

UNIVERSITY OF OKLAHOMA
GRADUATE COLLEGE

FABLES IN NATURAL HISTORY: AN EXAMINATION OF THE ALLEGORICAL IN THE
DEVELOPMENT OF NATURAL HISTORY TEXTS

A THESIS
SUBMITTED TO THE GRADUATE FACULTY
in partial fulfillment of the requirements for the
Degree of
MASTER OF ARTS

By
FIACHRA ROTTINGHAUS

Norman, Oklahoma

2024

FABLES IN NATURAL HISTORY: AN EXAMINATION OF THE ALLEGORICAL IN THE
DEVELOPMENT OF NATURAL HISTORY TEXTS

A THESIS APPROVED FOR THE
DEPARTMENT OF HISTORY OF SCIENCE, TECHNOLOGY, AND MEDICINE

BY THE COMMITTEE CONSISTING OF

Dr. Kathleen Crowther, Chair

Dr. Rienk Vermij

Dr. Kerry Magruder

© Copyright by FIACHRA ROTTINGHAUS 2024
All Rights Reserved.

Abstract

The Latin bestiary is known not only for its striking illustrations but also for the extensive religious commentary which accompanies the description of nearly every animal. While there is debate over whether the bestiary was intended primarily as a religious tool or as a “scientific” encyclopedia, the most accurate image of the bestiary can only be gained by taking a holistic approach and treating all levels of the text as equally valid and important elements. A series of case studies in the premodern conceptualization of different animals—the elephant, the rhinoceros, and the unicorn—illustrates the ways in which medieval knowledge of animals was mythologized from earlier accounts and the ways in which factual truth, religious allegory, and medicinal and magical uses of animal products overlapped into a unified whole. The study of the bestiaries as works with both scientific and religious significance helps to give them a clear place in the history of science and the development of the field of natural history.

TABLE OF CONTENTS

Introduction	6
Literature Review	9
A Reflection of The Heavens: The Development of Natural History	22
Fact, Fantasy, and Metaphor in Accounts of Exotic Animals	40
Translations of the Fantastical: Unicorns in Myth, Theology, and Medicine	54
Conclusions	70
Appendix A: Manuscripts Used	72
Bibliography	74
Print Primary Sources	74
Secondary Sources	75

Introduction

The illustrated bestiary of the Middle Ages is one of the most iconic types of illuminated manuscript, known in modern popular culture for its stylized drawings of animals and strange or seemingly nonsensical descriptions of animal behavior. For example, the beaver (*castor*) is said to tear off his own testicles to throw at a pursuing hunter, as a man who wishes to live chastely must “cut off his vices,” and the pelican, a common motif in medieval devotional art, is said to pierce her own breast to revive her young with blood.

The bestiary is a particularly distinctive illustration of the early natural histories, which often combine observation of the physical world with more mythical, folkloric, and religious elements. A typical bestiary contains both a physical description of the animal in question and a commentary discussing the allegorical meaning and biblical references to the animal. The presence of the unicorn, as well as other fictional animals such as the dragon, the caladrius, and the leucrota, lend strength to the idea that the bestiaries were purely works of fiction constructed for religious purpose. At the same time, bestiaries appear to be an early example of an encyclopedia of natural history— though this is a definition debated hotly by scholars of medieval texts.

Though the illustrators might struggle to depict an elephant, the description of the elephant itself is drawn from ancient sources and as accurate as one might expect a third-hand description of an elephant to be, emphasizing not only its great size but its longevity and purported virtues. The sections on dogs and horses are generally long and detailed, drawing from the authors’ practical experience in addition to religious and philosophical ideas. Some scholars, such as W.B. Yapp, have argued that the bestiary is a zoological text improved on over time, with the religious allegory simply an aspect of the pervasiveness of religion in the medieval

world. Yapp, a zoologist, allegedly identified the real-world origins of a wide variety of the stories in the text, though some of his identifications have been criticized. Many studies of bestiaries are written by scholars of English, of historical texts and artwork, or of zoology, but it is rare to find an analysis of the bestiaries written by a scholar trained specifically in the history of science. The lack of history of science viewpoints in the field of bestiary scholarship exacerbates the debate over the intent of the bestiaries. Likewise, very little scholarship examines the bestiaries as part of the overall continuity of natural philosophy and natural history, focusing instead on the bestiaries as an anomalous type of manuscript torn between religious and scientific imagery.

It is impossible to examine premodern natural history without taking into account the religious element of the culture in which these texts were created. It is certainly reasonable to portray them— as Ron Baxter does— as religious pieces intended to assist priests in constructing sermons or to instill moral lessons in readers. However, medieval and early modern texts on the subject also cannot be set aside as *exclusively* religious works or excluded from the study of early natural history just because of the inclusion of explicitly religious and scriptural elements. The wider textual tradition of the development of natural history routinely includes both factual and literal elements and religious or symbolic themes. Medieval texts display the most striking marriage of theological and scientific elements, but early modern texts continue the tradition of interwoven levels of symbolic and literal meaning and frequently retain the associations of animals with specific virtues and vices and incorporate fantastical creatures such as the unicorn, phoenix, and mythical salamander.

The elephant and the unicorn serve as opposing examples, one real and one fictional, of the ways in which early natural history blends legend and fact. Meanwhile, the rhinoceros has

associations with both animals as another large, mysterious animal from a distant land which was sometimes said to kill elephants with its horn. While stories and descriptions of the rhinoceros sometimes blended with that of the unicorn, it was just as frequently considered a similar but distinct animal— particularly as the appearance and behavior of the unicorn became increasingly codified in the popular imagination. The rhinoceros illustrates particularly well how traits from different animals could become hybridized or transplanted to other animals in the process of textual transmission.

Of all fantastic animals, the unicorn is one of the most instantly recognizable; in the popular imagination of today, it is a horse with a spiral horn, while in older accounts it might more closely resemble a deer or a goat. The unicorn has powerful healing abilities, and can only be captured or killed by luring it out with a virgin girl. Despite a general agreement on the “traditional” properties of the unicorn, however, the codification of these traits took place over many centuries. One of the earliest easily identifiable unicorns appears in *Physiologus*, a didactic Christian text dated to the 2nd or 3rd century and written originally in Greek; this unicorn, like all of the animals described in *Physiologus*, has a clearly allegorical nature and is said to represent Christ. The stories in this text were repeated throughout the Middle Ages, both in the Christian and Islamic worlds, building on the original text of the Greek *Physiologus* with commentaries from other theologians and supplementing the texts with illuminated miniatures showcasing the various strange and exotic animals found within to produce the iconic Latin bestiary as it is most frequently imagined in popular culture.

Through an examination of the tradition of natural history through the 17th century and of individual examples of animals commonly portrayed in natural history texts, this paper will examine the role of religion, fables, and mythology in the development of natural history and

demonstrate the importance of an approach to medieval natural history which takes into account the wide variety of types of knowledge included in the texts. An analysis of the bestiaries in the context of the wider scope of the development of natural history will help to position the bestiaries as legitimate natural history texts which simultaneously showcase the distinctive synthesis of science and religion found in medieval thought.

Literature Review

A major point of contention in prior research on bestiaries has been the works' intended goal or audience. Most scholarship suggests either that the bestiaries were zoological texts based on the information to which the writers of the time had access, or that they were solely religious texts with a zoological framing and that the Middle Ages overall lacked a coherent tradition of natural history research that would have supported zoological texts. While literature exists which takes a more holistic approach, it is less frequent than the other positions. The study of individual animals within the bestiaries tends to focus on the information transmission of specific pieces of information, as well as examining the associated miniatures from an art historical perspective.

Some of the earliest academic work on bestiaries was done by M.R. James in 1928. James created a facsimile of the manuscript currently known as Cambridge University Library Ii.4.26, accompanied by a study of the history of the bestiary in England and a proposed system of classification for bestiary manuscripts written in Latin.¹ James' categorization remains in use in modern discussion of bestiaries, and divides the manuscripts primarily on the sources from which they draw.

By the convention established by James, first-family bestiaries are based primarily on the *Physiologus*, while second-family bestiaries supplement this basic structure with additional information from Ambrose's *Hexameron*, Isidore's *Etymologiae*, and other sources. Most research on bestiaries is conducted on the second family, both because there are the most surviving manuscripts of this type and because the work of James and White cemented the second-family bestiary as the most well-known form of the text. Florence McCulloch expanded

¹ James, Montague Rhodes. *The Bestiary: Being a Reproduction in Full of the Ms. II-4-26 in the Univ. Library. Cambridge, with Supplementary Plates from Other Mss. of English Origin, and a Preliminary Study of the Latin Bestiary as Current in England*, 1928.

on these categories, adding subsections into the first family based on the particular *Physiologus* manuscript from which they were derived. In addition to Latin bestiaries, McCulloch's work also provides a treatment of French bestiaries in verse. Of these, the *Bestiaire* of Guillaume le Clerc has the most surviving copies, and generally follows the B-text *Physiologus*² in addition to the writings of Isidore.³ The *Bestiaire d'Amour*, a 13th century work, is an unusual example of a secular bestiary composed around romantic metaphor rather than religious metaphor.⁴

The bestiaries discussed in this paper are primarily second-family bestiaries written in Latin. Most of the manuscripts originate in England, the primary producer of surviving bestiary manuscripts, and were written from the 12th to the 15th centuries. Selection of which manuscripts to focus on relied primarily on accessibility, with digitized bestiaries given higher preference. The manuscripts referenced most frequently are Corpus Christi MS 22, Morgan MS 81, Aberdeen University Library MS 24, Cambridge University Library MS Ii.4.26, and Bodleian Library MS 764. The version of the *Physiologus* used here is Michael J. Curley's translation of the Latin B- and Y- texts. In general, English translations of most texts will be used where reliable translations are available, but for some sources I have elected to provide additional literal translations of the Latin passages. A more full discussion of the manuscripts chosen for this study, including their estimated age and provenance, may be found in Appendix A.

T.H. White's *The Book of Beasts*, originally published in 1954, was the first English prose version of a full Latin bestiary, and like James' work was derived primarily from

² McCulloch, Florence. *Medieval Latin and French Bestiaries*. University of North Carolina Press, 1962. p. 45

³ The British Library has a digitized copy of this *Bestiaire* which is not currently available due to the recent cyberattack on their site; it is designated British Library, Egerton MS 613.

⁴ McCulloch p. 46-47

Cambridge University Library Ii.4.26.⁵⁶ White adapted the translation for a general audience and included a lengthy appendix providing a simplified version of James' earlier research, the historical setting of 12th century England, and elaborating on his own investigation into the bestiaries and the *Physiologus* tradition. Despite the less academic tone of White's work, his analysis in the appendix of *The Book of Beasts* is occasionally cited by later authors in the field as an example of early research into bestiaries⁷. It will be used only minimally here due to the availability of more recent research, but is both an important piece of early research on bestiaries and a very enjoyable translation in White's signature colloquial style.

W.B. Yapp and Wilma B. George proposed in their 1991 work *The Naming of the Beasts* that bestiaries are a legitimate form of zoological text, with many illustrations based off of animals with which the artists had familiarity or even drawn from live models. Both this work and Yapp's other writing on bestiaries focus primarily on the identification of specific species within the text and illustrations as well as their degree of resemblance to real animals.⁸⁹ It is perhaps relevant to note that Yapp was primarily a zoologist, though he also published extensively on the depiction of animals in medieval art, and consequently his approach focuses primarily on the biology and visual depictions of the animals in the text. Yapp and George's literary treatment of the bestiaries they examine is somewhat minimal in places compared to the discussion of the illustrations, particularly for fictionalized or mythological creatures such as the dragon and phoenix, but their comparison of the texts both to modern zoological fact and

⁵ White, T.H. *The Book of Beasts. Being a Translation from a Latin Bestiary of the Twelfth Century*. New York: G.P. Putnam's Sons, 1954. <http://archive.org/details/the-bestiary-a-book-of-beasts-t-h-white>.

⁶ Ibid. p. 230

⁷ Both McCulloch and Baxter cite White in discussion of the second-family texts.

⁸ George, Wilma B., and William Brunsdon Yapp. *The Naming of the Beasts: Natural History in the Medieval Bestiary*. Duckworth, 1991.

⁹ Yapp, W. B. "The Birds of English Medieval Manuscripts." *Journal of Medieval History* 5, no. 4 (December 1, 1979): 315–48, and Yapp, W. B. "A New Look at English Bestiaries." *Medium Ævum* 54, no. 1 (1985): 1–19.

medieval knowledge of natural history is very thorough. White likewise described the bestiary as an attempt to “write a serious text-book on biology”¹⁰ using the folk knowledge and secondhand information available to the authors at the time, though this characterization differs somewhat from Yapp’s theory that many of the images were drawn from direct observation (albeit stylized).¹¹

Ron Baxter’s much-cited *Bestiaries and Their Users in the Middle Ages*,¹² published in 1998, puts forward an idea of bestiaries as primarily religious texts which use their zoological framework in a primarily metaphorical sense. Baxter examines the classic arrangement of animals in the surviving *Physiologus* texts as a theological teaching aid, dividing the animals into groups based on theological and moral lessons (the resurrection of Christ, the letter and spirit of the Law, the community of the faithful, etc.). In subsequent chapters, he tracks the transformation of the order of passages in subsequent bestiaries and the replacement of certain passages with new entries as well as patterns of consumption and distribution of the manuscripts.

Baxter’s proposed use for bestiaries is as a tool in writing sermons, and occasionally as a religious didactic aid. Given the prevalence of bestiary imagery in medieval art, it is reasonable to assume that passages from these texts would be read aloud to the public, though the surviving luxury manuscripts referenced most frequently in this paper seem to have belonged predominantly to abbeys (see Appendix 1) rather than to parishes or even cathedrals.

The foundation on which Baxter bases his arguments, however, seems to intentionally exclude some sources that challenge his view of medieval natural history. In his final chapter, he states that “the Middle Ages had no category of zoology,”¹³ and that any zoological or scientific

¹⁰ White p. 248

¹¹ Yapp (1979)

¹² Baxter, Ron. *Bestiaries and Their Users in the Middle Ages*. Sutton Pub., 1998.

¹³ Ibid. 213

meaning to the bestiaries was largely incidental. Notably, Baxter does not deal with Albertus Magnus' writing *On Animals*, a text which might serve to refute his claim that *no* zoological study was done in the Middle Ages. The writings of Hildegard are outside of the scope of his work, as he specifically avoids dealing with medical texts such as herbals, but could also be argued to provide a perspective on medieval zoology. Despite this, Baxter's discussion of the allegorical and theological aspects of the stories in the bestiary is excellent, and his analysis of patterns of consumption and distribution of the manuscripts is perhaps the most detailed in the field.

Susan Crane reviews the extremes of these conflicting points of view and proposes a more moderate solution, arguing that "animal characteristics and spiritual meanings need not be seen as competing interests in the second-family bestiaries."¹⁴ Crane holds that bestiaries are dual-purpose, investigating both the physical and the spiritual aspects of God's creation. In contrast to writers like Baxter and Muratova, Crane does not spend much time on the intended audience and methods of production of bestiaries, though she does note that in comparison to other works of medieval scientific writing the bestiary tends to contain more exhortations and addresses to "common" people, such as wives, children, or faithful Christians— a reading in line with Baxter's hypothesis that a primary use for the bestiary was to serve as a guide in constructing sermons for the public.¹⁵¹⁶ Crane discusses Ambrose's beliefs on the nature of the material world as designed by God, arguing that in contrast to the *Physiologus*' philosophical bent the *Hexameron* is intended to further the reader's understanding of both Heaven and the

¹⁴ Crane, Susan. "A Bestiary's Taxonomy of Creatures." In *Animal Encounters*, 69–100. Contacts and Concepts in Medieval Britain. University of Pennsylvania Press, 2013. <https://www.jstor.org/stable/j.ctt3fhm62.7>. P. 71

¹⁵ Muratova, Xenia. "Workshop Methods in English Twelfth-Century Illumination and the Production of Luxury Bestiaries." In *Beasts and Birds of the Middle Ages*, edited by Willene B. Clark and Meradith T. McMunn, 53–64. The Bestiary and Its Legacy. University of Pennsylvania Press, 1989.

