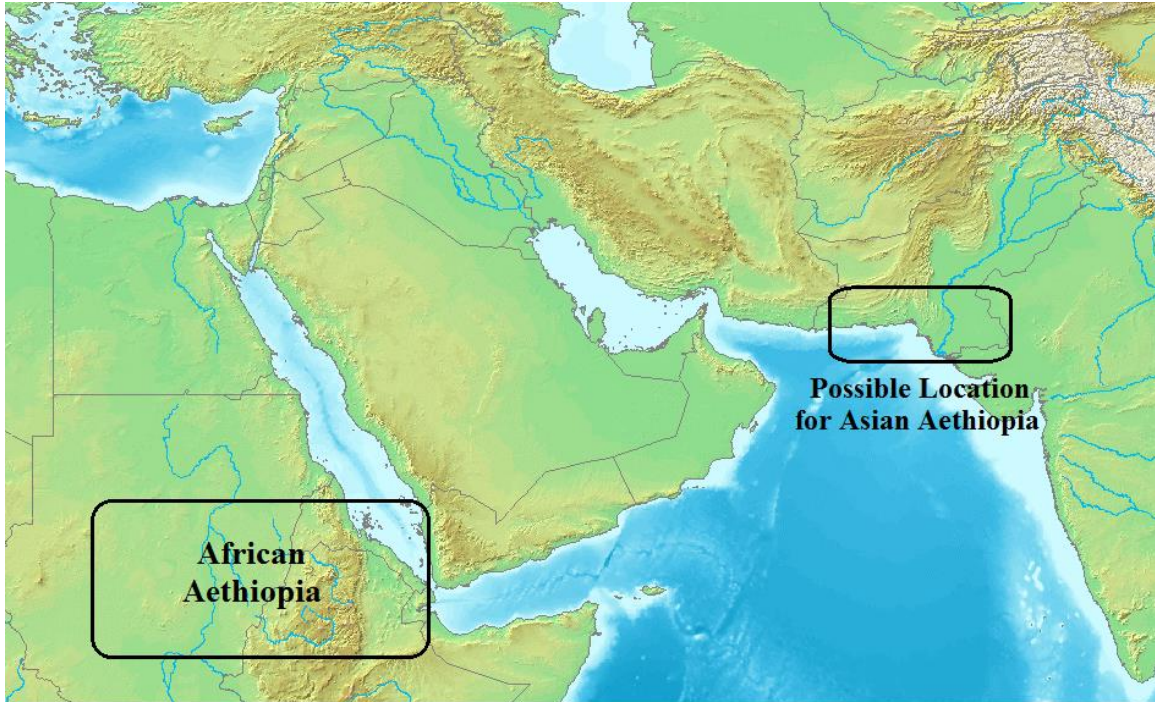


Figure 4 Map of two Aethiopias.

claims to an actual geographical position, this general region appears to be supported by later writers to whom I now turn.

It might seem that these two Aethiopian groups are an issue of geographical versus mythological basis. I recognize this as an attempt to reconcile the two viewpoints in light of not only our own understanding of modern Ethiopia, but also the later ancient views which appear, at least during Pliny's own time, to recognize Ethiopia as we do. I think that this is too critical, however, particularly if we wish to understand the *crocoṭa*'s place in the *Natural History* and identify it to the best of our ability. By ascribing the Aethiopians of the east to myth, one does a disservice to the ancient writers who actually considered this as "reality". Even if this "fact" was disputed by these writers or their contemporaries, we must still appreciate how the geographical term might still be used. I raise this point in light of my next source, Diodorus Siculus, who presents more information on this connection between Aethiopia and Asia, in the manner of the "mythical" Memnon and his ancestors:

Ἰλου δὲ γενόμενος υἱὸς Λαομέδων Τιθωνὸν καὶ Πρίαμον ἐγέννησεν· ὧν Τιθωνὸς μὲν στρατεύσας εἰς τὰ πρὸς ἕω μέρη τῆς Ἀσίας καὶ διατείνας ἕως Αἰθιοπίας ἐμυθολογήθη ἐξ Ἡοῦς τεκνῶσαι Μέμνονα τὸν τοῖς Τρωσὶ βοηθήσαντα καὶ ὑπ' Ἀχιλλέως ἀναιρεθέντα, Πρίαμος δ' Ἐκάβην γήμας σὺν ἄλλοις πλείοσιν υἱοῖς

ἐγέννησεν Ἴκτορα τὸν ἐπισημόντατον γενόμενον ἐν τῷ Τρωικῷ πολέμῳ.
(*Diodorus Siculus* 4.75.4)

And Laomedon, being the son of Ilos, begot Tithonos and Priam. Tithonos, after having campaigned into regions of Asia towards the east and stretching as far as Aethiopia, was fabled to have begotten, from Dawn, Memnon, who aided the Trojans and was killed by Achilles, while Priam, married to Hecabe, begot, in addition to many other sons, Hector who was the most distinguished in the Trojan war.

Diodorus here presents the so-called lineage of the kings of Troy, starting with Teucrus (4.75.1) through to Priam. Regardless of the authenticity of this ancestral tree, there is still something to be gained from this passage. We learn that Tithonos was believed to have campaigned in the Asian regions east of him, going so far as Aethiopia. This is not the Aethiopia of Africa, but that which is in Asia as Herodotus presents. Nor is this the only time we encounter these figures; Diodorus provides a further characterization of Memnon in one of his earlier books:

τὸν δὲ Τεύταμον μυρίους μὲν Αἰθίοπας, ἄλλους δὲ τοσοῦτους Σουσιανούς σὺν ἄρμασι διακοσίοις ἐξαποστεῖλαι, στρατηγὸν ἐπικαταστήσαντα Μέμνονα τὸν Τιθωνοῦ (...) οἰκοδομῆσαι δ' αὐτὸν ἐπὶ τῆς ἄκρας τὰ ἐν Σούσοις βασιλεία τὰ διαμείναντα μέχρι τῆς Περσῶν ἡγεμονίας, κληθέντα δ' ἀπ' ἐκείνου Μεμνόνεια· κατασκευάσαι δὲ καὶ διὰ τῆς χώρας λεωφόρον ὁδὸν τὴν μέχρι τῶν νῦν χρόνων ὀνομαζομένην Μεμνόνειαν. ἀμφισβητοῦσι δὲ καὶ οἱ περὶ τὴν Αἴγυπτον Αἰθίοπες, λέγοντες ἐν ἐκείνοις τοῖς τόποις γεγονέναι τὸν ἄνδρα τοῦτον, καὶ βασιλεία παλαιὰ δεικνύουσιν, ἃ μέχρι τοῦ νῦν ὀνομάζεσθαι φασὶ Μεμνόνεια. (*Diodorus Siculus* 2.22.2-4)

And Teutamos dispatched ten thousand Aethiopians and the same number of other Susians with two hundred chariots, and appointed Memnon, son of Tithonos, general (...) He [Memnon] built upon the citadel the palace in Susa which stood until Persian rule, being named after him, Memnonian. He even constructed through the land a highway which has been called up to now Memnonian. But the Egyptian Aethiopians dispute this, saying that this man was born in their lands, and point out an ancient palace, which they say has been called up to now Memnonian.

Here Priam seeks aid from Teutamus, ruler of Asia, according to Diodorus. Teutamus, in response, sends ten thousand Aethiopians and the same number of Susians under the command of Memnon. Since Teutamus rules Asia and not Africa, the Aethiopians here are those which belong to Asia. Memnon, on the other hand, is known for building a palace in Susa, which from that time was known as Memnonian. But the Aethiopians in

Africa have qualms with this, believing that Memnon originated from their own land, citing an ancient site bearing a similar name. For the purposes of this study, the validity of either side's argument is not as important as the fact that two Aethiopian factions appear to be characterized in this account; otherwise, why would Diodorus say οἱ περὶ τὴν Αἴγυπτον Αἰθίοπες? This is especially important when we consider that only moments earlier Diodorus informs his reader that Teutamus sent Aethiopians to help support Priam in the war. He must have felt that his reader understood where these Aethiopians originated from; otherwise, we might expect a geographical qualifier at this point in the narrative as opposed to later, as we see. Thus, by including the phrase “οἱ περὶ τὴν Αἴγυπτον” he is not indicating where all Aethiopians live, but specifically the ones who contest the claims that Memnon was native to Asia. There are obvious ties between him and the Aethiopians, no better seen than at his death: τὸ δὲ τελευταῖον ὑπὸ Θεσσαλῶν ἐνεδρευθέντα κατασφαγῆναι: τοῦ δὲ σώματος τοὺς Αἰθίοπας ἐγκρατεῖς γενομένους κατακαῦσαι τε τὸν νεκρὸν καὶ τὰ ὀστά πρὸς Τιθωνὸν ἀποκομίσει (*Diodorus Siculus* 2.22.5: but at last he was killed, having been ambushed by the Thessalians. But the Aethiopians having gained control of his body burned the corpse and carried the bones to Tithonos). There was contention over his birthplace, because of this perceived existence of two Aethiopian races located on two different continents. As time passed, accounts differed and altered, and Memnon's association with Aethiopia came into question as to which Aethiopia he belonged, particularly when Aethiopia later became “cemented” in eastern Africa, south of Egypt. At this point, the Aethiopians, the “true” ones (as we might label them), simply desire what they deem their own. On the other hand, we might be able to locate the Asian Aethiopians somewhere in the vicinity of Susa because of Memnon's association with the city. This notion appears suited to what we have seen in earlier writers, including Herodotus and his account of the various Persian allies and subjects.

Some scholars cite Alexander the Great when discussing the issue of geographical confusion concerning Africa and India, particularly in his belief that the Nile's source begins somewhere in India:²⁵³

²⁵³ Darian (1978: 170).

ἔγνω καταπλεῖν κατὰ τὸν Ὑδάσπην ὡς ἐπὶ τὴν μεγάλην θάλασσαν. πρότερον μὲν γε ἐν τῷ Ἰνδῷ ποταμῷ κροκοδείλους ἰδὼν, μόνῳ τῶν ἄλλων ποταμῶν πλὴν Νείλου, πρὸς δὲ ταῖς ὄχθαις τοῦ Ἀκεσίνου κυάμους πεφυκότας ὁποῖους ἡ γῆ ἐκφέρει ἢ Αἰγυπτία, καὶ ἀκούσας ὅτι ὁ Ἀκεσίνης ἐμβάλλει ἐς τὸν Ἰνδόν, ἔδοξεν ἐξευρηκέναι τοῦ Νείλου τὰς ἀρχάς, ὡς τὸν Νεῖλον ἐνθένδε ποθὲν ἐξ Ἰνδῶν ἀνίσχοντα καὶ δι' ἐρήμου πολλῆς γῆς ῥέοντα καὶ ταύτη ἀπολλύοντα τὸν Ἰνδὸν τὸ ὄνομα, ἔπειτα, ὀπόθεν ἄρχεται διὰ τῆς οἰκουμένης χώρας ῥεῖν, Νεῖλον ἤδη πρὸς Αἰθιοπῶν τε τῶν ταύτη καὶ Αἰγυπτίων καλούμενον ἢ, ὡς Ὅμηρος ἐποίησεν, ἐπώνυμον τῆς Αἰγύπτου Αἰγυπτον, οὕτω δὴ ἐσδιδόναι ἐς τὴν ἐντὸς θάλασσαν. (Arrian, *Anabasis* 6.1.1-3)

He determined to sail down the Hydaspes to the great sea; for he had previously seen crocodiles on the Indus river, the only other river than the Nile, and beans growing along the banks of the Acesines, the same sort which the Egyptian land brings forth. And hearing that the Acesines flows into the Indus, he thought he had found the source of the Nile: that the Nile rises up from somewhere here in India and runs through much desolate land, losing there the name Indus. Then, from where it begins to flow through inhabited lands, it is then called the Nile by the Aethiopians and the Egyptians in that place, or, as Homer did, Aegyptus, the name of Egypt. Indeed, in this way, it flows into the inner sea.