¹⁶ Ibid. p. 74

“fruit-bearing earth.”¹⁷ Herbert Kessler provides a case study of allegory and Biblical commentary in the bestiaries’ treatment of the fictional caladrius.¹⁸

Allegorical, symbolic, and moral portrayals of animals can be found in a wide range of media outside the bestiaries. Analysis of the portrayal of exotic animals in the Middle Ages should focus not only on their descriptions in bestiaries and natural history texts, but on their visual representations in art and their role in commerce and medicine. The three animals discussed here in most depth are the unicorn, the elephant, and the rhinoceros. A major criterion for selecting primary sources was ensuring that the source mentioned at least one of these three animals; primary sources were chosen to present a wide range of philosophical, medical, and religious treatments of these three animals.

While the unicorn appears in the bestiary and is perhaps one of the most iconic mythical animals associated with the second-family bestiary, depictions of unicorns can also be found in a variety of other artistic, literary, and medical sources. One of the oldest pieces of research specifically on the history of the unicorn legend is *The Lore of the Unicorn* (1930), written by Pulitzer Prize-winning professor and poet Odell Shepard. Shepard traces the developing iconography of the unicorn myth through “Holy Hunt” tapestries and stained glass windows in the Middle Ages, makes a brief exploration of the potential real-life counterparts to the animal, and engages in a lengthy discussion of purported “unicorn horn” artifacts and cures and their history in European courts.¹⁹ Though Shepard recounts Hildegard’s writings on the unicorn in some detail, his authorial commentary on her is a distinct sour note in the text; he describes her

¹⁷ Ibid. p. 84

¹⁸ Kessler, Herbert L. “Christ the Magic Dragon.” *Gesta* 48, no. 2 (2009): 119–34. <https://doi.org/10.2307/29764903>

¹⁹ Shepard, Odell. *The Lore Of The Unicorn*. Random House Value Publishing, 1930.

depiction of the unicorn myth as naive²⁰ in its exclusion of erotic elements and makes several jarring comments in relation to her status as the only female author from whom he draws.

Perhaps Shepard's most lasting contribution to academic research on unicorns is his establishment of the term *alicorn* in reference to unicorn horn, particularly when used as a medical or protective substance.²¹ The term is also used by Lavers and Bonner, though Schoenberger favors the use of "unicorn horn" or more specifically "narwhal tusk" when discussing narwhal tusk artifacts.²² This paper will use *alicorn* in reference to the horn of the unicorn, with clarifications as relevant to specify the actual animal from which the material was taken.

Lavers' *The Natural History of Unicorns* (2009) is a much more modern source. Lavers draws heavily from Shepard's research and uses much of the same terminology, but uses his own background in biology—rather than in literature—to provide a discussion of natural history and the various animals which unicorn myths might have drawn from. Lavers spends more time than other authors in this tradition on the unicorn or rhinoceros equivalents (such as the karkadann)²³ in Islamic texts, and is greatly concerned with tracing the origin of *khutu*, another form of quasi-mythical horn or bone material said to have similar properties to alicorn. His primary point of reference for the appearance of the unicorn in Latin bestiaries is White's translated *Book of Beasts*, from which he includes quotations.

While Lavers produces a wide variety of potential sources of alicorn, including musk ox horn and walrus tusk, most academic research into alicorn in both the fields of art history and the

²⁰ Ibid. p. 57

²¹ Ibid. p. 101. *Alicorn* in this sense predates its modern colloquial use to refer to a winged unicorn and is an adaptation of the Italian *alicorno*.

²² Lavers, Chris. *The Natural History of Unicorns*. Harper Collins, 2009. p. 94-7

²³ Lavers p. 107-110

history of medicine tends to focus around the classic suspects— narwhal tusk and rhinoceros horn. Schoenberger (1951) provides a detailed analysis of extant narwhal tusk goblets from an art historian’s perspective, studying both the iconography in the settings of the tusks and the decorations on the goblets and the historical context in which they were used.²⁴ Martinho and Andrade focus on rhinoceros horn goblets in early modern Lisbon, and claim that at the time rhinoceros horn was the most common source of alicorn in Portugal,²⁵ though at the time a wide variety of horns purported to be alicorn were circulating in Europe. They trace the increasing popularity of rhinoceros and narwhal horn goblets, as well as issues with apothecaries selling unwary customers deer antler or rhinoceros horn instead of “real” unicorn horn and experiments performed in an attempt to test the legitimacy of alleged alicorn. Marnie P. Stark likewise focuses on rhinoceros horn; she suggests that it was through their association with unicorns that the horn of the rhinoceros gained its alleged protective and magical powers.²⁶ Martinho and Andrade describe a variety of opinions on rhinoceros horn in Portugal at the time, drawing from correspondence and medical *concilia*.²⁷

“Unicorn horns,” rhinoceros horn, and elephant ivory were part of a thriving trade in animal parts in the Middle Ages which lasted well into the early modern period and the development of natural history collections and cabinets. Distinctive parts of exotic animals, including horns and pelts, were a sign of status that were prized even when knowledge about the

²⁴ Schoenberger, Guido. “A Goblet of Unicorn Horn.” *The Metropolitan Museum of Art Bulletin* 9, no. 10 (1951): 284–88. <https://doi.org/10.2307/3258091>.

²⁵ Martinho, Bruno A., and António Manuel Lopes Andrade. “In Search of the Unicorn’s Virtue in a Rhino Horn Cup: Consumption of Rhino Horns and the Production of Knowledge in Early Modern Lisbon.” *Early Science and Medicine* 27, no. 6 (December 19, 2022): 572–600. <https://doi.org/10.1163/15733823-20220059>.

²⁶ Stark, Marnie P. “Mounted Bezoar Stones, Seychelles Nuts, and Rhinoceros Horns: Decorative Objects as Antidotes in Early Modern Europe.” *Studies in the Decorative Arts* 11, no. 1 (2003): 69–94.

²⁷ Martinho & Andrade p. 597

animals themselves was scarce.²⁸ Xavier Dectot discusses the medieval trade in walrus ivory from Greenland, suggesting that the trade in valuable walrus ivory was one of the major reasons for the ongoing Norse colonization of Greenland.²⁹ He argues that walrus tusks were considered extremely valuable and suitable for royal gifts, rather than simply a replacement for elephant ivory at times when the trade routes made it scarce.³⁰ He also discusses narwhal horn, or “sea unicorn” horn, as a commodity from Greenland often found on the same trade routes as walrus ivory. Since Greenland Norse accounts described narwhal meat as inedible, the tusks were likely scavenged from beached animals or corpses eaten by killer whales.³¹

Academic treatment of unicorns in the history of medicine and science remains somewhat scarce, particularly when one compares the number of publications on unicorn horns to those on bezoars, another type of exotic *materia medica* thought to have prophylactic qualities. Most of what is written on the unicorn remains in the field of art history and literature, as we see with Schoenberger and with Stark; both publications discuss the alleged curative or protective qualities of the items analyzed, but are published in the category of art history.

Much has been written on the use of elephants as spectacle in Rome, and on the history of elephants in Africa and India. For most of the Middle Ages, the animals were absent from Europe, with only quasi-mythical entries in bestiaries and natural history texts preserving information about them. Baxter discusses the portrayal of elephants in the bestiary as part of his analysis of the *Physiologus* and first-family bestiaries, identifying the elephant as part of a

²⁸ Pluskowski, Aleksander. “Narwhals or Unicorns? Exotic Animals as Material Culture in Medieval Europe.” *European Journal of Archaeology* 7, no. 3 (2004): 291–313.

²⁹ Dectot, Xavier. “When Ivory Came from the Seas. On Some Traits of the Trade of Raw and Carved Sea-Mammal Ivories in the Middle Ages.” *Anthropozoologica* 53, no. 1 (October 2018): 159–74.

³⁰ Dectot p. 163

³¹ Ibid. p. 170

subgroup of chapters representing the community of the faithful.³² McCulloch also discusses the portrayal of both the elephant and its alleged natural enemy, the dragon; she mentions that the entry on the elephant tends to be one of the longest in both Latin and French bestiaries, and notes that the *Physiologus* Y-text is more inclusive on this regard than the B-text.³³

Eric Scigliano writes on the relationship between humans and elephants from prehistoric mammoth hunts into the 20th century in *Love, War, and Circuses: The Age-Old Relationship between Elephants and Humans*.³⁴ Chapter 10 deals with Roman use of elephants, drawing from Pliny, Dio Cassius, and the letters of Cicero, among other contemporary sources. Chapter 11 traces the mythologization of the elephant in Europe in the medieval and early modern period, as well as the few accounts of elephants being given to European royals during this time period³⁵ prior to the arrival in the Vatican in 1514 of the elephant Hanno, gifted to Pope Leo X by King Manuel I of Portugal.

The history of Hanno, as well as his reception in the literature and art of Europe, is further documented by Silvio Bedini. Drawing from his earlier papers on the topic, Bedini's *The Pope's Elephant* traces contemporary records and myths regarding the transport of the elephant to Portugal and then from Portugal to the Vatican³⁶ and collects an impressive number of contemporary eyewitness accounts, poems, plays, artistic representations, and court records related to the elephant.³⁷ Chapter 7 deals with representations of Hanno in the visual arts, in which Bedini compares 16th century images of elephants drawn from life to the earlier medieval

³² Baxter p. 55-7

³³ McCulloch p. 115-116

³⁴ Scigliano, Eric. *Love, War, and Circuses: The Age-Old Relationship between Elephants and Humans*. Boston: Houghton Mifflin, 2002.

³⁵ Ibid. p. 140

³⁶ Bedini, Silvio A. *The Pope's Elephant*. New York, N.Y. : Penguin Books, 2000.

³⁷ Ibid. p. 80, p. 99, p. 103-014

representations. Interestingly, Bedini suggests that artists directly representing Hanno omitted or underplayed his tusks to make him look more benign.³⁸ Lach (1967) tracks the history of Asian elephants in Renaissance Europe on a wider scale than Bedini, identifying most or all of the elephants which arrived in Europe during the Renaissance as Asian elephants.³⁹ He focuses on the various means by which elephants were transported to Europe in addition to the cultural impression they made upon arrival. Lach identifies *Physiologus* as the earliest version of the “Christianized” elephant myth.

Marc Michael Epstein discusses the medieval iconography of the elephant, particularly its adoption by the Jewish community in some parts of Europe as an emblematic animal— a seemingly unusual choice given the very Christianized mythology around the animals at the time.⁴⁰ Laura Orsi (1994) provides a review of primary sources in the 16th-17th centuries and their portrayal of elephants, particularly as an animal associated with royalty.⁴¹ Her treatment of the emblematic symbolism of the elephant also deals with an increasing trend in questioning long-held mythological “knowledge” about the elephant and criticism of its portrayal in Pliny, particularly the claim that elephants did not have knees. Orsi and Lach both devote a good deal of time to identification of the type of elephant (African versus Asian) appearing in emblematic representations of the animal. These identifications serve both to track the trade routes by which

³⁸ Ibid. p. 235. Hanno’s tusks and some of his teeth are in the Vatican; Bedini uses these as his basis of comparison.

³⁹ Lach, Donald F. “Asian Elephants in Renaissance Europe.” *Journal of Asian History* 1, no. 2 (1967): 133–76.

⁴⁰ Epstein, Marc Michael. “The Elephant and the Law: The Medieval Jewish Minority Adapts a Christian Motif.” *The Art Bulletin* 76, no. 3 (1994): 465–78.

⁴¹ Orsi, Laura. “The Emblematic Elephant: A Preliminary Approach to the Elephant in Renaissance Thought and Art.” *Anthropozoologica* 20 (1994): 69.

elephants were arriving in Europe and serve as a demonstration of the accuracy of elephant art after European artists actually got to witness the live animal.

The rhinoceros fills a unique place in this trio of beasts; while much has been written on rhinoceros horn, records of the rhinoceros in the medieval and early modern period are extremely limited and secondary research on the rhinoceros as a distinct animal— rather than as a counterpart to either the unicorn or the elephant— is more so. Bedini devotes a chapter to the Lisbon rhinoceros, which perished during attempted transport to the Vatican, including a variety of contemporary drawings of the creature. Likewise, some art history analysis examines Dürer's Rhinoceros, a 1515 woodcut based on a sketch and description of the Lisbon rhinoceros, but little has been done to compare these early modern depictions with their medieval counterparts in the bestiary (likely because the rhinoceros in the bestiary bears very minimal resemblance to an actual rhinoceros.) Marnie P. Stark provides discussion of rhinoceros horn cups as a type of decorative antidote, differentiating them from the narwhal tusk “unicorn” cups and examining the ways in which these items were displayed.⁴²

While early modern texts will be touched on only briefly in this study, the idea of emblematic and metaphysical meaning which is seen in the bestiaries continues into many major early modern texts. William Ashworth describes emblems in the literal sense as a symbolic image paired with a (generally moral) motto, while the emblematic worldview was the belief that “every kind of thing in the cosmos has myriad hidden meanings.”⁴³ Ashworth further defends the ongoing tradition of early modern texts which discussed, in addition to the zoological features of animals, their allegorical meanings, symbolic associations, and cultural and historical

⁴² Stark, Marnie P. “Mounted Bezoar Stones, Seychelles Nuts, and Rhinoceros Horns: Decorative Objects as Antidotes in Early Modern Europe.” *Studies in the Decorative Arts* 11, no. 1 (2003): 69–94.

⁴³ Ashworth, W.B., Jr (2003). The Revolution in Natural History. In *The Scientific Revolution: The Essential Readings*, M. Hellyer (Ed.). p. 142

significance; he argues that the works of naturalists such as Conrad Gessner were more popular than more “accurate” zoological works because Gessner placed animals in a wider context of symbolic meaning.⁴⁴ Aldrovandi’s natural histories go into even more detail than Gessner’s *Historia Animalium* on the emblematic meanings of different animals, as well as their “antipathies” and appearances in iconography and heraldry.⁴⁵ One source used here to illustrate the continuity of natural history writing in the 16th and 17th centuries is Edward Topsell’s *Historie of Four-Footed Beastes*, which is in large part a translation of Gessner’s writing on animals.⁴⁶ Ashworth notes that despite most of Topsell’s work being directly taken from Gessner, there are some unique additions from Topsell regarding the emblematic significance of the animals.⁴⁷

Brian W. Ogilvie characterizes early modern European naturalists as a “community of curious observers” and divides the development of Renaissance natural history into four distinct generations based on their writing philosophies and relationship to authoritative texts both ancient and contemporary.⁴⁸ He describes naturalists of the 16th century as having “one foot firmly planted in the field of medicine” and characterizes Gessner as particularly notable for his work with correspondents and contributors who were not physicians, including apothecaries, theologians, and lawyers.⁴⁹ The medical associations of the animals discussed in this paper often remain consistent between ancient sources and early modern sources, even when the associations appear rather fantastical.

⁴⁴ Ibid.

⁴⁵ Ibid. p. 146

⁴⁶ Topsell, Edward. *The Historie of Foure-Footed Beastes Describing the True and Liuely Figure of Euery Beast*. ProQuest, 1607

⁴⁷ Ashworth p. 147

⁴⁸ Ogilvie, Brian W.. *The Science of Describing: Natural History in Renaissance Europe*, Chicago: University of Chicago Press, 2006. p. 27, 29-31

⁴⁹ Ibid p. 38, 34

A Reflection of The Heavens: The Development of Natural History

Natural *philosophy*, the philosophical study of the laws of nature, can be reliably traced back to at least the 6th century BC, though attempts at explaining the behavior of the natural world through observation and reasoning are surely much older than the written record. Natural *history*, as used in this paper, relies less on philosophical reasoning and more on the observation and recording of phenomena in the natural world, particularly organisms such as plants and animals. In order to fully explore the intersection of natural history, allegory, and myth, it is necessary to examine the development of natural history as a field and the use of allegory and symbolism to convey ideas in medieval texts. This examination will clarify the need to take a holistic approach to analysis of the bestiaries which engages with all of the many levels of meaning in the text and demonstrate that the bestiaries are not out of place in the wider tradition of premodern natural history and encyclopedias.