According to Arrian, Alexander thought the Indus was in fact the Nile, led in part by the similarities he saw between the fauna and flora of Egypt and the Nile and that of the Indus and the Acesines.²⁵⁴ Whether Alexander had this idea before campaigning in Asia, or if he was convinced by his observations alone, is less evident. The source of the Nile, however, was considered an important discovery to the Greeks, and later the Romans.²⁵⁵ We must also consider the validity of this episode. There is no reason to suppose that this is not just popular myth surrounding Alexander, which Arrian chooses to include in the *Anabasis*. Arrian does, however, inform his reader that Alexander eventually recognizes his error after talking to the locals more:

ἐπεὶ μέντοι ἀτρεκέστερον ἐξήλεγξε τὰ ἀμφὶ τῷ ποταμῷ τῷ Ἰνδῷ, οὕτω δὴ μαθεῖν παρὰ τῶν ἐπιχωρίων τὸν μὲν Ὑδάσπην τῷ Ἀκεσίνῃ, τὸν Ἀκεσίνην δὲ τῷ Ἰνδῷ τό τε ὕδωρ ζυμβάλλοντας καὶ τῷ ὀνόματι ζυγγωροῦντας, τὸν Ἰνδὸν δὲ ἐκδιδόντα ἤδη ἐς τὴν μεγάλην θάλασσαν, δίστομον τὸν Ἰνδὸν ὄντα, οὐδέν τι αὐτῷ

²⁵⁴ Arrian's description of India in his *Indica* indicates that he understands Indian geography fairly well: India is bounded by mountains in the north and the Indus river in the west (2.1-6) while its southern edge is surrounded by ocean (2.7). Arrian says that its eastern regions were hitherto unexplored.

²⁵⁵ Not only was Alexander interested in the Nile's source (Arrian, *Anabasis* 6.1), but expeditions were also sent during the reign of Nero (see Seneca, *Naturales Quaestiones* 6.8; Lucan, *Bellum Civile* 10.268).

προσῆκον τῆς γῆς τῆς Αἰγυπτίας· τηνικαῦτα δὲ τῆς ἐπιστολῆς τῆς πρὸς τὴν μητέρα τοῦτο τὸ ἀμφὶ τῷ Νείλῳ γραφὲν ἀφελεῖν. (Arrian, *Anabasis* 6.1.5)

Certainly, after he had searched out more precisely the matters about the Indus river, he learned, in this way, from the locals that the Hydaspes casts its water into the Acesines, and the Acesines into the Indus, giving up their name. The Indus then flows into the great sea, being two-mouthed. Nothing of it has anything to do with the Egyptian land. On account of this he removed that which was written about the Nile from the letter to his mother.²⁵⁶

Steven Darian relies upon this account, in addition to some of the previous examples I have given, to cite this confusion between India and Africa;²⁵⁷ but he primarily blames the world maps derived from the descriptions found in Claudius Ptolemy's *Geographia* (c. A.D. 150). In a reconstruction (fig. 5, p. 115), a large tract of land is located south of the Indian Ocean, linking up Africa with the Malay Peninsula.²⁵⁸ This appears, at first, to fit with Arrian's description of Alexander's misconception of the Nile: the Indus flowing through an unnamed land while simultaneously losing its own name, until it reaches the land of the Aethiopians (which, from the account, is clearly south of Egypt) and gains the name Nile. The terra incognita of Ptolemy's map may represent this land. But I disagree with this interpretation. Not only does Arrian say that Alexander ultimately rescinds this view, but Arrian himself does not believe the Nile originates anywhere in India, supported by his own remark that Alexander wrote: ὅτι δοκοίη αὐτῷ ἐξευρηκέναι τοῦ Νείλου τὰς πηγὰς, μικροῖς δὲ τισι καὶ φαύλοις ὑπὲρ τῶν τηλικούτων τεκμαιρόμενον (Arrian, *Anabasis* 6.1.4: that it appeared to him that he had found the source of the Nile; indeed, concerning so great matters, it being judged by some small thoughtlessness). This unknown land south of the Indian Ocean is, in fact, just terra incognita. Ptolemy yields little more. Nothing was known beyond the sea and any speculations were just that,

²⁵⁶ It is not necessary to discuss the validity of this draft letter or how Arrian came to know about it.

²⁵⁷ Darian (1978: 170).

²⁵⁸ Jones (2011: 21-23) considers these reconstructions not to have been based upon any maps drawn by Ptolemy, but rather on his descriptions. The manuscripts we possess of Ptolemy's *Geographia* date no earlier than 1300 A.D. and it is unintuitive that said map was meticulously copied for nearly twelve centuries. Jones, instead, argues that mapmaking allowed the manuscripts to be corrected as well as aiding in understanding Ptolemy's geographical descriptions. What is noteworthy for my study, however, is Jones' confirmation that Ptolemy considers the Indian Ocean to be entirely enclosed – Jones cites *Geographia* 7.3, 7.5, 7.7, 8.1, as evidence, while attributing this misconception to Marinus – but provides no insight into what this “terra incognita” looked like. This gave rise to the east-west running tract of land located at the edge of the reconstruction.



Figure 5 World map by Claudius Ptolemy edited by Nicolaus Germanus. A.D. 1474.

speculations. Even if Ptolemy supposed this land to exist, it speaks more about the Indian Ocean as an inland sea, quite similar to the Mediterranean, than actual confusion between Africa and India. On the

other hand, I have shown that the prevalence of two Aethiopias, one African, the other Asian, is not a product of geographical misidentification by the Greeks, nor a conflation of Africa with India. We can, therefore, approach the identification of the *crocota* with this in mind, recognizing that Ctesias is without doubt referencing Asian Aethiopia. The issue of Aethiopian geography arises when we turn back to Pliny's *Natural History* and his interpretation of Ctesias.

Although it is evident from Pliny's own descriptions of the two regions, Africa and India, that he recognizes them as distinct (as did his contemporary Romans under imperial expansion and rule), his sources are not so clear in their understanding.²⁵⁹ This error is at times copied into the *Natural History*. For example, Pliny relates incorrectly, that the largest elephants are those found in India (like all other animals),²⁶⁰ but in

²⁵⁹ Casson (1980) discusses Roman naval trips to India, looking at Strabo, Pliny and the *Periplus*, the date of which was contested during Casson's time, but now stands to be likely the 2nd half of the first century A.D. (p. 23). Casson views Pliny's geographic description as agreeing with the *Periplus* (p. 32). But even if Pliny and his contemporary Romans correctly differentiated Aethiopia and India, did they recognize India as we do, located as the geographic Indian sub-continent, or did the term simply mean "the East"?

²⁶⁰ *Indicum Africi pavent nec contueri audent, nam et maior Indicis magnitudo est* (NH 8.9.27: African [elephants] fear the Indian [elephant] and do not dare to look at [it], for the size of the Indian [elephant] is greater); *elephantos fert Africa ultra Syrticas solitudines et in Mauretania, ferunt Aethiopes et Trogodytae*,

another instance, he describes those of Aethiopia as the largest, attributing the intense heat as the governing factor for their great bulk.²⁶¹ Although inconsistent in his own work, Pliny nevertheless rationalizes why it is that they are so large, a necessary consequence resulting from the information available to him. It is a similar situation with the *crocota*. Pliny does not correct his sources because the animal is unfamiliar to him. He can only say that the *crocota* is an Aethiopian beast, like the *mantichora*, which inhabits India too. Cassius Dio, on the other hand, may have had someone with firsthand knowledge that the beast came from India.

It is not until Porphyrius, in the late-3rd century A.D., that we get what might be the most definitive description of the *crocota*:

ἡ δ' Ἰνδικῆ ὕαινα, ἣν κοροκότταν οἱ ἐπιχώριοι καλοῦσι, καὶ ἄνευ διδασκάλου οὕτω φθέγγεται ἀνθρωπικῶς, ὡς καὶ ἐπιφοιτᾶν ταῖς οἰκίαις καὶ καλεῖν ὃν ἴδη εὐχείρωτον αὐτῆ, καὶ μιμεῖται γε τοῦ φιλάτου καὶ ὃ ἂν πάντως ὑπακούσειεν ὁ κληθεὶς φθέγμα. (*De abstinentia* 3.4.28-33)

And the Indian hyena, which the natives call *crocota*, speaks as a human without any teacher, and visits their homes and calls him who it knows can be conquered by it, and imitates his friend and the one being called feels the voice belongs to his friend.

ut dictum est; sed maximos India (...) (NH 8.11.32: Africa produces elephants beyond wilderness of Syros and in Mauritania, the Aethiopians and Cave-dwellers report, as was said; but the largest in India [...]); *generat eos Aethiopia Indicis pares, vicenum cubitorum* (NH 8.13.35: but it is the elephants of Aethiopia which match those of India: Aethiopia produces those rivaling the Indian [elephants], 30 feet tall). It is in the Indian Ocean that the largest animals live: *plurima autem et maxima animalia in Indico mari* (NH 9.2.4: but the most numerous and largest animals [live] in the Indian Ocean); one argument to reconcile this ancient “misconception” is sought in the two African (sub-?) species of elephant: the African bush elephant (*Loxodonta africana*) and the African forest elephant (*Loxodonta cyclotis*). The former is the bigger species and what many people picture when they think about the African elephant. The latter is smaller than even the Indian elephant. Although the African forest elephant is now limited to the Congo, it once inhabited North Africa and was likely the species employed by the Carthaginians. See Gowers (1948: 175-178); Charles (2007: 365-367); Charles (2008: 330).

²⁶¹ *animalium hominumque monstificas effigies circa extremitates eius gigni minime mirum, artificum ad formanda corpora effigiesque caelandas mobilitate ignea* (NH 6.35.187: it is hardly amazing that strange images of animals and men are produced around its edges, by fiery quickness skilled in shaping bodies and carving images); Beagon (2007) discusses the monstrosities of Aethiopia and India (pp. 34-35), in which the strange and wondrous are situated in the liminal regions of the world (p. 22). For the Romans it was these “Eastern” regions.

For the first time, an ancient source clearly states that the *crocota* is a hyena, albeit that which is from India, and not its African counterpart. This description explains the similarities between the hyena and *crocota* other authors present. But having already considered the scant knowledge about this animal possessed by these other authors, we should not immediately accept Porphyrius' description without examination. First of all, there is not much difference between the way he begins his characterization and that of Aelian. Since Aelian's inclusion of the cunningness of the animal can be attributed to authorial focus and intent, the key difference between the two authors is that unlike Aelian who differentiates between the two animals, marking the hyena and *crocota* as separate, Porphyrius describes the *crocota* simply as the native name for the hyena in India. It should be noted that all one has to do is overlook or misinterpret Aelian's use of καὶ to achieve a similar reading. This hardly appears to be the case with Porphyrius' inclusion of Ἰνδικῆ to describe the hyena, an explanation for which is not far from hand. We already know that during the 3rd century A.D. the *crocota* makes an appearance in Rome according to Cassius Dio; at the very least it was during this period that the *crocota* is recognized as an Indian animal. Porphyrius' description can therefore be seen as either an emendation of Aelian, who misrepresents the animal as two, instead of one, or simply an expansion on previous descriptions, including Porphyrius' own opinion. Or perhaps what is revealed is the evolution of Roman understanding concerning the *crocota*, correctly identifying the animal in question with something the Romans recognized: the hyena, particularly that from India. Porphyrius' claim that the *crocota* is merely the name given to the animal by the Indian peoples further explains why many of the earlier Greek and Latin writers not only show difficulty in understanding and recognizing this animal based upon the various physical descriptions and comparisons, but also why so little information is known about it besides its ability to mimic human voice. This also clarifies the many orthographic variations of this animal's name.