One of the earliest surviving works dealing exclusively with animals is Aristotle's *History of Animals*, a zoological text in nine books. Aristotle's work is based largely on direct observation, including reports of dissections of animals such as fish to view the eggs and young inside the body, and he has a particular concern both with listing the similarities and differences between animals and in studying the reproduction or "generation" of animals.⁵⁰

Many ancient texts which covered zoology, geology, and other topics we would consider natural sciences were accounts of distant lands, often alleged to be collected reports from travelers who had been there. Ctesias' *Indica*, written in the 5th century BC, claims to be a description of the distant subcontinent and its people, geography, and animals. While the book did not survive in whole to the modern age, repetition of Ctesias' claims is common in other

⁵⁰ Aristotle. *History of Animals: In Ten Books*. Translated by Richard Cresswell. G. Bell, 1887. 6.10

works and there are several surviving fragments and attestations to the contents of the *Indica*. Strabo's *Geography* serves as another example of a book which contains the descriptions of places and peoples known to the Roman Empire in the late 1st century BC, including descriptions of exotic animals and plants.

Pliny the Elder, writing in the 1st century AD, compiled his *Natural History* primarily from the works of other ancient authors, dealing with not only the physical description of animals, plants, and minerals but also historical anecdotes, folklore and rumors, and at times the attested medicinal or magical qualities of the materials being discussed. Aristotle's work was particularly influential in the Middle Ages, though the writings of other classical authors also have a significant impact on the study of medieval natural history.

Religion and philosophy were inextricable from daily life in the Middle Ages; even outside of the explicitly allegorical bestiaries, many natural history texts were written by theologians, and constructed with the underlying assumption that God had designed the natural world either to provide material help to humans or to impart moral and philosophical lessons. The medical writings of Hildegard von Bingen reflect her belief that the world was ordered in a beneficent pattern that was reflected both within humans and in nature. Conversely, while Albertus Magnus' *De Animalibus* emphasizes the God-given perfection of man, his descriptions of animals draw largely from secular or "pagan" sources. Both were prolific theologians in addition to their writings in natural history and are distinguished in the Catholic Church as Doctors of the Church.

Hildegard of Bingen was a renowned mystic, visionary,⁵¹ composer, author, and medical practitioner who lived in the 12th century. Her work in natural history includes the *Physica*, a

⁵¹ A term here used to describe a person said to receive visions from God. Most reported visionaries are women.

natural history focusing on plants, stones, and animals with curative properties, and the perhaps more practical *Causae et Curae*, which describes a variety of medical practices, maladies, and treatments. Both were written at Rupertsberg and draw from a wide variety of sources including oral and vernacular sources and local folk medicine in addition to classical sources.⁵² Both works also heavily draw on Hildegard's own theology and her perception of the universe as a reflection of the will of God, with all of creation intentionally connected in interrelated patterns. The *Physica* combines theological and naturalistic reasoning and generally follows the tradition of humoral theory and Aristotelian natural philosophy. Gemstones described within the *Physica*, for example, are categorized by their level of heat or coolness and their association with different elements, which Hildegard explains by discussing the conditions in which they are "generated" by the earth. Both the inherent attributes of the stones and the circumstances of their creation affect their medicinal properties and the ways in which Hildegard recommends preparing them. Agate, according to the *Physica*, is hot and fiery, but more associated with water than with fire because it is born from "sand of water" which is suffused by sunlight and turned into a stone.⁵³

The synthesis of religion, philosophy, and science can also be found in medical practice of the medieval and early modern period; healing seals and amulets inscribed with prayers⁵⁴ or astrological symbols were quite common, and the belief that *materia medica* were intentionally given helpful properties by God is found consistently in medical sources of the time.⁵⁵

Physiologus and the bestiaries are particularly explicit in the association of each animal or plant

⁵² Sweet, Victoria. "Hildegard of Bingen and the Greening of Medieval Medicine." *Bulletin of the History of Medicine* 73, no. 3 (1999): 381–403.

⁵³ *Physica* p. 150

⁵⁴ Cherry, John. "Healing through Faith: The Continuation of Medieval Attitudes to Jewellery into the Renaissance." *Renaissance Studies*, vol. 15, no. 2, 2001, pp. 154–71

⁵⁵ Černý, Karel. "Magical and Natural Amulets in Early Modern Plague Treatises." *Sudhoffs Archiv*, vol. 97, no. 1, 2013, pp. 81–101.

with specific virtues, elements of salvation history, or Bible verses. The amount of each entry devoted to religious topics makes them a particularly striking example of the combination of religious and scientific analysis of the natural world.

Physiologus is the root of the bestiary tradition, a text written by an unknown Christian author in Alexandria around the 2nd century AD. Curley notes that many of the animal stories contained in the early versions of the text originate from Egyptian folklore, including the phoenix and the crocodile, giving the book a clearly Alexandrian origin despite the lack of clarity on its original author.⁵⁶ Much of the information in the text is analogous to that found in Pliny or Aelian's works on animals, though most of the accompanying Christian commentary is original. Early copies of the *Physiologus* text exist in Ethiopian, Armenian, and Syriac.⁵⁷ The primary text of *Physiologus* which seems to have inspired first-family bestiaries is the Latin B-text, which Baxter identifies as a translation of the Greek π text.⁵⁸

The B version of the text is found in three surviving 9th and 10th century manuscripts, as well as an additional three later manuscripts.⁵⁹ The most complete of these, the Montecassino manuscript, has thirty-two chapters, apparently grouped by theological meaning rather than taxonomy. Baxter also suggests a full B text structure of thirty-six chapters, based on the evidence of the later texts.⁶⁰ The Y text of *Physiologus* has 48 or 49 chapters, and is likewise found in manuscripts dating to the 9th century; Francis J. Carmody identifies three manuscripts containing version Y in his 1944 translation of the text.⁶¹ The rhinoceros does not appear in the

⁵⁶ Curley, Michael J., trans. *Physiologus: A Medieval Book of Nature Lore*. University of Chicago Press, 2009. p. xvi

⁵⁷ Ibid. p. xxvii

⁵⁸ Baxter, Ron. *Bestiaries and Their Users in the Middle Ages*. Sutton Pub., 1998. p. 29

⁵⁹ Ibid. Baxter identifies the ninth-century B-text manuscripts as follows: Bern, Burgerbibliothek MS Lat. 233, Oxford, Bodleian Library MS Auct. T.II.23, and Montecassino MS 323.

⁶⁰ Ibid. p. 30-31

⁶¹ Carmody, Francis J., ed. *Physiologus Latinus Versio Y*. University of California Press, 1941.

Physiologus, and the elephant does not appear in the two shorter B-text manuscripts. While the exclusion of the elephant may be, as Baxter suspects, simply due to missing chapters in the older manuscripts, the rhinoceros was almost certainly added later in the development of the bestiary tradition.

Latin bestiaries combine the source *Physiologus* text with illustrations of the different stories and with excerpts from the works of other theologians to strengthen or elaborate on the moral associations. First-family bestiaries cleave closely to the original order of stories in the older *Physiologus* texts, while second-family bestiaries introduce more elements from Isidore's *Etymologies* and other sources, including Ambrose of Milan's *Hexameron* (a commentary on the creation myth in Genesis and the various types of life created on each day, forming a didactic religious commentary and natural history treatise).⁶² The *Etymologies* themselves purport to explain how different words originated, but also include elements of mathematics, geometry, rhetoric, music, medicine, natural sciences, and most other fields of knowledge studied in the Middle Ages. Isidore's discussion of natural history draws from Pliny as well as from Christian authors including Ambrose and the 3rd century grammarian and geographer Gaius Julius Solinus, and he generally favors factual description of his topics over explicit religious messages.⁶³

Third-family bestiaries frequently include material taken from Bernardus Silvestris, as well as descriptions of different types of humans and "fabulous nations."⁶⁴ While the fourth

⁶² While many works of hexameral literature and commentary exist, Ambrose's seems to be the most frequently referenced by the authors of the bestiaries.

⁶³ Isidore of Seville, and Stephen A Barney. *The Etymologies of Isidore of Seville*. Translated by J.A. Beach, Oliver Berghof, and W.J. Lewis. Cambridge University Press, 2006. p. 14-15

⁶⁴ McCulloch, Florence. *Medieval Latin and French Bestiaries*. University of North Carolina Press, 1962. p. 39

family does exist, only one complete text has been identified in that tradition; this paper focuses primarily on the first and second families when dealing with bestiary manuscripts.

The Aberdeen Bestiary (Aberdeen University Library, Univ Lib. MS 24), a second family bestiary, includes an introduction from Genesis, excerpts from Ambrose's *Hexameron* and Solinus' *Collectanea rerum memorabilium*, and lengthy sections from Isidore on animals, man, plants, and precious stones. The Ashmole Bestiary, a "sister" manuscript, shares very similar illustrations and most of the same text including the introduction from Genesis and the writings from Isidore and Solinus.⁶⁵ Linked below are the entries for the Stork (*ciconia*) in both texts, with their accompanying illustrations; the Aberdeen bestiary includes a second stork, but the pose of the stork eating a frog is the same in the two texts, as is the coloration— a red and blue roundel surrounding a naturally colored white and gray stork, on a gold background. The content of the text in both entries is the same. The illustrations of the elephant and dragon in the entry on "dragons" likewise share the same posing and most of the same coloration, though the Aberdeen bestiary colors the dragon with a red head and blue body rather than entirely blue. The illustration of the winged, bipedal dragon also clarifies that the artists were certainly imagining a *dragon* when referencing this passage, rather than a type of large serpent.

(See: [Aberdeen Bestiary fol. 49r](#), [Ashmole Bestiary fol. 60v](#), [Aberdeen Bestiary fol. 65v](#), [Ashmole Bestiary fol. 78v](#)).⁶⁶

These manuscripts serve as a typical example of second-family bestiaries which clearly draws from works besides *Physiologus* and has a more encyclopedic property, reflecting the glory of God and the way that virtues and mysteries are mirrored by the natural world while also providing information on topics such as the magical and medicinal properties of different

⁶⁵ Bodleian Library MS. Ashmole 1511

⁶⁶ Image links have been provided instead of pictures due to the usage policy of the digital facsimiles.

precious stones. According to the manuscript, sardonyx bestows boldness, jasper and carnelian restrain the flow of blood, while diamond cannot be destroyed by iron or fire and is used to engrave other stones.⁶⁷

The Worksop bestiary⁶⁸ is similar textually to the Aberdeen bestiary, but contains additional excerpts from Isidore, including from Book XIV of the *Etymologies* on the geography and peoples of the Earth and a sermon on St. Joseph.⁶⁹ The illustrations are also somewhat different, as shown below with the elephant and dragon illustration on fol. 78r. Corpus Christi MS 22, an English bestiary dated to the mid-12th century, is bound together with the full *Etymologiae* and Isidore's *Synonyma*, a devotional text; this shows the association of Isidore's writings with the English bestiary tradition and provides a showcase of the combined encyclopedic and devotional nature of the bestiaries.⁷⁰ ([Worksop Bestiary fol. 78r](#))

Despite debate over the exact extent to which the entries in the bestiary are intended to prioritize theological allegory or zoological fact, it is indubitable that the entire bestiary tradition is built on didactic allegory. Interpreting allegory would have been familiar to any educated person in the Middle Ages. Fourfold exegesis of biblical text was taught in schools, allowing the simultaneous interpretation of biblical passages and theological works on literal, allegorical, moral/tropological, and anagogical (a type of symbolic meaning related to heaven, hell, and the Last Judgment). The commentary in the bestiaries frequently includes elements of all four methods of interpretation, with the literal, allegorical, and moral meanings of each animal explicitly stated. Thus, a priest consulting a bestiary for material for a sermon might have been looking particularly for moral lessons or allegories on the community of the faithful, but would

⁶⁷ Aberdeen Univ Lib. MS 24 fol. 100v-101r

⁶⁸ Morgan MS 81

⁶⁹ Morgan MS 81 fol. 112r-117r

⁷⁰ Cambridge, Corpus Christi College, MS 022

not discredit the literal physical descriptions of the animals contained in the text. Even in the case of more strange and exotic animals, there were often physical pieces of evidence that confirmed that such beasts existed at the edges of Christendom; elephant ivory proved there was such a thing as a real elephant somewhere in Creation, and “unicorn” horns seemed to do the same for the unicorn.

Some animals in the bestiary, of course, were animals that the artists would have seen in their own lives, such as the horse, the ant, and the stag; the entries on these animals include as much or more religious commentary as the exotic or fictional creatures in the texts.

Physiologus was likely intended more as a religious didactic aid than as a zoological one, though the expansion in later bestiaries to include elements from Isidore and other encyclopedias alongside religious sources makes it clear that the bestiaries were meant to reflect all manner of knowledge. Expanded knowledge of the natural world would only enhance the understanding of the works of God and the ways in which the prophesied coming of Christ was reflected in nature. Ron Baxter proposes a grouping for the entries in *Physiologus* based on the “lessons” associated with each animal. Most of these themes are focused around Christ and the narrative of salvation. He proposes that in the B-text *Physiologus* and the early bestiaries, the sections are as follows:

1. Christ’s Divinity
2. Christ’s rejection by the Jews
3. Christ as fulfillment of the Law
4. Christ’s renunciation of the Devil
5. The Harrowing of Hell
6. Christ’s redeeming mission
7. Christ and the saints

8. The Incarnation

In later bestiaries, the entries are reordered to instead fall into categories based loosely on type; generally four-footed beasts, flying beasts, and aquatic beasts. Despite the reorganization to fit a more naturalistic scheme and the addition of more information from the more secular *Etymologies*, the allegorical elements remain prominent and are supplemented with biblical passages and illustrations (as seen in the Aberdeen Bestiary) and excerpts from other theological works such as the *Hexameron*.

While many of the animals used in the bestiary's stories were real— or at least derived from real animals— others were entirely legendary. Like the unicorn, the caladrius is a mythical animal which serves in the bestiary as an allegory for Christ. The caladrius is an entirely white bird which “lives in the halls of kings.”⁷¹ According to the *Physiologus*, when it is placed on the bed of a sick person it will either turn its head away, indicating that the person will die, or it will look into their face and take their sickness into itself before flying up to the sun to burn the sickness away. From the Aberdeen bestiary, it “flies into the skies against the sun” (*volat in aera contra solem*) and thus destroys the sickness.⁷²

Herbert Kessler compares the caladrius to the Biblical story of the brazen serpent, which Moses erected in the desert to cure the Israelites of the bites of serpents which God had sent in punishment. Looking upon the bronze statue cured the affected onlookers of venom while conversely the caladrius' gaze cures the sick or predicts their recovery.⁷³ Both stories were interpreted by Christian audiences as representations of the healing power of Christ, augmented by the portrayal of the brazen serpent as “crucified.”⁷⁴

⁷¹ Curley, *Physiologus*. p. 7

⁷² Aberdeen Univ Lib. MS 24 fol. 57r

⁷³ Numbers 21:8-9

⁷⁴ Kessler, Herbert L. “Christ the Magic Dragon.” *Gesta* 48, no. 2 (2009) p. 130

George C. Druce likewise provides a summary of the history of the caladrius, including the other alleged medicinal uses for the body of the bird.⁷⁵ In older editions of *Physiologus*, the excrement of the caladrius can heal the eyes, while in the first family text MS Douce 167, the inside of its thigh (or as Druce interprets it, the marrow) possesses this healing property.⁷⁶ Druce has located a few secular versions of the caladrius story— in *Le Bestiaire d'Amour*, in which a young man complains that he is sick and his lover has turned her face away from him like the caladrius, as well as in a few other medieval romances. Druce points out that in the secular context, the bird is not necessarily described as all-white.⁷⁷

Another Christ-figure bird found in the *Physiologus* is the phoenix, said to rise fully renewed on the third day after it burns itself on a ceremonial pyre. According to the *Physiologus*, the existence of the phoenix serves as an example in the natural world of a three-day resurrection like that of Christ.⁷⁸ In older non-Christian traditions the phoenix's fiery death is replaced by a mysterious process in which the elder phoenix constructs for itself a casket of fragrant herbs and the young phoenix is born from its body, as is seen in Book 15 of Ovid's *Metamorphoses*.⁷⁹ Pliny's *Natural History* describes it as a purple and gold bird, which upon dying is reborn as a maggot among the bones of the elder bird— this seems to be the closest classical text to the *Physiologus*' phoenix, which reincarnates on the faster and more religiously significant timetable of three days.

⁷⁵ Druce, George C. "The Caladrius and Its Legend, Sculptured upon the Twelfth-Century Doorway of Alne Church, Yorkshire." *Archaeological Journal* 69, no. 1 (January 1, 1912): 381–416.

⁷⁶ Druce p. 389

⁷⁷ Ibid p. 394-395

⁷⁸ Curley, p. 14

⁷⁹ Ovid. *Metamorphoses, Volume II*. Translated by Frank Justus Miller. Vol. II. Loeb Classical Library 43. Cambridge, MA: Harvard University Press, 1916. Book XV, 391-417

Interestingly, MS Bodley 764 does not give the three-day timetable, though the author compares the resurrection of the phoenix both to the resurrection of Christ and the eventual resurrection of the faithful.⁸⁰ White's translation of Cambridge University Library Ii.4.26 gives a time of nine days, rather than three.⁸¹ Guy Mermier provides a much more elaborate analysis of the variations and contradictions in the phoenix myth throughout its many permutations in his chapter on the phoenix in *Birds and Beasts of the Middle Ages*, and notes that in the French *Physiologus* tradition the worm phase is omitted but that most versions of the *Physiologus* text describe the bird as representing or being in the "figure" of Christ. As usual, Isidore's account does not describe the bird as a representation of Christ, and only says that it lights its pyre by the rays of the sun and is reborn again from the ashes.^{82 83}

The dramatic examples of these fictional birds are included among mundane European birds such as the turtle-dove (a symbol of fidelity and chastity which is said to mate for life, and to never remarry) and the hen (who is said to become weak when brooding chicks, as Jesus became weak by taking on flesh). They provide a further example of the types of allegory found in the bestiaries, the ways that fictional animals are treated in the same way as real animals, and the ways in which specific elements of the allegorical analysis can mutate in transmission between different natural history texts.

Bestiaries were, of course, far from the only texts on animals produced during the Middle Ages. The *Etymologies* have already been discussed in some detail, and contain a vast wealth of information compiled from earlier authors. Albertus Magnus, writing in the 13th century, studied and wrote on a wide range of natural sciences, including astronomy, weather phenomena,

⁸⁰ Bodleian Library MS Bodl. 764 fol. 70v-71r

⁸¹ White, p. 125

⁸² *Beasts and Birds of the Middle Ages: The Bestiary and Its Legacy*. University of Pennsylvania Press, 1989. p. 76

⁸³ *Ibid.* p. 75

physics, animals, and plants; his *On Animals* is derived both from the works of Aristotle and from his own investigations into the causes of the properties of different kinds of animals. Like Isidore, Albertus Magnus avoids direct connection of his topics to religious allegory, focusing instead on their properties; his introduction states that the study will focus on the body rather than the soul.⁸⁴ Similarly to Aristotle, this work is written both on the “generation” and reproduction of animals and on the classification of and similarities and differences between animals. Book III, for example, focuses on the “uniform members” of animals, body parts which are shared amongst all or most animals.

Speculum literature, an early encyclopedic tradition, was developed in the 12th and 13th centuries and remained popular into the sixteenth century. These works were intended to “mirror” knowledge, reflecting and providing commentary on the works of earlier authors; likewise, encyclopedic *Specula* such as the *Speculum Maius* of Vincent of Beauvais also reflect the glory of God and the organization of the cosmos. The *Speculum Naturale*, the part of the *Speculum* which deals with natural history, is a work of hexameral literature divided according to the six-day creation story in Genesis, a choice which directly links the organizational scheme of the work to the organizational scheme of God. The use of pattern and order throughout the *Speculum Maius* allows the eclectic knowledge compiled in the texts to take a cohesive and theologically significant form.⁸⁵

The accessibility of printed texts allowed for medical and natural history encyclopedias to be used more widely as reference materials outside of a monastic or court setting. Particular focus is given in this paper to the *Hortus Sanitatis*, a Latin text originating in late 15th century

⁸⁴ *On Animals* p. 45

⁸⁵ Franklin-Brown, Mary. *Reading the World: Encyclopedic Writing in the Scholastic Age*. Chicago, IL: University of Chicago Press, 2012. p. 347

Germany which serves as an encyclopedia of animals, plants, and minerals along with their curative properties. The *Hortus* is a compilation of earlier texts, and each entry features a description of the animal, plant, or mineral being discussed and some of its medicinal uses; in the section on animals in particular, the author has added very little new information and primarily repeats information taken from the *Etymologies* and Pliny. The text is particularly notable for its illustrative woodcuts, as well as for the inclusion of a treatise on diagnostic uroscopy. The section on plants is derived from earlier Latin herbals in the 15th century.⁸⁶

Also a subject of particular focus is Edward Topsell's *Historie of Four-Footed Beastes*, a 1607 treatise written in English on the various four-footed beasts of the earth. The *Historie* is in large part an English translation of the work of Swiss naturalist Conrad Gessner, mostly derived from Gessner's *Historia Animalium*; subsequently much of the information in the text is from Aristotle, Pliny, and Aelian, as well as from a long "catalog" of sources listed at the beginning of the 1607 text.⁸⁷ Some sections, however, include observations and accounts seemingly taken directly from the authors; for example, the section regarding the unicorn in the *Historie* includes a warning to readers to be wary of counterfeit unicorn horn when purchasing medicine.⁸⁸ Most natural history texts of the time still included many animals now known to be fictional; while the scholars of the time included many of their own observations, the oddities of classical texts were still frequently repeated. Topsell's discussion of the unicorn suggests that many people of the time were beginning to doubt its veracity, but his ultimate conclusion is that the apparent references to unicorns in the Bible, coupled with the fact that it is not more unbelievable an

⁸⁶ Arber, Agnes Robertson. *Herbals, Their Origin and Evolution; a Chapter in the History of Botany, 1470-1670*. Cambridge: University Press, 1912. p. 25-28

⁸⁷ Topsell, *The Historie of Four-Footed Beastes*, unnumbered page (fol. 18); Topsell provides this extensive list of sources in Latin for "learned readers"

⁸⁸ *Ibid.* p. 720

animal than an elephant and the apparent veracity of the unicorn horns described in the text prove that the animal is likely to exist.⁸⁹

Following the evolution of natural history from its early manifestations and into the 16th and 17th century reveals that the study of the natural world consistently reflected folklore, mythical and exoticized elements, and at times religious and moral elements. The authors of premodern natural history texts often perceived the world as closely connected to and reflective of God, approaching their studies from a theological angle; the bestiaries, which include specific religious metaphor and Scriptural commentary, are thus not out of place within the wider literary tradition. Early modern writers drew from previous accounts to compile educational texts, thus preserving old ideas about the virtues or magical and medicinal properties of animals they had never witnessed.

⁸⁹ Ibid. p. 711

Fact, Fantasy, and Metaphor in Accounts of Exotic Animals

In following the development of natural history texts, we also follow the development and transmission of knowledge as it pertains to individual animals. Knowledge of the natural world was distorted, changed, and mythologized by societal context and the knowledge base of the authors and audience; the appearance and behavior of animals from distant lands was passed on secondhand, and was phrased in ways significant to the audience of the time. In medieval Europe, the information retained and transmitted about exotic animals was frequently symbolic, medical, or both. The elephant and the rhinoceros are presented here as case studies of animals that were rarely, if ever, seen alive in medieval Europe, though their ivory was a valuable trading commodity and a costly medicine. Both serve in different ways as examples of animals which were mythologized and presented in such a way that they were indistinguishable from accounts of *actually* mythological and chimerical animals in natural histories of the time.

Elephants were relatively well-known in the ancient world, though they were generally associated with wealth and spectacle due to their need to be imported from distant parts of the empire. In the Middle Ages there were very few live elephants in Europe, mostly brought back during the Crusades, and the authors of bestiaries and natural history texts relied almost exclusively on repeating secondhand accounts from ancient authors. This shift in knowledge gives many accounts of the elephant a particularly mythical quality, with the physical descriptions and illustrations somewhat distorted and a great focus put on its many purported virtues. Even after the reintroduction of live elephants into the public consciousness of the West, resulting in much more accurate visual representations, emphasis on its great virtue remains in textual representations. Early modern natural history texts and accounts, while accompanied by

more realistic illustrations and a greater depth of information, also retain a focus on the mental and spiritual virtues of the elephant.

Aristotle's *History of Animals*, written in the 4th century BC, has several passages on elephants. The text is largely factual, describing attributes of elephants such as their tusks, with which they fight fiercely, their intelligence, and long lives and gestation period.⁹⁰ Aristotle also describes the genitals and mating habits of elephants, as one of the main topics of the *History of Animals*, and states that they retire into private places in the desert to mate.⁹¹ Aristotle takes care to point out that elephants *do* have knees, from which it can be inferred that the recurring myth of elephants lacking knees was already being repeated at the time that the text was written. The idea of elephants lacking knees or the ability to bend their legs will be repeated frequently; Albertus Magnus, writing in the 13th century AD, states that elephants lack “flexion” in their front legs but that only the inexperienced believe that they have no joints in their legs altogether.^{92,93}

Pliny writes extensively on elephants, with descriptions of the animals as well as their history and behavior forming chapters 1-12 of Book VIII of the *Natural History*. He describes the elephant as the animal nearest in intelligence to man and further claims that elephants possess the virtues of honesty, prudence, and equity, and that they worship the stars and moon.⁹⁴ He repeats Aristotle's description of the elephant's two-year gestational period, and that the female bears only a single child in her life, and later describes the animosity between elephants and

⁹⁰ Aristotle. *Aristotle's History of Animals: In Ten Books*. Translated by Richard Cresswell. G. Bell, 1887. <http://archive.org/details/aristotleshisto00schngoog>. 2.3.15, 9.33, 5.7.14, 5.2.4

⁹¹ Ibid. 5.2.4

⁹² Albertus Magnus. *Albertus Magnus On Animals*. Translated by Kenneth F. Kitchell and Irvn Michael Resnick. Ohio State University Press, 2018. Book XXII p. 1449

⁹³ Ibid. Book XXII p. 1476

⁹⁴ *Natural History* 8:1

great serpents or “dragons.”⁹⁵ These descriptions seem to provide the basis for the descriptions of elephants in the *Physiologus* tradition and in the bestiaries, including the virtues of the elephant and its purported unusual mating habits. (*Physiologus*, however, omits the elephant’s alleged worship of the celestial bodies).

The *Natural History* provides a valuable contemporary source discussing the history of elephants in Europe at the time of the Roman Empire. He claims that the Romans first encountered elephants during the Pyrrhic wars in the 3rd century BC and that they subsequently appeared in triumphs and gladiatorial games.⁹⁶ One notable anecdote which Pliny relates is the involvement of elephants in the games at the dedication of the temple of Venus Victrix in 55 BC, where he alleges that the mournful lamentations of the trapped elephants moved the crowd to tears.⁹⁷ Despite this alleged reaction, elephants would continue to be used in gladiatorial games throughout the Imperial period, sometimes in the thousands during games of particular size and spectacle.⁹⁸ Scigliano suggests that elephants were used more frequently in triumphs than in gladiatorial games to avoid stirring audience sympathies *too* often.⁹⁹

While elephants were thus relatively well known in Europe at the time of Rome, after the fall of the Roman Empire the animals were not documented again in Europe for centuries. Their appearances in bestiaries are stylized and quasi-mythical, with the virtues assigned to them by earlier writers expanded on and converted into allegory. The entry on the elephant in the *Physiologus* Y-text focuses primarily on their sexual habits and purported chastity; the elephant, it says, is in a state of virtue until the female elephant eats of the mandrake tree and “gives it to

⁹⁵ Ibid. 8:10

⁹⁶ Ibid. 8:6

⁹⁷ *Natural History* 8:7

⁹⁸ Scigliano, Eric. *Love, War, and Circuses: The Age-Old Relationship between Elephants and Humans*. Boston: Houghton Mifflin, 2002.p. 132

⁹⁹ Ibid. p. 133

her mate and cajoles him until he eats it,” at which point they copulate.¹⁰⁰ The author likens this to the behavior of Adam and Eve in the Garden of Eden. The elephant is also said to give birth in water and to be the enemy of serpents, which it tramples on.¹⁰¹ While the story of serpents attacking the elephant for its blood is not included in the main *Physiologus* texts, the animosity between them remains.

The second family bestiary MS Bodley 764 repeats the information from *Physiologus* on the elephant, but expands on it with a short physical description of the elephant’s trunk and tusks and a mention of the Persians and Indians building “towers” on top of the elephant, from which they fight.¹⁰² This description, as well as the statement that elephants live three hundred years, is taken verbatim from Isidore of Seville’s *Etymologies*.¹⁰³ A miniature of an elephant bearing a castle accompanies this text; its ears are small and somewhat trumpet-shaped, and its tusks seem to protrude from its trunk, but all in all it is a readily recognizable illustration. The story of the elephant and the dragon is found later in the text, in the section devoted particularly to the dragon.¹⁰⁴

An interesting addition to the second family texts in regards to the elephant, seen in several texts including MS Bodley 764 and the Aberdeen Bestiary is the statement that “the virtue of mercy is in them” (*Inest illis clementie bonum*) and that they will find and guide lost travelers in the desert and take care not to harm herds of smaller animals.¹⁰⁵ While the physical description of the elephant is taken from Isidore’s *Etymologies*, the anecdotes about the helpfulness of elephants are not— a curious feature of these texts, since elephants are in fact

¹⁰⁰ *Physiologus* trans. Curley p. 29

¹⁰¹ Ibid. p. 30

¹⁰² MS. Bodl. 764 fol. 12r-13r

¹⁰³ Isidore, *Etymologies*, p. 252

¹⁰⁴ MS Bodl. 764 fol. 92v-93r

¹⁰⁵ Aberdeen Univ Lib. MS 24 fol. 10v

occasionally helpful towards other animals in distress. Albertus Magnus' *On Animals* describes the elephant as “the largest animal among quadrupeds” and makes a reference to the idea of serpents or dragons hunting elephants in order to be cooled by their blood but suggests that this is likely just a “story” or tall tale.¹⁰⁶ He describes its trunk as being ten cubits long, and describes it as an animal “ignorant of adultery.” This account strives to be as accurate as possible with the information available in the 13th century, generally excluding both religious ideas and extensive discussion of the virtues of the elephant besides a brief mention of its purported chastity.

A few limited examples of live elephants appeared in medieval Europe; Charlemagne received one as a gift in 797, and at least two specimens were brought back from the crusades in the 13th century and were housed in royal menageries.¹⁰⁷ The elephant briefly owned by King Louis IX of France formed the basis for the elephant carving on the cathedral of Notre Dame, a stone carving featured alongside other, more traditionally monstrous gargoyles and hybrid animals.