4.1 Identification of the *Crocota*

As in my exploration of *pardus* and *panthera*, it is necessary to briefly address the identification of the *crocota* from a modern perspective. It is most commonly regarded as

a hyena, which seems to be correct.²⁶² When we consider that Aelian's presentation of the *crocata* is similar to the way in which Pliny characterizes the hyena, and Porphyrius' claim that the *crocata* is an Indian hyena, they are likely the same animal, or at least closely related.²⁶³ But the Romans viewed them as distinct. It is quite possible that the name *crocata* was originally a hyena native to India, which Pliny mistakenly attributes to African Aethiopia, while the name "hyena" is applied to hyenas inhabiting elsewhere. Despite the apparent accuracy of past scholarship in labelling the *crocata* as a hyena, I am critical of the method by which this judgement was reached, since often the ancient sources and their context are overshadowed by modern reasoning.²⁶⁴

Leitner provides some insight into the *crocata*'s identification, depending much upon the earlier suggestions of Steier and Keller.²⁶⁵ Both appear to think that the Latin term *hyaena* represents the striped hyena (*Hyaena hyaena*); Steier identifies the *crocata* with the spotted hyena (*Crocuta crocuta*). Keller, on the other hand, thinks that, although the two hyena species were known to Romans (which I do not think is as evident as he suggests), the Romans did not differentiate between the two species.²⁶⁶ Leitner argues against this idea based upon Pliny's use of *crocata* and *hyaena*, clearly siding with Steier. Many of their assumptions appear to be based upon the scientific names of either species rather than a thorough investigation, as the correlation between the taxonomic name and the Latin one is self-evident. Furthermore, Steier's analysis seems to be driven by a need to differentiate the *crocata* and *hyaena* as separate animals, a fact made clear when both he and Keller identify the *leucrocota* as the brown hyena (*Hyaena brunnea*). Despite this animal's range being localized to the southern regions of Africa, they argue that its range

²⁶² Leitner (1972: 101).

²⁶³ This notion is not entirely new as Steinmeyer-Schareika (1978: 61) argues that the *crocata* and striped hyena were viewed synonymously by the ancient writers; Meyboom (1995: 116-117) seems to suggest the same thing, likely being influenced by Steinmeyer-Schareika since both are discussing the *crocata*'s appearance on the Nile Mosaic. I disagree with their conclusion that the *crocata* and striped hyena were viewed synonymously as my study of the *Natural History* has shown.

²⁶⁴ Bali (1879-1888: 312) largely ignores philological arguments, instead relying on Ctesias' description alone; Leitner (1972: 101; 154) tries to correlate each name in the *Natural History* with a separate species of hyena; Steinmeyer-Schareika (1978: 60-61) argues correctly that the *crocata* is probably the striped hyena, but she rests most of her argument on the *crocata*'s appearance in the Nile Mosaic, without a literary analysis to support her view.

²⁶⁵ Leitner (1972: 101).

²⁶⁶ Keller (1909: 152).

had extended to South Sudan and Ethiopia in the past. This “old” range would have produced some rare interactions between this animal and the Romans. I find this to be just a baseless attempt to fit the identification.²⁶⁷ Keller redeems himself when he says that the description of the *leucrocota* does not match this hyena and any guess would be uncertain and best avoided.²⁶⁸ This I do agree with, choosing to leave the identification of the *leucrocota* alone entirely, since there is not much to go on. I can only restate that it is probably related to either the *crocota* or *hyaena*, and that, as I show with the *crocota*, we are likely mistaken if we think Pliny’s Aethiopia was geographic Ethiopia in his original source, and should be looking to India and the eastern Middle East. By suggesting the brown hyena, we learn the approach of Steier and Leitner: each name ought to agree with a known species of animal. Through my study of the *pardus* and *panthera*, however, I have shown that this method is far from accurate.

I have shown above that the *crocota* is, almost without doubt, a hyena, specifically one from India, rather than its African counterparts. The range of the striped hyena extends into the Indian subcontinent, and is thus the most suitable of the hyena species to be the *crocota*. At the same time, its range extends through the Middle East into Africa, including North Africa,²⁶⁹ which would have given the Romans and Greeks numerous opportunities to encounter this animal. The spotted hyena, on the other hand, currently inhabits sub-Saharan Africa, with Ethiopia and Sudan being the northernmost regions of its range.²⁷⁰ The Romans would have encountered this species of hyena much less frequently than the striped hyena based on the ranges of the two animals.²⁷¹ Although I was initially skeptical of Keller’s proposition that the Romans did not differentiate

²⁶⁷ Leitner (1972: 154); Wendt (1972: 192) states that Egyptian art depicts animals that look similar to brown hyenas (which suggests that scholars have incorrectly identified brown hyenas, as Keller [1909: 152] argues in Egyptian art too). Instead of arguing to extend the brown hyena’s range, Wendt suggests that maybe these “brown hyenas” are in fact aardwolves; Dücker (1972: 182-184) appears to share this sentiment by saying that aardwolves have appeared on Egyptian grave reliefs since the 3rd millennium B.C. An Egyptian familiarity with the aardwolf would have been much more likely considering that the aardwolf’s range extends as far north as modern Ethiopia. In addition, the aardwolf’s close relationship to hyenas would explain the general confusion between its appearance and that of the hyena in Egyptian art.

²⁶⁸ Leitner (1972: 154).

²⁶⁹ Wendt (1972: 191); Clutton-Brock (2001: 207).

²⁷⁰ Clutton-Brock (2001: 207).

²⁷¹ Keller (1909: 152); Jennison (1937: 84); Gade (2006: 610-611) agrees that the Europeans likely encountered the striped hyena earlier than the spotted hyena because of their ranges. He also considers the *crocota* as the spotted hyena, which must be based upon his interpretation of Aethiopia.

between the two, the spotted hyena would presumably have been so rare to the Romans that a distinction may not have been established since there was no need to do so. For instance, Pliny says that the giraffe appeared in Rome for the first time only a century before his own time, despite its range extending northward into Ethiopia similar to the spotted hyena.²⁷² The giraffe's name was preserved because of its uniqueness, its presence in Greek literature, and an appearance in Rome. It is not unreasonable to think that the spotted hyena, being largely unknown, was overshadowed by the striped hyena and ignored in comparison.

The Nile Mosaic of Praeneste (fig. 6) supposedly depicts the *crocota*.²⁷³ I say supposedly because the animal in question is clearly defined as *krokottas* and appears hyena enough (perhaps more canine than realistically appropriate), but any appearances of this animal in Italy before the 3rd century A.D. are presumably non-existent.²⁷⁴ I have



Figure 6 Nile mosaic: *krokottas*. c. 80 B.C. Praeneste: Sanctuary of Fortuna Primigenia.

also shown that accounts of the *crocota* in earlier extant literature provide very little in describing its physical characteristics so it is reasonable that any artistic renderings of this animal will fail to accurately represent their living counterpart. It is noteworthy that the *crocota* is shown to be striped along its body,

²⁷² Clutton-Brock (2001: 243).

²⁷³ See the discussion of Dunbabin (1999) regarding the debate on the Nile Mosaic's date (cf. chapter three, n. 219).

²⁷⁴ For a discussion on the hyena in Egyptian art and culture, see Phillips (2006: 249-251). Phillips mentions the striped hyena in terms of bones, offerings, and even attempted domestication, but says nothing about the spotted hyena.

suggesting that the striped hyena may have been the intended subject as Angela Steinmeyer-Schareika has argued.²⁷⁵ Although I more or less agree with her conclusion, I must reiterate the need for caution in identifying this animal solely on artistic grounds as Steinmeyer-Schareika does. This is particularly necessary since a few of the other animals found in this mosaic are not always shown as perfect, realistic renditions (although many of them are readily identifiable even without their inscribed name). What we do learn from this mosaic is the *crocota*'s presence in a Nilotic scene. It has been argued that this mosaic is arranged geographically: the foreground centres on the river delta, and, as one directs his gaze upward, one follows the Nile through Egypt, deeper into the African continent, before arriving at last into Aethiopia.²⁷⁶ This view seems supported by the dark-skinned hunters of, presumably, Aethiopia (fig. 7). The *crocota*'s location near the top of the mosaic would situate this animal in Aethiopia, agreeing with Pliny's account in the *Natural History*. This is African Aethiopia. Nevertheless, as I have argued, this locale is a misidentification by the Romans, who had to deal with the earlier Greek descriptions which included "Aethiopia". I do not think that the *crocota* on this mosaic in African Aethiopia can be explained by the animal's range extending into both Africa and India,

with the result that the *crocota* of Asia had its name transferred to the same animal of Africa by the ancients (something akin perhaps to the African and Indian elephant). This argument might be



Figure 7 Nile mosaic: *Aethiopes*. c. 80 B.C. Praeneste: Sanctuary of Fortuna Primigenia.

²⁷⁵ Steinmeyer-Schareika (1978: 60-61).

²⁷⁶ See Dunbabin (1999: 49-51); cf. chapter three, n. 219.

reasonable if either the Greeks or Romans were well acquainted with the *crocota*, but ultimately fails in addressing the scarcity of knowledge regarding this animal. The image of the *crocota* clearly poses problems in trying to identify what hyena species it supposedly represents. This suggests an unfamiliarity with this animal, which would be therefore difficult for the Romans to identify with the hyena of Africa (association, on the other hand, is entirely within the realm of possibility in consideration of the connection between the two in literature).

The above interpretation is based on modern-day ranges of the hyena species. It has been suggested that the spotted hyena's range extended into Asia in the past, as has been the case with other animals.²⁷⁷ Although I am confident in dismissing the brown hyena since it is near impossible to think its range reached Sudan, which is the wrong Aethiopia anyway, it is not entirely unreasonable to suggest that the spotted hyena reached into parts of Asia. Jürgen Frembgen presents this idea as a possible source for the presence of beliefs and myths about hyenas in parts of Asia that relate to the spotted hyena.²⁷⁸ He concludes, and rightly so, that there are only two options: one, that the spotted hyena possessed a range which extended into parts of Asia sometime in the past, or that, the myths surrounding this animal travelled from Africa to the peoples of Western Asia. The primary myth is the hyena's perceived hermaphroditic nature, which we see in ancient Greek and Latin accounts. This idea is believed to have arisen from the physical appearance of the spotted hyena. The female and male of this animal are largely indistinguishable from each other, and even modern day scientists have trouble identifying the sex of an individual specimen from a distance. This is because the female is not only the larger and dominant sex, but also possesses what is a "pseudopenis" and

²⁷⁷ Bali (1889-1891: 3) cites contemporary research uncovering possible spotted hyena remains in the area of Southeastern India dating to the Pleistocene period (more than 10,000 years ago), but this says nothing about this animal's presence in this region during the last three thousand years; Carcopino (1940: 239) attributes the extirpation of lions from Mesopotamia, tigers from Hyrcania, and elephants from North Africa, to the many games held at Rome; Aldrete (2004: 136) blames the games for the extirpation of many wild animals from North Africa too.

²⁷⁸ Frembgen (1998: 341); Pendergraft (1992: 77) thinks that Aristotle had seen a striped hyena and not a spotted hyena, but she too has difficulty explaining what she calls "the deceptive 'line' described by Aristotle" (which I can only imagine is the enlarged clitoris).