Marc Michael Epstein examines the case of elephants appearing in medieval Jewish art, theorizing that the use of the elephant— a symbol which appeared far more frequently in Christian literature than in rabbinic literature— is associated with the Ark of the Law and with the Torah in general.¹⁰⁸ In the Christian bestiary tradition, one of the allegorical stories associated with the elephant describes a fallen elephant, representing the fallen state of man, calling for help as a series of elephants attempt to raise him back to his feet until finally a small elephant, representing Christ, uses its trunk to raise him. The “great elephant” which tries and fails to lift it

¹⁰⁶ *On Animals* Book XXII p. 1476

¹⁰⁷ Bedini p. 30

¹⁰⁸ Epstein, Marc Michael. “The Elephant and the Law: The Medieval Jewish Minority Adapts a Christian Motif.” *The Art Bulletin* 76, no. 3 (1994): 465–78. <https://doi.org/10.2307/3046039>. p. 467

is said to represent the Law.¹⁰⁹ Epstein suggests the appearances of elephants in Jewish art of the Middle Ages served as a reclamation of the image of the great elephant in the bestiary.¹¹⁰

In 1514, King Manuel I of Portugal gifted a young elephant named Hanno to Pope Leo X. Elephants had been brought to Portugal earlier in the century,¹¹¹ but Hanno in particular caused a significant change in the depiction of elephants in early modern art; the many artists living in Rome at the time used the elephant as a live model, causing a great influx of more accurate depictions of elephants in sketches, frescos, and sculptures.¹¹² The Pope's great liking for the elephant meant that it was a popular subject in art and poetry particularly for those who were looking for favor— or for those criticizing the excess of the papal court.¹¹³ Bedini suggests that Hanno served as “a symbol of the period” even after his untimely death.¹¹⁴ Interestingly, Bedini's analysis also indicates that many artists intentionally omitted or underplayed his tusks to make him look more benign, even when the art is otherwise accurate.¹¹⁵

Laura Orsi examines the symbolic role of elephants in 16th and 17th century art, primarily as an emblematic animal associated with kings as a proud and wondrous creature.¹¹⁶ The debate over whether or not the animals had knees persisted; the idea that the elephant could not kneel furthered its association with royalty but led to heated debate in academic circles over whether this was in fact possible.¹¹⁷ Ancient authors were divided on the matter, with Strabo

¹⁰⁹ Aberdeen Univ Lib. MS 24 fol. 10v, MS. Bodl. 764 fol.13v-14r

¹¹⁰ Epstein p. 469

¹¹¹ Bedini p. 30

¹¹² Bedini ch. 7 deals particularly with the various artistic representations of Hanno, as well as art made in the following decades modeled off of Hanno and other elephants brought to Europe.

¹¹³ Ibid p. 152

¹¹⁴ Ibid. p. 174

¹¹⁵ Ibid. p. 235

¹¹⁶ Orsi, Laura. “The Emblematic Elephant: A Preliminary Approach to the Elephant in Renaissance Thought and Art.” *Anthropozoologica* 20 (1994): 69.

¹¹⁷ Orsi p. 75

claiming that the elephant's leg was a solid piece of bone¹¹⁸ and Aristotle arguing that the animal did in fact have knees and was capable of sitting and rising,¹¹⁹ so early modern scholars were obliged to draw their own conclusions – including, reportedly, by carrying out dissections on dead elephants.¹²⁰ This debate occurred alongside a wider pattern of questioning the statements in older natural history texts, particularly the works of Pliny, and resulted in the elephant gradually losing its associations with royalty and some of its more mythical elements as academics became more interested in the exact physical traits of the animal. Martinho and Andrade note that by the 16th century, medical *consilia* had started to focus more on the facts of a given case than on the authority of the classics, and experimentation was more frequent in scientific matters.¹²¹

The elephant's reputation for intelligence and chastity, however, remained. In *The Historie of Foure-Footed Beastes* in 1607, Edward Topsell writes of the elephant that “There is no creature among al the Beasts of the world which hath so great and ample demonstration of the power and wisdom of almighty God as the Elephant” and describes them as “most chaste” in the same vein as earlier natural history texts.¹²²

“[Elephants] keepe true unto their mates without all inconstant love or separation, admitting no adulteries amongst them, and like men which taste of Venus not for any corporall lust, but for desire of heires and successors in their families, so do Elephants,

¹¹⁸ Strabo. *Geography, Volume VII: Books 15-16*. Translated by Horace Leonard Jones. Loeb Classical Library 241. Cambridge, MA: Harvard University Press, 1930. 16.4

¹¹⁹ *History of Animals* 2.1.6

¹²⁰ Orsi p. 77

¹²¹ Martinho and Andrade p. 575

¹²² Topsell p. 191

without all unchast and unlawfull lust, take their veneriall complements, for the continuation of their kind, and never above thrice in all their daies.”¹²³

The *Historie of Four-Footed Beasts* repeats the idea that elephants mate in water to support their weight, and repeats the story from Pliny of dragon-serpents preying on elephants to cool themselves in the elephant’s remarkably cold blood. This story is likewise found in the *Hortus Sanitatis*.¹²⁴

The purported medicinal uses of the elephant are varied, and not necessarily consistent between texts. Hildegard von Bingen states that the bones of the elephant, powdered and cooked in wine, can cure congestion and cough, but that the other parts of the elephant are not useful for medicine.¹²⁵ Albertus Magnus lists a variety of medicinal uses for the elephant, suggesting that the *flesh* eaten with salt and fennel seed can cure chronic cough, that the dung can drive away various types of vermin, and that the fat of the elephant can be applied as a headache cure.¹²⁶ Pliny’s *Natural History* similarly claims that the touch of the elephant’s trunk cures headaches, though this seems to be in reference to a live animal.¹²⁷ According to the *Natural History*, ivory shavings are good for the removal of spots on the face and hangnails, the liver is good for treating epilepsy— Albertus Magnus, conversely, suggests that eating the outer part of the elephant’s liver treats liver pains, while the bile “is said to be” useful against epilepsy.¹²⁸ Pliny says that the blood of the elephant “stops all the fluxes which are called rheumatisms,” an idea which is repeated in the *Hortus Sanitatis*.¹²⁹

¹²³ Ibid. p. 198, spelling standardized slightly for intelligibility.

¹²⁴ *Hortus Sanitatis* Ch. LV

¹²⁵ Hildegard, *Physica* p. 206

¹²⁶ *On Animals* Book XXII p. 1477

¹²⁷ *Natural History* 28:24

¹²⁸ *On Animals* Book XXII p. 1477

¹²⁹ *Natural History* 28:24

Ivory throughout history was also valued as a luxury good and used in decoration, though mentions of the decorative uses of ivory are actually quite scarce in most of the texts examined here. Pliny claims (incorrectly) that elephants know they are hunted exclusively for their ivory and that they break off their own tusks when hunted, and mentions that ivory is in short supply due to demand.¹³⁰ The English bestiaries mention that elephants have ivory tusks, sometimes repeating Isidore's statement that the trunk of the elephant is "protected by an ivory palisade" but do not spare much detail for the procurement or uses of this ivory and Albertus Magnus does not mention ivory in his physical description of the elephant at all.¹³¹

The rhinoceros has the ill fortune of receiving none of the virtuous connotations of the elephant—perhaps justifiably, it was portrayed largely as a very dangerous beast with an armored body, difficult to capture but often prized for its valuable horn. Less justifiably, many accounts describe it as the natural enemy of the elephant; these seem to be largely derived from Book VIII of the *Natural History*. These associations led to the infamous "fight" staged in Lisbon in 1515 between a newly imported rhinoceros and one of the elephants from the collection of King Manuel I. The elephant, panicked by the crowds, fled from the rhinoceros, escaping the arena prepared for the fight and causing a great deal of destruction, though neither animal seems to have been harmed during the display.¹³²

The Lisbon rhinoceros, which later died in transport to the Vatican, was the first rhinoceros in Europe since the fall of the Roman Empire. Some classical texts make reference to the rhinoceros. Ctesias, a court physician to the Persian King Artaxerxes II, wrote his *Indica* based on the secondhand accounts of travelers from further east and portrayed it as a realistic

¹³⁰ *Natural History* 8.4

¹³¹ *Etymologies* p. 252, Cambridge MS li.4.26

¹³² Bedini, p. 119

account of the wonders of the subcontinent.¹³³ *Indica* survives only in fragments, though significant parts of it were copied or summarized by the scholar and Byzantine patriarch Photios I of Constantinople in his *Bibliotheca*—a selection including the description of the unicorn.

Ctesias describes the unicorn as an animal of India, characterized as a wild ass larger than a horse, with a single horn a cubit and a half long which possesses alexipharmic properties. He points to the horns and the “huckle-bones” or knucklebones of the animals as being particularly valuable, with the horn used as a drinking vessel to cure epilepsy and poison.¹³⁴ The general consensus is that Ctesias’ account is a description of a rhinoceros, though Odell Shephard suggests that the description includes characteristics of the wild ass or antelope.¹³⁵ Pliny describes the rhinoceros as an animal with a single horn protruding from its nose, with which it fights elephants by striking them in the soft underbelly.¹³⁶ He also states that the elephant and the rhinoceros are the same in length, but that the rhinoceros has shorter legs. Later in the *Natural History*, Pliny describes another very fierce one-horned animal with a long horn that grows from the *center* of its head; this animal is separate from the rhinoceros, and has often been taken to be a description of a unicorn.¹³⁷

Isidore describes the rhinoceros (*rhinoceron* or *monoceron*) as the same animal as the unicorn (*unicornis*), and includes lore associated with both animals. Isidore says that it “fights with the elephant and throws it to the ground after wounding it in the belly” and that it can only be captured when lulled to sleep by a virgin girl.¹³⁸

¹³³ Even other ancient authors found some of the anecdotes in the *Indica* dubious; about six centuries later, Lucian satirizes more obviously absurd claims found in *Indica* and other ancient works of natural history in his fictional travelog *Vera Historia*.

¹³⁴ Photius I. *The Library of Photius*. Translated by John Henry Freese. London, Society for promoting Christian knowledge; New York, The Macmillan company, 1920

¹³⁵ Nichols p. 215

¹³⁶ *Natural History* 8:29

¹³⁷ *Natural History* 8:31

¹³⁸ *Etymologies* p. 252

Some texts follow the pattern established by Isidore of suggesting that *monoceros* or *rhinoceros* is the Greek name and *unicornis* the Latin; the entry on the unicorn in MS Bodley 764 says that the Greek name is *rhinoceros*, though the text contains a separate entry on the *monoceros*.¹³⁹ The Worksop bestiary says that there is an animal known in Greek as the *monoceros* and in Latin as the *unicorn*, and does not contain separate entries for the two animals.¹⁴⁰ The choice of traits associated with the rhinoceros and the decision to include it in a separate entry seems to have been up to the discretion of the compiler, allowing different authors to create different views of the relationship between the two animals and choose which traits to associate with the rhinoceros; either the “terrible bellow” and ferocity of Pliny’s rhinoceros, or the allegorical maiden-taming of the mythical unicorn.

Like the ivory of the elephant and the unicorn, rhinoceros horn was regarded as a valuable commodity as a unique part of an exotic animal which could be used to display wealth—or, in the case of those rhinoceros horns taken as “unicorn horn,” for medical purposes.¹⁴¹ Despite being exotic and valuable, however, it generally lacks the allegorical levels of meaning that the elephant and the unicorn have and is most frequently described in literal terms. If the rhinoceros is included in the bestiary as a separate animal from its cousin the unicorn, it tends to be referred to as the *monoceros*, and the description usually resembles that of Pliny’s “unicorn” in *Natural History* 8:31. For example, in the Aberdeen bestiary and the Ashmole bestiary, the *monoceros* is described as a monster with a horrible bellow, with the body of a horse, the feet of an elephant, and a very sharp horn.¹⁴² The accompanying miniatures in these bestiaries resemble

¹³⁹ MS Bodley 764, unicorn fol. 10v, *monoceros* fol. 22r

¹⁴⁰ MS M.81 fols. 12v-13r

¹⁴¹ Pluskowski (2004) p. 304

¹⁴² Aberdeen Univ Lib. MS 24 fol. 15r

a russet-colored deer with a single horn. The text is nearly identical in MS Bodley 764, but the animal illustrated is a little stockier and a dark blue-gray color.¹⁴³

Despite the relative obscurity of the rhinoceros in the Middle Ages, once the animal became more well-known and the demand for exotic *materia medica* grew, rhinoceros horn became valued not only as a decorative substance but also as a medicine. Marnie P. Stark examines rhinoceros horns among other exotic magico-medicinal objects such as bezoars, in their display as decorative pieces and signifiers of wealth and their value as antidotes. She traces interest in rhinoceros horns to the expansion of overseas trade in the sixteenth and seventeenth centuries; mounted rhinoceros horns served as an exotic symbol of wealth and power, in addition to their purported medicinal purpose.¹⁴⁴

The horn of the rhinoceros was sometimes confused with the horn of the unicorn or used as a substitute; the conflicting information provided in classical sources resulted in a great deal of academic debate which went as far as active experimentation on the properties of imported rhinoceros horn.¹⁴⁵ Some consumers— and some scholars— believed that the rhinoceros had separate, though similar, alexipharmic properties to the unicorn while others viewed the two substances as medically interchangeable.¹⁴⁶ In contrast, rhinoceros horn was also sometimes sold as a “counterfeit” unicorn horn, implying a belief that the horn of the unicorn was an antidote but that of the rhinoceros was not.¹⁴⁷ Though the medical uses of the rhinoceros were limited, its use in medicine relied heavily on the rarity and value of the material, as well as its mythical associations.

¹⁴³ MS Bodley 764 fol. 22r

¹⁴⁴ Stark p. 69

¹⁴⁵ Ibid. p. 577-585

¹⁴⁶ Stark p. 86 (In these cases, alicorn or “unicorn’s horn” likely refers to narwhal tusk as separate from rhinoceros horn.)

¹⁴⁷ Martinho and Andrade p. 580

While the elephant maintained most of the integrity of its ancient description and associations even when the European authors had very little firsthand knowledge of the animal, the rhinoceros' early in natural history texts are shorter and have fewer distinguishing details. The rhinoceros never took on the same allegorical weight and associations with virtues which the elephant did; those it does have are shared with the unicorn, which will be discussed in greater length in the subsequent chapter. Daston and Park suggest that "newer marvels imported from contemporary topographical writing" into the bestiaries did not acquire the same level of allegorical meaning, due to lacking a backing in the *Physiologus* tradition.¹⁴⁸

Despite the differences in their treatment in bestiaries, both the elephant and the rhinoceros serve as examples of the fictionalization and mythologization of real-world animals from outside of Europe. Even when they occasionally appeared in the accounts of travelers or in royal courts, the animals of Asia and Africa were perceived as exotic and wondrous by European academics, who used them to exemplify ideas of virtue or danger in distant lands. Religious symbolism and medical use were both particularly important in the medieval conceptualization of these animals, and contributed to their often elaborate mythologization. The next chapter will examine the unicorn as an example of a truly fictional beast, comparing the presentation of the unicorn to the presentation of the real— if fictionalized— animals already discussed.

¹⁴⁸ Daston, Lorraine, and Katharine Park. *Wonders and the Order of Nature, 1150-1750*. New York : Zone Books ; Cambridge, Mass. : Distributed by the MIT Press, 1998. p. 41

Translations of the Fantastical: Unicorns in Myth, Theology, and Medicine

The bestiary was in no way limited to fictionalized accounts of real-life animals long since lost to its authors; many imaginary creatures and fictitious hybrids also appear. Of these, the unicorn is one of the most recognizable and longest-lived in the Western imagination, with accounts of the creature appearing in natural history texts as late as the 17th century. The unicorn illustrates not only how the treatment of fictional animals and real animals was often indistinguishable, but also the layers of meaning in the conceptualization of animals even outside the bestiaries. It is an encapsulation of the layers of symbolic, medical, and religious significance commonly found in discussion of animals at the time.

Most often portrayed as a horse or goat with a single horn, the unicorn is said to be an animal of surpassing virtue, ferocity, or guile, which can only be captured when lured in and subdued by a virgin. Islamicate texts reference their own versions of the myth, likely transmitted from Greek sources—most often in the form of the *karkadann*, a ferocious one-horned beast which fights and kills elephants. The East Asian *qilin* or *kirin*, while sometimes portrayed as a single-horned deer, shares very few features with the unicorn myth found in classical Greek and Roman authors, and will only be mentioned in passing here. Minimal attention will also be given to the purported Biblical references to unicorns, since the actual meaning of the Hebrew word *re'em* is somewhat unclear.¹⁴⁹

The curative properties of unicorn horn, while mentioned in passing in some ancient texts and legends, became popularized in the late medieval and early modern period. Rising demand

¹⁴⁹ *Re'em*, apparently a type of ferocious horned animal, is translated as *monokeros* in the Greek Septuagint and *unicornis* in the Latin Vulgate, and subsequently *unicorn* in the 1611 King James Version of the Bible in English. Many later English translations use *wild ox* or *wild bull*. Topsell clearly believed these passages referred to a unicorn, pointing to them as Biblical evidence for the existence of the animals, but the lack of detail in the passages make them difficult to use for the purposes of this paper.

for unicorn horn in goblets, decorations, and medicinal powders saw narwhal tusk, rhinoceros horn, ivory, and antlers all marketed as the elusive substance, though narwhal tusk remained the material most associated with the unicorn. While often mentioned in conjunction with other *materia medica* such as bezoars, academic scholarship on the use of alicorn in the history of medicine is somewhat sparse in comparison to analysis of the role of the unicorn in art history and literature.