“pseudoscrutum”.²⁷⁹ This is an enlarged clitoris, so the female is not a true hermaphrodite, but nevertheless resembles a male quite remarkably.²⁸⁰ It is easy to see how a rumour or “myth” about the hyena’s gender could have arisen. Even some modern day African peoples believe this.²⁸¹ This feature of the spotted hyena is, however, absent in the other hyena species.²⁸² Thus, returning to Frembgen, we can see why he proposes the two explanations, since he regards this hermaphroditic belief as having arisen from the spotted hyena.

I hesitate to firmly side with one or the other, since both seem feasible. Although the presence of spotted hyenas in western Asia would immediately provide an answer, there is no clear evidence for this idea. On the other hand, word does travel fast. Western Asia, even as far east as India, is not that far removed from Africa. For a time, the Persian Empire ruled the entire region from Egypt and the Levant, extending towards India in the east. Subsequently, the Hellenistic Kingdoms oversaw much of this territory after Alexander’s conquests. There is no reason to doubt that these semi-mythical beliefs about the spotted hyena travelled from Africa into Asia by way of these large empires. In addition, Frembgen states that, although the spotted hyena and striped hyena possess different features (distinguishable to a modern day on-looker, and similar to the perceived differences of the cheetah and leopard which I discussed in the previous chapter), many western African languages call both species by the same name. In fact, Frembgen laments the difficulty this poses when trying to accurately identify which hyena species is being described.²⁸³ This leads me to believe that these native peoples view the hyena as one entity, just as the Romans did with the cheetah and leopard. Although we have to be careful when transposing one culture’s views onto another, it is not out of the question to think that other cultures shared a similar characterization of the hyena species. This association would feasibly quicken the spread of this myth about the hermaphroditic nature of the hyena, if this same idea was also attributed to the striped hyena. Even if the

²⁷⁹ Grzimek (1972: 185) says there is actually a scrotum-like sac located behind the clitoris; Wilson (2003: 766).

²⁸⁰ Frembgen (1998: 334); Grzimek (1972: 185).

²⁸¹ Wendt (1972: 191); Crandall (2002: 302): most of the Himba believe this.

²⁸² Wendt (1972: 191).

²⁸³ Frembgen (1998: 332).

spotted hyena did in fact inhabit regions in western Asia in antiquity, the *crocota* would be still just as much the striped hyena as the spotted hyena since they were probably viewed not too differently by either the Greeks or Romans.²⁸⁴ Nevertheless, in light of the spotted hyena's range, this animal was in all likelihood not the *crocota*, especially when we consider that the striped hyena is already situated in a position ideally suited to being the *crocota*.

The 19th century scholar Bali offers another explanation regarding the *crocota*²⁸⁵ (Bali was also the one who gave the idea that the *mantichora* is based upon the tiger).²⁸⁶ It is not so much that I disagree with his conclusion that the *crocota* is a spotted hyena (although I do not agree) but that Bali dismisses the two Aethiopias too readily without much consideration. Being content with the conclusion that the *crocota* is the spotted hyena and recognizing that this animal is found in Africa and not Asia, Bali dismisses any notion that Ctesias meant anything other than African Aethiopia. But I think one key point is missed, which is that we are not seeking out some obscure exception to the rule when we explain Aethiopia as situated near India, or something only rooted in mythical understanding. Rather, as I have shown through an examination of certain Greek sources, the idea of an Asian Aethiopia actually existed, continuing to appear in various later authors, to the point that a sub-region of the Persian Empire seems to have been called by the same name.²⁸⁷ Thus, since this first description of the *crocota* appears in Ctesias' *Indika*, it is almost certain that he is referencing Asian Aethiopia and we should take it to mean as much. Furthermore, Bali is citing Photius' retelling of Ctesias only, in which nothing is mentioned about the *crocota*'s hermaphroditic nature. As a result, there is no

²⁸⁴ Both Grzimek (1972: 185) and Wendt (1972: 191) emphasize the differences between the spotted and striped hyena, but I am not entirely convinced that the two are so diverse that the Romans or Greeks would have considered them two distinct animals. Unlike the leopard and cheetah in the previous chapter, it is not unlikely that the two hyena species were viewed as two animals. This argument becomes relatively moot, however, when we return to the issue of range and the spotted hyena's scarcity in the ancient world.

²⁸⁵ Bali (1879-1888: 312): it is impressive that Bali tries to identify so many different animals, while attempting to attribute some commonly held "mythical" creatures to real-life counterparts. I cannot but be disappointed in Bali's sparse treatment of each case, and sense that too many animals are tackled within too little a space. For instance, Bali devotes only half a page to the *crocota*, and considers only Ctesias' description when trying to identify it. I will admit that Bali's method is the product of the time period.

²⁸⁶ For the discussion on the tiger, see Bali (1879-1888: 310-311).

²⁸⁷ It is unclear whether or not this is the exact area first meant by Homer, but the answer to this question is ultimately unimportant to my overall argument.

necessary reason to identify the *crocota* as the spotted hyena, since it is this trait alone which I consider as causing difficulty in identifying the *crocota* as the striped hyena.²⁸⁸

Bali addresses one other scholar, Lassen, who suggests that the *crocota* is an Indian jackal based upon philological support.²⁸⁹ Although Bali argues against Lassen (I think unconvincingly at that), I consider Lassen's identification worthy of some consideration. Lassen turns to Sanscrit and the name *kottharaka* from *kroshtuka*, the latter of which is the jackal. Although I am not entirely convinced that there is a connection between the names, one can see this as a possible origin. This association would not only further the notion that the *crocota* originates in Asia, west of India, but would also agree with Porphyrius' remark that the *crocota* was the name given to the Indian hyena by native peoples. But this does not mean that the *crocota* is necessarily the jackal. It is possible that this is where the name originates, or that it is a possible derivative of *kottharaka*. The names could also just be similar because of a perceived kinship between the *crocota* and jackal; the *camelopardalis* (giraffe) is neither a camel nor leopard, but is so named because it shares features that are alike to both of these animals. Even if Ctesias' *crocota* is derived from an Indian jackal, it is clear that in the minds of later Greek writers and even in Pliny's *Natural History*, the *crocota* is associated with the hyena. Therefore, I consider Lassen's philological approach important for the support it gives to situating the *crocota* in Asia and not Africa, although I recognize the link between the names is tenuous within itself. It is merely a complement to what I have already shown in this chapter concerning the *crocota*'s origin, legacy and identification as the striped hyena.

²⁸⁸ Bali (1879-1888: 312) describes both species as having a similar cry.

²⁸⁹ For the short refutation of Lassen's hypothesis, see Bali (1879-1888: 312).

Conclusion

This study has demonstrated that Pliny's *Natural History* contributes much to our understanding of the Roman perception, understanding and recognition of exotic species, and the times when Pliny inserts a comment independent of his sources are the most useful for us in discerning something about Roman ethnozoology. As seen in my case studies of the *haliaëtus*, *pardus*, *panthera*, and *crocota*, animal names, particularly exotic ones, are sometimes shrouded in doubt. This may result from a perceived relation between different species of animal as with the *pardus* and *panthera*, and their modern counterparts, leopard and cheetah, respectively. Or, as with the *crocota*, a general lack of information about the animal leads to misunderstanding; and not just regarding the animal itself, but also the interpretation of Aethiopia, which had, over the course of multiple retellings, moved from India to Africa. The identifications of Leitner and Bali were thus affected in recognizing the *crocota* as the spotted hyena. But I have shown this not to be the case as it is almost assuredly the striped hyena. Most importantly, Pliny's accounts of exotic animals rarely agree perfectly with modern species and we must therefore be cautious in finding an exact match when trying to identify these animals from our modern perspective. In recognizing this reality, we are able to better understand how the Romans viewed exotic animals, especially the way in which they differ from us. A clear example of this idea is the case study of the *pardus* and *panthera*, which shows that the Romans did not regard the cheetah or leopard as two separate animals, but rather as one entity.

In addition, Pliny's own contribution to the zoological tradition and the *Natural History*'s resonance with the Aristotelian corpus, an aspect which has received less than its due attention, is apparent. Since Pliny's purpose was never to philosophize about causes or the structuring of the natural world, we obviously cannot criticize him for not meeting this standard in comparison to Aristotle. We can, however, admire Pliny's efforts in adding to Aristotle's knowledge in addition to Romanizing the information through anecdotes about Roman events, people, history and culture. He did so because, in part, these facts and stories were unknown to Aristotle, and, in part, to make the *Natural History* more relevant to his contemporary readership. It is also evident that the *Natural*

History and Aristotle's *Historia animalium* are quite similar in appearance. Even if Aristotle meant for his work to be a foundation for further inquiries into the workings of animals, the two texts ultimately still serve a similar function: namely laying out the *differentiae* and characteristics of individual animals which not only define them, but illustrate their connections with other animals (not taxonomic in nature, but classificatory).

The study of *genus* and *species* furthers this connection between Pliny and Aristotle, drawing comparisons to previous studies on the Aristotelian terms γένος and εἶδος. The modern derivatives “genus” and “species” are dismissed as inadequate renditions since they carry too much technical weight to them and naturally impose a taxonomic understanding which does not exist in the ancient texts. In reality, *genus* and *species* are better rendered as their basic meaning “type” and “appearance”, with emphasis placed upon relationship through reproduction and physical appearance respectively. Although there is reason to think that Pliny was influenced by Aristotle's use of γένος specifically, the use of *genus* is not technical in the *Natural History*, even in comparison to the way in which other Romans describe *genus*, as we saw with Seneca and Cicero. Nevertheless, Pliny appears to stand by the association between *genus* and kindred relationship. This analysis also serves as a bridge between situating Pliny within natural history and Aristotelian influence with recognizing the way in which Pliny describes, understands and identifies exotic animals. It is of course also necessary for us to evaluate the use of *genus* and *species* in order to more accurately appreciate the Roman ethnozoological tradition and the identification of said exotic animals from a modern perspective. And, in the case of the *haliaëtus* and *ossifraga*, sometimes we must refrain from positively identifying the animal because of the interwoven nature of several *genera*. Even the Romans appeared to have been unsure themselves at times, as we see with the augurs regarding the *sanqualis* and *inmusulus*.

Lastly, in returning to Murphy's concern, which I addressed in the introduction, I can say that we are able to examine the *Natural History* with a focus on Pliny's thought and opinion. That is not to say that the text is one complete thought of Pliny, but rather, in the instances where Pliny decides to insert his authorial voice, we can understand them to be indicative of his mentality. And as I have frequently mentioned, because Pliny is

nearly indiscriminate in his choosing of what to include in the *Natural History*, we are given the many views and descriptions of exotic animals without having to be too constricted by the information at hand. This idea is vital for us to further appreciate Roman ethnozoology since we cannot expect the Romans as a whole to have shared the same view or knowledge regarding these animals. This notion is all the more true with these generally more obscure, unknown, and sometimes “stereotyped”, exotic animals.

I can therefore reiterate that Pliny and his *Natural History* hold worth in light of natural history and ancient science. Although a discussion on exotic animals beyond the three case studies may have been more interesting, not to mention contributing further to the ongoing discussion of the identification of fauna in ancient Roman texts, I understand that those are for future investigations. To these studies I hope to have contributed a beneficial methodology. I have characterized some of the major pitfalls of previous modern attempts, which have, at times, overlooked the Roman viewpoint in favour of current taxonomic practices. But there remains a near-exhaustive collection of information within the *Natural History* and we are only beginning to delve into the depths of its worth from an ethnozoological standpoint.

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