On its surface, the unicorn seems much more plausible than the elephant, save perhaps for the miraculous healing properties of its body. This is likely the source of its frequent recurrences in books of natural history, not limited only to the *Physiologus* tradition. While often thought to be a miscommunication of the features of the rhinoceros, a ferocious, one-horned animal, many authors— including Pliny and Albertus Magnus— make a particular note to separate the unicorn from the rhinoceros, and many bestiaries contain separate sections for the unicorn (*unicornis*) and the rhinoceros (*monoceros*). It forms a valuable counterpoint to the examples of the elephant and the rhinoceros, being an animal which exists only within the confines of literature, allegory, and imagination, but nevertheless no less “real” to the minds of the authors of the bestiaries who had never seen many of the animals of which they wrote.

Likewise, the unicorn features in natural history and medicine texts to an extent that cannot be ignored, the core elements of its story persistent across centuries. In contrast to the mythologization of the behavior and virtues of the elephant, the unicorn is a creature of myth given legitimacy by its treatment as a plausible animal in scholarly context.

While Ctesias and Pliny both mention one-horned animals with a body like a horse or wild ass, their depictions are not wholly aligned with the version of the legend that solidifies in the

medieval period.¹⁵⁰ Ctesias' "unicorn," as described previously, is quite clearly a rhinoceros despite having alexipharmic properties attributed to its horn¹⁵¹

In the *Natural History* several centuries after Ctesias, Pliny describes the unicorn as a hybrid animal resembling a variety of different beasts. It is very fierce and wild— *asperrimam autem feram*— with a single black horn two cubits in length emanating from the middle of the forehead— *uno cornu nigro media fronte cubitorum duum eminente*.¹⁵² Pliny's unicorn notably shares some features with the elephant and emits a deep lowing or mooing noise. This description might again indicate an origin in the rhinoceros, though as mentioned in the previous chapter Pliny's actual description of the rhinoceros is found in 8:29 and the *unicorn* is thus presumably imagined to be a separate animal.

The imagery of the unicorn as the subject of a "holy hunt" first appears in *Physiologus*, with the unicorn characterized as a single-horned animal similar to a young goat (*haedus*) which cannot be captured by a hunter and must be lured in by the use of a virgin girl, in whose lap it sits. Shepard is particularly interested in this element of the lore, one of the oldest motifs in the medieval unicorn tradition and one which continued into the current imagination of the myth; he characterizes the holy hunt as a combination of an "erotic" maiden-capture story and Christian allegorical imagery, which relies particularly on the elements of the virgin being set in the woods to lure the unicorn and its subsequent spearing or capture by hunters.¹⁵³ The ivory of both the unicorn and the elephant was a highly prized luxury good, and while the value of the ivory is not emphasized in the lore, it is worth mentioning that both animals have a traditional "hunt"

¹⁵⁰ Pliny, *Natural History* 8:31

¹⁵¹ Photius I. *The Library of Photius*. Translated by John Henry Freese. London, Society for promoting Christian knowledge; New York, The Macmillan company, 1920

¹⁵² Pliny 8:31

¹⁵³ Shepard p. 50-51

narrative which explains how these dangerous and valued animals are defeated. In the case of the elephant, it is captured when the hunter cuts down the tree it is leaning against to sleep; in the case of the unicorn it is lured by a maiden. While the allegorical meaning ascribed to these stories in *Physiologus* is very different, it seems reasonable that readers would wish for an explanation of how the materials associated with these animals were obtained.

Shepard focuses heavily on what he suggests to be pre-Christian erotic elements of the story, indicating Syriac and Arabic translations of the legend in which the unicorn suckles on the breasts of the girl left to capture it, and argues that the maiden's role in deceiving the unicorn is at odds with her portrayal in medieval devotional art as the Virgin Mary.¹⁵⁴ This, however, somewhat overlooks the presence of other medieval works which combine secular and spiritual love, both in the tradition of Christian mysticism and in literary work. As Freeman says in her treatment of the late 15th century Unicorn Tapestries housed at the Met— “people of the Middle Ages delighted in this type of juxtaposition; for them the God of Heaven and the God of Love were not incompatible.”¹⁵⁵

The early 16th century tapestry series *La Dame à la licorne* is a series of six tapestries showing a woman, a unicorn, and a variety of other animals in different poses illustrating the five senses. The meaning of the sixth tapestry has been debated, but it shows the figures in front of a blue tent with the motto *À mon seul désir*, “to my sole desire” or “by my desire alone.” The wording suggests an association with courtly love, possibly a courtship involving the bestowing of the various gifts and lavish goods portrayed in the previous tapestries. Some commentators have suggested that the image of the lady holding the unicorn's horn in the *Touch* tapestry is intended to be phallic, strengthening ideas of courtship and earthly love rather than divine love,

¹⁵⁴ Shepard p. 49, 64, from al-Damiri. See also the *dabba* described later in this chapter.

¹⁵⁵ Freeman, Margaret B. *The Unicorn Tapestries*. Metropolitan Museum of Art, 1976. p. 30

and that the story may be a seduction on the part of the lady as she presents the unicorn with a variety of pleasurable sensations.¹⁵⁶ This interpretation may not entirely rule out religious significance, however, as the traditional imagery of Christ as Bridegroom to the Church was at times given a sexualized component in symbolic portrayals. Whether or not there are more erotic elements present in the tapestry series, the theme of the senses and desire are clearly paired with the repeating imagery of the unicorn and lion— both traditional symbols of Christ.



The Lady and the Unicorn: À mon seul désir

[Wikimedia Commons](#)

¹⁵⁶ Burt, Sarah Ashley. "The Thread Count of Myths: A Material Ecocritical Reading and Genre Exploration of the 1500 C.E. The Lady and the Unicorn Tapestries." Southern Illinois University at Edwardsville, 2021.

We have seen that the unicorn in the *Physiologus* is physically much smaller than that in the ancient accounts, being the size of a goat rather than the size of a wild horse or ass. The author elaborates on this trait in the B-text of the Latin *Physiologus*, stating that the small size of the unicorn is a symbol of the humility of Christ's incarnation as man, and further elaborates that its appearance as a goat represents the sinful flesh into which Christ was born (a goat being an animal often associated with sin¹⁵⁷). Additionally, the unicorn in most iterations of the *Physiologus* lacks the curative properties which Ctesias describes; neither the Y-text nor the entry in the B-text make mention of these properties. A late Greek edition of the text referenced by Shepard and Contadini does describe the unicorn making the sign of the cross over poisoned water with its horn.¹⁵⁸ Margaret B. Freeman also recounts this story, from an early 20th century German translation of a late Greek *Physiologus*, providing a convenient English translation of the passage— "...the serpent comes and casts its poison into the water. Now the animals mark well the poison and do not dare to drink, and they wait for the unicorn. It comes and immediately goes into the lake and making with its horn the sign of the cross renders the power of the poison harmless."¹⁵⁹ The restorative element here seems more tied to the Sign of the Cross than to any inherent properties of the horn itself.

MS Bodley 764, a second-family bestiary, reiterates the description of the unicorn as "like a kid," keeping its virtues of swiftness and humility from *Physiologus*, but adds that the unicorn often fights with elephants.¹⁶⁰ As in many other texts, the *monoceros* is in a separate

¹⁵⁷ Curley p. 51

¹⁵⁸ Contadini p. 26

¹⁵⁹ Freeman p. 27, p. 11, Emil Peters, *Der griechische Physiologus und seine orientalischen Übersetzungen*. Berlin, S. Calvary & co., 1898.

While many secondary sources refer to this story as part of a late Greek *Physiologus*, it was exceptionally difficult to track down; Emil Peters references it as being part of the *A* and *B* codices compiled by Cardinal Jean-Baptiste-François Pitra.

¹⁶⁰ Bodleian Library MS. Bodl. 764 fol.10v-11r

entry from the unicorn (*unicornis*) and has a much shorter description as a beast with a horrible cry and the body of a horse— “*monstrum mugito horrido, equino corpore...*” which cannot be captured alive due to its ferocity.¹⁶¹ The mention of the beast’s horrible *mugitus* (literally lowing or “mooing”) uses the same phrasing as Pliny’s account of the unicorn. The Aberdeen Bestiary, another second-family bestiary, lacks the unicorn entry and only has the *monoceros*.¹⁶² Corpus Christi MS 22, a first family bestiary dated to the 12th century, includes a rendition of the maiden-capture story and the accompanying image under the name *monoceros*, though the text states that *unicornis* is also a name given to this animal; both names due to the single horn in the center of its head.¹⁶³ The unicorn cannot be captured by any usual means of hunting, but will lay down its head in the lap of a virgin girl.¹⁶⁴ By and large the text is the same as that in *Physiologus*, and does not include the mention of the unicorn fighting elephants. The Worksop Bestiary housed at the Morgan Library and Museum clarifies that the animal is called *monoceros* in Greek and *unicornis* in Latin, but maintains only the information contained in the “unicorn” section of *Physiologus*.¹⁶⁵ MS M.81 shares some unusual coloring choices with the Aberdeen MS 24, including in the illustrations of the onager and the *monoceros*; both color the *monoceros* a very striking blue, despite one entry using the maiden-capture unicorn myth and the other entry drawing on a more realistic description of a rhinoceros.

Book 22 of Albertus Magnus’ *de Animalibus* includes not two but three descriptions of animals matching the description of the unicorn or rhinoceros; the *monoceros*, the *rhinoceros*, and the *unicorn*. He describes the unicorn as a cloven-hooved animal which does not fear hunters

¹⁶¹ MS. Bodl. 764 fol. 22r

¹⁶² Aberdeen University Library, Univ Lib. MS 24

¹⁶³ CCCC MS 022 is a bestiary bound together with an edition of Albertus Magnus’ *Etymologies* and a devotional dialogue also by Isidore of Seville.

¹⁶⁴ *ibid.*

¹⁶⁵ MS M.81, fol. 12v–13r

and is capable of fighting elephants with its sharp horn, but “respects virgin girls so much that when it sees them it grows tame and is sometimes captured and bound in a trance near them,” thus combining features associated with both animals.¹⁶⁶

One may notice that in the family of bestiaries derived from the *Physiologus*, the curative properties of the horn for which the unicorn later becomes famed are absent— despite Ctesias’ description of the horn of the *monoceros* being a powerful curative. The introduction— or rather reintroduction— of the unicorn’s alexipharmic properties may come from Arabic language texts which drew on older Greek work in addition to versions of the *Physiologus*.

The 13th century *Kitāb na‘t al-ḥayawān* (Book of the Characteristics of Animals), written in the Nestorian Christian tradition, associates various parts of the “traditional” unicorn lore with both the *kardunn* and the *dabba*.¹⁶⁷ The *kardunn*, while more akin to a rhinoceros in many depictions, is related to the maiden-capture story, while the *dabba*, a small gazelle or goat, has the ability to purify water with its horns. Chris Lavers and Odell Shepard trace the *dabba* to a Syriac *Physiologus* from the 4th century, in which it bears more resemblance to the Latin maiden-capture story— with the elaboration that it is drawn to suckle on the breasts of the maiden, allowing her to capture him by seizing his horn.¹⁶⁸ Some Islamicate bestiaries and natural history texts include a one-horned gazelle called a *shādhavār* which somewhat resembles a unicorn; the horn of the *shādhavār* has holes in it such that music is played when the wind blows through. One description of this creature can be found in the *Aja'ib al-Makhluqat wa*

¹⁶⁶ Albertus Magnus. *Albertus Magnus On Animals VI 2: A Medieval Summa Zoologica Revised Edition*. Translated by Kenneth F. Kitchell and Irvn Michael Resnick. Ohio State University Press, 2018. p.1540

¹⁶⁷ Contadini p. 21

¹⁶⁸ Lavers p. 71, Shepard p. 49

Ghara'ib al-Mawjudat (Wonders of Creatures and Marvels of Creation), a 13th century cosmography, angelology, and bestiary.¹⁶⁹

In the third century AD, Aelian described an animal he called a *kartazon*, resembling a rhinoceros; Shepard¹⁷⁰ connects this with the Sanskrit *kartajan*, “lord of the desert.” It seems likely that most depictions of the karkadann are intended to describe a rhinoceros, with its animosity to elephants, fierce nature, and powerful build, related more closely to the ancient authors’ unicorn than the much smaller version which appears in the *Physiologus*. Lavers likewise considers the karkadann to have originated directly from the rhinoceros, suggesting the original version of the karkadann story was from 10th century scholar al-Biruni.¹⁷¹ His interest is largely in the horn of the karkadann and its alleged alexipharmic properties in the works of al-Qazwini, particularly in the *Aja'ib al-Makhluqat* which also contains the depiction of the shâdhavâr mentioned above.¹⁷²

Lavers hypothesizes that the idea of the horn’s healing properties were originally derived from a confusion with *khutu*, another type of rare horn material, in the thirteenth century. Furthermore, the introduction of these alexipharmic properties in Islamicate texts influenced the development of the healing horn lore of the unicorn in Europe over the following century.¹⁷³ Given that the tricolored horn of the “unicorn” described by Ctesias in the 5th century BC was already alleged to have healing properties, it would seem that a simpler explanation would hold that the authors of the Arabic language bestiaries were drawing from primarily Greek texts, which already described the unicorn’s horn as medicinal. This provides another instance of the

¹⁶⁹ Spencer Coll. Persian MS. 49 – this version of the text, held in the Spencer Collection at the New York Public Library, is a 16th century Persian copy of the originally Arabic text.

¹⁷⁰ Shepard p. 23

¹⁷¹ Lavers p. 110

¹⁷² Ibid p. 107-111

¹⁷³ Ibid p. 111, 149-150

attributes of the unicorn and the rhinoceros being “switched out” and attributed to one animal or the other in different legends.

The maiden-capture motif from *Physiologus* does appear in some depictions of the karkadann, including in the excerpts from the *Na't* examined by Contadini. Her translation is of fol. 196r-197r of the British Library’s *Kitib Na't Al-hayawan*.¹⁷⁴

The strategy used to hunt it is that a young pure virgin is put in its path. When the animal sees her, it jumps into her lap as if it wants to suckle, this being a natural inclination in this beast. And when it is in her lap it suckles her breasts, even though there is no milk in them, until it becomes like someone drunk from wine or someone drowsy with sleep.¹⁷⁵

This account is somewhat at odds with the more common accounts of the holy hunt in European *Physiologus* texts, given the focus on the virgin’s breasts, though not quite so different as Shepard claims in the lines he draws between the “erotic” versions of the maiden-capture and the religious versions.

Shepard notes that the 1610 *Historia de los Grandes y Remotos Reynos de la Etiopia*, by Dominican missionary and theologian Fray Luis de Urreta, describes a more “naturalistic” approach to the maiden capture story, allegedly originating in Ethiopia.¹⁷⁶ In this account, the ferocious rhinoceros is defeated through the use of a female monkey, who is trained by the hunters to lure the rhinoceros in and scratch and rub his hide until he lays down and exposes the weak point on his stomach, through which he can be slain.¹⁷⁷ While Shepard argues that this story is the origin of the maiden-capture motif, which was later imposed onto the unicorn from the rhinoceros, Contadini points out that Urreta insists that the rhinoceros not be confused with

¹⁷⁴ British Library Or. 2784 is currently unavailable due to the British Library’s cybersecurity concerns.

¹⁷⁵ Contadini p. 22, London, translated from British Library Or. 2784.

¹⁷⁶ NB: Shepard describes Urreta as a Jesuit; he was in fact a Dominican— see Mola & Shaw, *La Etiopía imaginaria de Luis de Urreta*.

¹⁷⁷ Shepard p. 67-68

the unicorn, a separate animal which is “noble and amiable” and can be tamed by a virgin.¹⁷⁸

None of the other primary source material in this study, including accounts which focused exclusively on the rhinoceros, had an equivalent to Urreta’s account of the monkey-capture; Contadini similarly has found no matching accounts in Islamic or Greek sources.

Topsell’s *Historie of Four-Footed Beastes* says that “It is questionable whether the *Monoceros*, commonly called a *Vnicorne*, the *Rhinoceros*, the *Oryx*, and the *Indian asse* be all one beast or diuers [sic]” but includes separate sections on each individual animal regardless.¹⁷⁹ He repeats Aelianus and Ctesias’ claims that the *monoceros* has a tri-colored horn with alexipharmic properties, from which “the kings and mighty men of India”¹⁸⁰ drink to cure themselves of poison and disease. During his description of the unicorn horn, he introduces the curious suggestion that a curative horn cannot be taken from a living unicorn, but that they shed their horns in the way that deer do. He also concludes, based on his collected observations of alicorns, that a unicorn must be at least as large as an ox to carry such a weight.¹⁸¹

A seemingly new story¹⁸² provided by Gessner and elaborated on slightly by Topsell claims that lions and unicorns are enemies, and that the lion can bait an enraged unicorn into spearing its horn into a tree, thus trapping it.¹⁸³ Meanwhile, the *Hortus* contains two entries on the “unicorn,” both of which are fairly standard and seem to be based on Pliny and Isidore; oddly enough, the “monoceros” entry contains the actual description of the virgin-capture myth, but the

¹⁷⁸ Contadini p. 26

¹⁷⁹ Topsell p. 32

¹⁸⁰ Ibid.

¹⁸¹ Ibid. p. 717

¹⁸² The antipathy between the lion and unicorn, while most associated with the 18th century folk song, also appears in a short Aesopic fable (Perry 645), identified by scholar Ben Edwin Perry as originating in the Middle Ages from John of Schepey. In this story the lion tricks the unicorn into giving him its horn to use as a cane.

¹⁸³ Topsell p. 719, Gessner p. 784

illustration of the unicorn resting its head in a woman's lap accompanies the "unicornis" passage.¹⁸⁴

Having examined the theological setting in which the unicorn exists in ancient natural history and the Physiologus-bestiary tradition, we will now proceed to the position of the unicorn in the history of medicine. The unicorn is distinguished from many of the other Christ-allegories in the bestiary by virtue of the long-attested healing properties of its body. In addition to being a creature of great allegorical significance tied to Marian devotion, the healing properties of alicorn gave the unicorn a particularly prominent place in both the popular imagination and in scientific and medical texts.

On the unicorn, Hildegard says that a belt made from its hide will guard the wearer's insides against serious disease and fever, and that unicorn skin shoes will protect the feet and legs from disease: "From unicorn skin, make a belt. Gird yourself with it against your skin, and no strong disease or fever will harm your insides. Also, make shoes from its skin and wear them. You will always have healthy feet, legs, and loins."¹⁸⁵

Of the ibex, an animal sometimes associated with the unicorn, she says that its horn can be used as a knife handle to keep the user in good health, and that wearing its dried tail as an amulet protects against both magic and poison.¹⁸⁶ Hildegard writes that if the *hoof* of the unicorn is placed under a poisoned goblet the liquid in the goblet will boil, but says the horn has no inherent medical properties.¹⁸⁷ The miraculous property which she ascribes to the horn is the presence of a mirrorlike object or stone beneath the base, in which a man might see his

¹⁸⁴ *Hortus Sanitatis* Ch. CXXVI, Ch. CLV

¹⁸⁵ *Physica* p. 239

¹⁸⁶ *Ibid.* p. 214

¹⁸⁷ *Ibid.* p. 211

reflection.¹⁸⁸ Hildegard also says that the unicorn eats only clean plants, which it seeks out once a year in “the land that has the water of paradise;” to this she attributes its purity and healing properties.

Imagery of unicorns using their horns to purify polluted water become more popular in the 15th century, appearing in both heraldic and religious contexts.¹⁸⁹ The Unicorn Tapestries at the Metropolitan Museum of Art, a particularly recognizable set of early modern unicorn symbolism thought to have been commissioned in the late 15th century,¹⁹⁰ show an image of the hunting party coming upon the unicorn purifying a stream with his horn. Hieronymus Bosch’s *Garden of Earthly Delights* features a unicorn in the left-hand panel depicting the Garden of Eden; it is unclear whether the unicorn is drinking or dipping its horn into the water, though Freeman points to the toads and other strange, dangerous creatures fleeing from the pool as evidence that the unicorn is purifying the waters.¹⁹¹

Clearly, by this time the association of the unicorn with the purification of water had become commonplace imagery. Shepard describes late tests to ascertain the veracity of unicorn horn from David de Pomis in 1587,¹⁹² while the Portuguese physician Amatus Lusitanus apparently experimented on curing pigeons of poison with unicorn horn some decades earlier.¹⁹³

¹⁸⁸ Ibid. p. 210

¹⁸⁹ Freeman p. 58

¹⁹⁰ Freeman p. 159; Freeman discusses potential patrons who might have commissioned the tapestries, giving 1499 as a plausible date.

¹⁹¹ Ibid p. 56

¹⁹² Shepard p. 117

¹⁹³ Martinho & Andrade p. 586



Hieronymus Bosch - The Garden of Earthly Delights - The Earthly Paradise (Garden of Eden)

[Wikimedia Commons](#)

The 1604 alchemical text *The Triumphant Chariot of Antimony* describes “true Unicorns-horn” as physically repellent to all venom.¹⁹⁴ The author claims that a spider trapped within a circle of (presumably powdered) alicorn will be unable to cross the boundaries of the circle, because the purity of the horn is repellent to the venom inside the spider. Another test he suggests is to “make a piece of Silver hollow, and put it in Water, that it float like a Boat, and put Venom to it...” and then to hold a piece of horn near to the envenomed silver to watch it “flee” away across the water.¹⁹⁵ The *Triumphant Chariot* explains that poison can be cured either

¹⁹⁴ The author, Basil Valentine was allegedly a 15th-century Benedictine monk and alchemist named Basil Valentine, but the “Basil Valentine” name and character were likely a fictitious character used by one or several German alchemists in the early-mid 17th century.

¹⁹⁵ Basil Valentine, *The Triumphant Chariot of Antimony* p. 37

through the use of something pure and unlike to it, such as the alicorn, or by another poison that has been specially treated to attract poison to itself– such as antimony, the subject of the main part of the text, or as in the case of drying and burning toads to “calcinate” the toads into a poison which attracts other poison.¹⁹⁶ Interestingly, the *Triumphant Chariot* also claims that unicorn horn will attract pure things, such as a piece of good bread floating on water; this is not a property of the horn I have found recorded elsewhere, though it follows logically from the author’s examples of the alchemical principle of sympathy and antipathy.¹⁹⁷ While the tests suggested to experiment with the alexipharmic properties of alicorn are somewhat unusual, its portrayal alongside a variety of other commonly used medicinal materials (such as the burned toads) to support the author’s argument for the virtues of antimony indicates that there was a common assumption of alicorn’s power and properties at the time of writing.

Narwhal and rhinoceros ivory goblets were found in court settings in the late medieval and early modern period. These items were sufficiently common that a range of examples survive for study, though some bear visible evidence of parts of the alicorn being whittled away for consumption in medicine; Guido Schoenberger mentions that intact examples of narwhal alicorn goblets are particularly rare due to the practice of powdering the alicorn for consumable curatives.¹⁹⁸ Schoenberger mentions the existence of rhinoceros horn goblets as a type of “unicorn horn” drinking vessel, elaborated on by other authors, but focuses on alicorn goblets made from narwhal tusk and particularly on a group of five goblets made in Frankfurt in the 17th century. The tusks are mounted in silver or gold to create ornate drinking vessels, often including images of unicorns either decorating the lids or carved into the ivory itself. They served as both a

¹⁹⁶ Ibid. p. 39

¹⁹⁷ Ibid. p. 37

¹⁹⁸ Schoenberger p. 285

protection against poison to their users and a sign of wealth to their guests, as was typical for exotic *materia medica* at the time.

The use of unicorn horn cups to serve nobles is attested in recipe and etiquette books in the 16th century,¹⁹⁹ and Shepard traces the possession of horns as court treasures back to the early 13th century in Venice and the 14th century in England, though these seem to have been viewed at the time more as treasures of an exotic and perhaps religious nature than as medicine.²⁰⁰

Schoenberger notes that as late as 1666, the goblets still bear the marks of having had pieces chipped away to acquire the valuable medicinal powder, as well as providing an example of a 1660 goblet engraved with religious imagery and text.²⁰¹ This shows that the medicinal, decorative, and religious connotations of the unicorn remained closely intertwined.

Evidence of amulets or jewelry made from alicorn is scarce. It seems that drinking from an alicorn cup or consuming the crushed powder were the primary ways the alleged antidote was administered. In Topsell's *History of Four-Footed Beasts*, he recommends that customers looking for "true" horn buy large pieces in order to confirm that the horn has the appropriate pale color and spiraled texture, rather than purchasing it already powdered or in small chunks. This could be one reason for the relative lack of alicorn amulets in the early modern period in comparison to larger items. It is also possible, however, that the smaller pieces of alicorn which would have been used in jewelry or amulets were simply entirely ground down or dissolved in medicinal drinks in times of sickness.

¹⁹⁹ Martinho & Andrade p. 580

²⁰⁰ Shepard. p. 108, 113

²⁰¹ Schoenberger. p. 288

In discussion of the medicinal properties of the unicorn, we circle back to the rhinoceros. While rhinoceros horn was at times prized for its association with the unicorn legend and the fact that connections could easily be drawn between the rhinoceros and the “unicorn” of the bestiaries, it was also a frequent type of “fake” or second-grade alicorn— i.e. a substance intentionally marketed as a cheaper form of the narwhal tusk alicorn.²⁰² Topsell warns readers that unscrupulous vendors may mix false unicorn’s-horn into a powder soap or lye, thus causing the bubbling effect which the horn is alleged to have when exposed to poisoned drink.²⁰³

While the exact origin of the alleged alexipharmic properties of alicorn is unclear, centuries’ worth of belief in its medicinal properties solidified the place of the unicorn in secular in addition to religious life, allowing the legends associated with the animal to persist even through a decrease in the Marian devotion that popularized the original virgin-capture allegory in *Physiologus* and allowed the unicorn to maintain a medical and spiritual connotation throughout the early modern period. In its marriage of sacred and scientific virtues, the unicorn encapsulates the medieval synthesis of religion, medicine, and natural history.

²⁰² Stark p. 85

²⁰³ Topsell p. 558

Conclusions

At first glance, the medieval bestiary might appear to be an incongruous mixing of myth, religious allegory, and early natural history. Certainly, there has been much debate over which of these is the “true” focus of the manuscripts. Much commentary on the bestiaries which attempts to contextualize the manuscripts in relation to modern natural history texts has attempted to categorize these types of texts as either religious or zoological works, minimizing the areas in which these levels of meaning overlap. Viewed in the wider context of premodern natural history as an attempt to understand the will of God as it appeared in creation, however, the inclusion of fable, allegory, and moralization in these texts does not appear so jarring.

The examples of the elephant and the unicorn serve as two distinctly different types of animals which appear not only in the bestiaries but in other works of natural history, both religious and secular. Both were incorporated into the bestiaries of the 12th and 13th centuries from older editions of the *Physiologus*, Isidore, and ancient texts, without the authors of the bestiaries ever having seen a live example of the animal in question. An increasing familiarity with live elephants in the 16th century and onwards did not entirely shake the mythical virtues which had been ascribed to the animal, including its intelligence, chastity, and nobility— though it mitigated the recurring myth that the creatures lacked knees, and having a live model prompted a reassessment of the way that elephants were traditionally illustrated.

Meanwhile, the unicorn could obviously not provide a live model, but the creature’s inclusion in both religious and secular art, as well as in the practice of medicine, cemented it as a “real” creature in the same way as the other strange and exotic animals described in the texts. The unicorn also provides a further example of the blurring of lines between religious and secular concepts, with later iterations of the Holy Hunt imagery representing the victory of both

divine and earthly love. Likewise, the medicinal properties of the animal's horn appear to have arisen from the idea of it tracing a sign of the cross in polluted water as well as its associations with chastity and purity, but later became ascribed primarily to an innate alexipharmic property of the horn.

Natural history was a slowly developing field in the Middle Ages, exemplified by a range of texts with different levels of focus on religious, linguistic, or symbolic meaning, medicinal use, or more zoological descriptions of the natures of animals. Understanding these texts, particularly the highly allegorical bestiaries, requires a holistic approach that considers all aspects of the medieval worldview and does not attempt to either categorize these works under a modern label or exclude elements of the knowledge contained in the text.

Appendix A: Manuscripts Used

A brief description of each of the primary manuscripts referenced in this paper, along with links to the digital facsimiles.

Aberdeen University Library, MS 24

<https://www.abdn.ac.uk/bestiary/>

A second-family Latin bestiary produced in England c. 1200. 103 fols. Contains an introduction from Genesis followed by sections on beasts, birds, serpents, “Etymologies” (taken from Isidore), and stones. The section on birds is derived from Hugh of Fouilloys’s *de Avibus*. First documented in 1542 as No.518 *Liber de bestiarum natura* in the inventory of the Old Royal Library, at Westminster Palace; presumably obtained during the dissolution of the monasteries. Cataloged at Marischal College c. 1670, added to the Aberdeen University library when the colleges combined. Related to the Ashmole bestiary.

Cambridge, Corpus Christi College MS 22

<https://parker.stanford.edu/parker/catalog/xd956wx5361>

A book containing Isidore’s *Etymologies* and a first family (of the group considered B-Is by McCulloch) bestiary with 35 color-washed illustrations. Written on vellum. Likely produced in the north of England, specific provenance uncertain. Dates of individual sections range from 12th to 14th century.

Cambridge University Library MS li.4.26

<https://cudl.lib.cam.ac.uk/view/MS-II-00004-00026/1>

A second-family Latin bestiary produced in England (possibly Lincolnshire) c. 1200. 74 fols. Similar to the Aberdeen and Ashmole texts, but lacks an aviary or Genesis introduction and the “Adam naming the animals” illustration is in a different place. Similar to British Library MS Add. 11283, dated to 1170. Early illustrations are fully painted, later illustrations are penwork with color washes. Partial inscription on 73r suggests it was originally housed at an abbey. Given to the University Library on 16 July 1655.

Morgan Library and Museum MS 81

<http://ica.themorgan.org/manuscript/77019>

A first-family Latin bestiary produced in England c. 1185; of the group considered “transitional” by McCulloch, with *Physiologus* B-text chapters, content from Isidore. 120 fols, written on vellum. 106 miniatures of varying sizes. Contains *De imagine mundi*, excerpts of Genesis, bestiary including Isidore’s *De Terra* and excerpts *De Asia*, *De Europa*, *De Africa*, and a sermon on St. Joseph (Pseudo-Augustine.) Given in 1187 by Philip, Canon of Lincoln to the Augustinian Priory of Radford, now called Worksop. The text passed through a variety of owners in the 19th century and was purchased by J. Pierpont Morgan in 1902.

Oxford, Bodleian Library, MS Ashmole 1511

<https://digital.bodleian.ox.ac.uk/objects/faeff7fb-f8a7-44b5-95ed-cff9a9ffd198/>

Second-family Latin bestiary produced in England, likely early 13th century. Specific area and date of production are unknown; North Midlands, Canterbury, Lincoln, and York have all been suggested. Clark suggests a possible Augustinian audience, but the initial owner is likewise unknown. 122 fols. Written on vellum. The drawing style, poses, and coloration of the animals in the 130 miniatures are very similar and sometimes identical to the Aberdeen bestiary; text is very similar to the 13th-14th century MS Douce 151. Contains sections on beasts, birds, serpents, fish, and plants, as well as an extract from the *Etymologies*. Like the Aberdeen bestiary, the aviary is derived from Hugh of Fouilloy. Acquired by Elias Ashmole in the 17th century, housed in the Ashmolean Museum until transfer to the Bodleian in 1860.

Oxford, Bodleian Library MS. Bodl. 764

<https://digital.bodleian.ox.ac.uk/objects/e6ad6426-6ff5-4c33-a078-ca518b36ca49/>

A second-family Latin bestiary produced in England. Some Middle English annotations. M.R. James suggests a late 12th century production date, Clark suggests mid-13th century, 1230-1240. 140 fols. Contains an introductory illustration of Adam naming the animals, followed by sections on beasts, birds, serpents, and an herbal starting fol 112r. Related to the Aberdeen and Ashmole bestiaries as well as British Library Harley MS 4751 (not used due to inaccessibility.)

New York Public Library Spencer Coll. Persian MS. 49

<https://digitalcollections.nypl.org/collections/ajib-al-makhlqt-va-gharib-al-mawjdt>

Persian translation of the Arabic *'Ajâ'ib al-makhlûqât va gharâ'ib al-mawjûdât*. Original text dates to the 13th century, this translation was produced c. 1540, likely in Shīrāz, Iran. 371 folios on “dark cream paper.” 408 miniatures, most colored. Purchased for the Spencer Collection in Cairo, 1953.

Bibliography

Print Primary Sources

Non-manuscript primary sources in print or in translation.

Ambrose, Bishop of Milan. *The Six Books of the Hexaemeron The Six Days by Ambrose.*

Pdf. <https://www.loc.gov/item/2021667976/>

Albertus Magnus. *Albertus Magnus On Animals VI 2: A Medieval Summa Zoologica*

Revised Edition. Translated by Kenneth F. Kitchell and Irven Michael Resnick. Ohio State University Press, 2018. <https://doi.org/10.2307/j.ctv1jq5qp2>.

Aristotle. *Aristotle's History of Animals: In Ten Books.* Translated by Richard Cresswell. G.

Bell, 1887. <http://archive.org/details/aristotleshisto00schngoog>.

Carmody, Francis J., ed. *Physiologus Latinus Versio Y.* University of California Press, 1941.

Curley, Michael J., trans. *Physiologus: A Medieval Book of Nature Lore.* University of Chicago Press, 2009.

Gessner, Conrad, Guillaume Rondelet, Pierre Belon, and Christoph Froschauer. *Conradi*

Gesneri ... Historiae animalium lib. I-III. Tigvri: apvd Christ. Froschoverum, to 1558, 1551. Pdf. <https://www.loc.gov/item/06004347/>

Hildegard of Bingen. *Causes and Cures: The Complete English Translation of Hildegardis*

Causae et Curae Libri VI. Translated by Priscilla Throop. 2nd edition. Charlotte, Vermont: MedievalMS, 2008.

Hildegard of Bingen. *Hildegard von Bingen's Physica: The Complete English Translation of*

Her Classic Work on Health and Healing. Translated by Priscilla Throop. Simon and Schuster, 1998.

Isidore of Seville, and Stephen A Barney. *The Etymologies of Isidore of Seville.* Translated

by J.A. Beach, Oliver Berghof, and W.J. Lewis. Cambridge University Press, 2006.

Kerckring, Theodor, and Basil Valentine. *Basil Valentine, His Triumphant Chariot of*

Antimony, with Annotations of Theodore Kirkringius. M.D. With The True Book of the Learned Synesius, a Greek Abbot, Taken Out of the Emperour's Library, Concerning the Philosopher's Stone. London: D. Newman, 1678. OU History of Science Collection.

Ortus sanitatis. Impensis Jacobus Meydenbach, 1491. OU History of Science Collection.

<https://repository.ou.edu/uuid/0fba647b-34b6-56c2-8bb1-1f5380b539aa>

Ovid. *Metamorphoses, Volume II*. Translated by Frank Justus Miller. Vol. II. Loeb Classical Library 43. Cambridge, MA: Harvard University Press, 1916.

<https://www.loebclassics.com/view/LCL043/1916/volume.xml>.

Photius I. *The Library of Photius*. Translated by John Henry Freese. London, Society for promoting Christian knowledge; New York, The Macmillan company, 1920.

<http://archive.org/details/libraryofphotius00phot>.

Strabo. "The Geography of Strabo: Book XVI." Translated by Leonard Horace Jones. Loeb Classical Library. Accessed March 13, 2024.

https://www.loebclassics.com/view/strabo-geography/1917/pb_LCL241.193.xml.

Topsell, Edward. *The Historie of Foure-Footed Beastes Describing the True and Liuely Figure of Euery Beast, with a Discourse of Their Seuerall Names, Conditions, Kindes, Vertues (Both Naturall and Medicinall) Countries of Their Breed, Their Loue and Hate to Mankinde, and the Wonderfull Worke of God in Their Creation, Preseruatiō, and Destruction. Necessary for All Diuines and Students, Because the Story of Euery Beast Is Amplified with Narrations out of Scriptures, Fathers, Phylosophers, Physitians, and Poets: Wherein Are Declared Diuers Hyeroglyphicks, Emblems, Epigrams, and Other Good Histories, Collected out of All the Volumes of Conradus Gesner, and All Other Writers to This Present Day. By Edward Topsell.* - ProQuest, 1607.

<https://www.proquest.com/docview/2240889773/citation/EF68FD5F93604F24PQ/1?accountid=12964&tocViewMode=tocViewModeToc&sourcetype=Books>.

Secondary Sources

Arber, Agnes Robertson. *Herbals, Their Origin and Evolution; a Chapter in the History of Botany, 1470-1670*. Cambridge: University Press, 1912.

<https://doi.org/10.5962/bhl.title.31068>.

Ashworth, W.B., Jr (2003). The Revolution in Natural History. In *The Scientific Revolution: The Essential Readings*, M. Hellyer (Ed.). <https://doi.org/10.1002/9780470755730.ch6>

Auxent, Maria, Katja Krause, and Dror Weil. *Premodern Experience of the Natural World in Translation*. 1st ed. New York: Routledge, 2022.

<https://doi.org/10.4324/9781003258704>.

Baxter, Ron. *Bestiaries and Their Users in the Middle Ages*. Sutton Pub., 1998.

- Beasts and Birds of the Middle Ages: The Bestiary and Its Legacy*. University of Pennsylvania Press, 1989. <https://www.jstor.org/stable/j.ctv4v32fh>.
- Bedini, Silvio A. *The Pope's Elephant*. New York, N.Y. : Penguin Books, 2000. http://archive.org/details/popeselephant0000bedi_h1i2.
- Bose, Shibani. *Mega Mammals in Ancient India: Rhinos, Tigers, and Elephants*. Oxford University Press, 2020. <https://doi.org/10.1093/oso/9780190120412.001.0001>.
- Burt, Sarah Ashley. "The Thread Count of Myths: A Material Ecocritical Reading and Genre Exploration of the 1500 C.E. the Lady and the Unicorn Tapestries." Order No. 28414362, Southern Illinois University at Edwardsville, 2021. <https://login.ezproxy.lib.ou.edu/login?qurl=https%3A%2F%2Fwww.proquest.com%2Fdissertations-theses%2Fthread-count-myths-material-ecocritical-reading%2Fdocview%2F2615139679%2Fse-2%3Faccountid%3D12964>
- Černý, Karel. "Magical and Natural Amulets in Early Modern Plague Treatises." *Sudhoffs Archiv* 97, no. 1 (2013): 81–101.
- Cherry, John. "Healing through Faith: The Continuation of Medieval Attitudes to Jewellery into the Renaissance." *Renaissance Studies* 15, no. 2 (2001): 154–71.
- Clark, Willene B. *A Medieval Book of Beasts: The Second-Family Bestiary : Commentary, Art, Text and Translation*. Boydell Press, 2006.
- Contadini, Anna. "A Bestiary Tale: Text and Image of the Unicorn in the Kitāb Na't al-Hayawān (British Library, or. 2784)." *Muqarnas* 20 (2003): 17–33.
- Crane, Susan. "A Bestiary's Taxonomy of Creatures." In *Animal Encounters*, 69–100. Contacts and Concepts in Medieval Britain. University of Pennsylvania Press, 2013. <https://www.jstor.org/stable/j.ctt3fhm62.7>.
- Daston, Lorraine, and Katharine Park. *Wonders and the Order of Nature, 1150-1750*. New York : Zone Books ; Cambridge, Mass. : Distributed by the MIT Press, 1998. <http://archive.org/details/wondersorderofna0000dast>.
- Dectot, Xavier. "When Ivory Came from the Seas. On Some Traits of the Trade of Raw and Carved Sea-Mammal Ivories in the Middle Ages." *Anthropozoologica* 53, no. 1 (October 2018): 159–74. <https://doi.org/10.5252/anthropozoologica2018v53a14>.

- Druce, George C. "The Caladrius and Its Legend, Sculptured upon the Twelfth-Century Doorway of Alne Church, Yorkshire." *Archaeological Journal* 69, no. 1 (January 1, 1912): 381–416. <https://doi.org/10.1080/00665983.1912.10853196>.
- Emil Peters, Physiologus. *Der griechische Physiologus und seine orientalischen Übersetzungen*. Berlin, S. Calvary & co., 1898.
<http://archive.org/details/dergriechischep00unkngoog>.
- Epstein, Marc Michael. "The Elephant and the Law: The Medieval Jewish Minority Adapts a Christian Motif." *The Art Bulletin* 76, no. 3 (1994): 465–78.
<https://doi.org/10.2307/3046039>.
- Freeman, Margaret B. *The Unicorn Tapestries*. Metropolitan Museum of Art, 1976.
- Garbutt, Adam Gwyndaf. "Assessing the Exotic: Authority, Reason, and Experience in the Construction of Medieval Natural Knowledge." Ph.D., University of Toronto (Canada). Accessed November 9, 2023.
<https://www.proquest.com/docview/2148080721/abstract/F6473F5AC0F54395PQ/1>.
- George, Wilma B., and William Brunsdon Yapp. *The Naming of the Beasts: Natural History in the Medieval Bestiary*. Duckworth, 1991.
- Harris-McCoy, Daniel E. "Varieties of Encyclopedism in the Early Roman Empire: Vitruvius, Pliny the Elder, Artemidorus." Ph.D., University of Pennsylvania. Accessed December 6, 2023.
<https://www.proquest.com/docview/304510158/abstract/98AEC4AEAB16481DPQ/1>.
- Hassig, Debra. *Medieval Bestiaries. Text, Image, Ideology By Debra Hassig*, 2022.
<http://archive.org/details/medieval-bestiaries.-text-image-ideology-by-debra-hassig>.
- Henderson, Arnold Clayton. "Medieval Beasts and Modern Cages: The Making of Meaning in Fables and Bestiaries." *PMLA* 97, no. 1 (1982): 40–49.
<https://doi.org/10.2307/462239>.
- James, Montague Rhodes. *The Bestiary Being a Reproduction in Full of the Ms. II-4-26 in the Univ. Library. Cambridge, with Supplementary Plates from Other Mss. of English Origin, and a Preliminary Study of the Latin Bestiary as Current in England, Edit. for the Roxburgh Club by M.R. James*, 1928.

- Kay, Sarah. “‘The English Bestiary’, the Continental ‘Physiologus’, and the Intersections Between Them.” *Medium Ævum* 85, no. 1 (2016): 118–42.
<https://doi.org/10.2307/26396473>.
- Kessler, Herbert L. “Christ the Magic Dragon.” *Gesta* 48, no. 2 (2009): 119–34.
<https://doi.org/10.2307/29764903>.
- Lach, Donald F. “Asian Elephants in Renaissance Europe.” *Journal of Asian History* 1, no. 2 (1967): 133–76.
- Lavers, Dr Chris. *The Natural History of Unicorns*. Harper Collins, 2009.
- Law-Turner, Frederica. “Beasts, Benedictines and the Ormesby Master: Pictorial Exegesis in English Fourteenth-Century Manuscript Illumination.” *The British Art Journal* 1, no. 1 (1999): 5–13.
- Martinho, Bruno A., and António Manuel Lopes Andrade. “In Search of the Unicorn’s Virtue in a Rhino Horn Cup: Consumption of Rhino Horns and the Production of Knowledge in Early Modern Lisbon.” *Early Science and Medicine* 27, no. 6 (December 19, 2022): 572–600. <https://doi.org/10.1163/15733823-20220059>.
- McCulloch, Florence. *Medieval Latin and French Bestiaries*. University of North Carolina Press, 1962. https://www.jstor.org/stable/10.5149/9781469634883_mcculloch.
- Mermier, Guy R. “The Phoenix: Its Nature and Its Place in the Tradition of the Physiologus.” In *Beasts and Birds of the Middle Ages*, edited by Willene B. Clark and Meredith T. McMunn, 69–86. The Bestiary and Its Legacy. University of Pennsylvania Press, 1989. <https://www.jstor.org/stable/j.ctv4v32fh.8>.
- “The Romanian Bestiary: An English Translation and Commentary on the Ancient ‘Physiologus’ Tradition.” *Mediterranean Studies* 13 (2004): 17–55.
- Morrison, Elizabeth. *Beasts Factual and Fantastic*. First Edition. Los Angeles : London: J. Paul Getty Museum, 2007.
- Muratova, Xenia. “Workshop Methods in English Twelfth-Century Illumination and the Production of Luxury Bestiaries.” In *Beasts and Birds of the Middle Ages*, edited by Willene B. Clark and Meredith T. McMunn, 53–64. The Bestiary and Its Legacy. University of Pennsylvania Press, 1989. <https://www.jstor.org/stable/j.ctv4v32fh.7>.
- Murdoch, Florence. “Trailing the Bestiaries.” *The American Magazine of Art* 24, no. 1 (1932): 5–12.

- Orsi, Laura. "The Emblematic Elephant: A Preliminary Approach to the Elephant in Renaissance Thought and Art." *Anthropozoologica* 20 (1994): 69.
- Pluskowski, Aleksander. "Narwhals or Unicorns? Exotic Animals as Material Culture in Medieval Europe." *European Journal of Archaeology* 7, no. 3 (January 2004): 291–313. <https://doi.org/10.1177/1461957104056505>.
- Pluskowski, Aleksander. "The Zooarchaeology of Medieval 'Christendom': Ideology, the Treatment of Animals and the Making of Medieval Europe." *World Archaeology* 42, no. 2 (2010): 201–14.
- Reeve, Michael D. *The transmission of Pliny's Natural history*. Sussidi eruditi. Roma: Edizioni di storia e letteratura, 2021.
- Schoenberger, Guido. "A Goblet of Unicorn Horn." *The Metropolitan Museum of Art Bulletin* 9, no. 10 (1951): 284–88. <https://doi.org/10.2307/3258091>.
- Scigliano, Eric. *Love, War, and Circuses: The Age-Old Relationship between Elephants and Humans*. Boston: Houghton Mifflin, 2002.
<http://catdir.loc.gov/catdir/samples/hm051/2002022591.html>.
- Shepard, Odell. *The Lore Of The Unicorn*. Random House Value Publishing, 1988.
- Stark, Marnie P. "Mounted Bezoar Stones, Seychelles Nuts, and Rhinoceros Horns: Decorative Objects as Antidotes in Early Modern Europe." *Studies in the Decorative Arts* 11, no. 1 (2003): 69–94.
- White, T.H. *The Book of Beasts. Being a Translation from a Latin Bestiary of the Twelfth Century*. New York: G.P. Putnam's Sons, 1954. <http://archive.org/details/the-bestiary-a-book-of-beasts-t-h-white>.
- Yapp, W. B. "A New Look at English Bestiaries." *Medium Ævum* 54, no. 1 (1985): 1–19. <https://doi.org/10.2307/43628861>.
- . "The Birds of English Medieval Manuscripts." *Journal of Medieval History* 5, no. 4 (December 1, 1979): 315–48. [https://doi.org/10.1016/0304-4181\(79\)90005-8](https://doi.org/10.1016/0304-4181(79)90005-8).