

CHAPTER FOUR

Animals: Their Use and Meaning in Medieval Medicine

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INTRODUCTION

This chapter will examine the cultural history of medicine through animals. Historical scholarship on animals has grown exponentially in the last decades. Described as the ‘animal turn’, it offers new perspectives on human culture by examining the roles animals have played in human society, although it often still remains at the margins or between disciplines (Ritvo 2007: 118–22). It includes cultural history (Resl 2009), archaeology (O’Connor 2013), environmental history, intellectual history and the study of animals as commodities, encompassing fields as disparate from zoo studies to evolutionary history.

In the field of medieval studies, animals have remained at the periphery of medical history and are rarely the focus of scholarship. Although they are accorded due attention in veterinary history, there has been little work on their place in medical history.¹ This chapter hopes to inspire the reader with a brief survey of the multiple ways in which animals and humans intersect in medieval medical history, looking at animals as medical metaphors; animals as a source of ill health and injury; animals used for nourishment and healing; and the parallels between the treatment of animals and humans.

ANIMALS AS MEDICAL METAPHORS

Animals frequently appear as metaphors for disease, body parts or signs of disease. From the resemblance between the swollen lymph nodes of scrofula to a pregnant sow through to the retina resembling a spider's web or skin lesions resembling the swarming of ants or the scales of fish, analogies abound. Verbs of biting, gnawing or devouring were frequently used in medical literature to describe the destructive nature of a sign of disease. For example, the Latin verb *corrodere* (to gnaw to pieces) can be used to describe the effect of tissues being eaten away; the destruction of humours, ulcers, and wounds; or the corrosive or destructive effects of medicines, poisons or caustics. In John Trevisa's late fourteenth-century Middle English translation of Bartholomaeus Anglicus' early thirteenth-century *De proprietatibus* (*On the Properties of Things*), he translates *corrodere* using the verbs *gnauen* and *frēten* to describe this biting action on the body, so that, for example, a 'posteme [swelling] cometh of pure colera, and gnawith and fretith the membre that hit is inne, and hatte among phisicians *herpes* and *estiomemus*, as it were gnawinge and fretinge itself' (Trevisa 1975: 416).

Cancer and lupus

Cancer, the Latin word for crab, was applied to the disease by the Roman physician Celsus as a translation from the Hippocratic term *karkinos*. By the late medieval period, the analogy of cancer as a hungry beast was well established. Roland of Parma (fl. early-thirteenth century, author of the *Rolandina*, a commentary on Rogerius, referred to below), commented on how the cancer, like a crab itself, would 'crawl backwards while eating the flesh' (Demaitre 1998: 621–24). For the French surgeon, Henry de Mondeville (d. 1316), cancer had all the characteristics of the crustacean. It was round, clung on fiercely, and was surrounded with long bent veins like a crab. It would gnaw and move in all directions, paralleling the movements of a crab. The crab metaphor could even be extended for treatment, as when Guillaume Boucher suggested to a female patient suffering from breast cancer in c.1400 to boil crayfish, soak a cloth in the infusion and place it on the afflicted breast (Pouchelle 1990: 176). Its hungry animal-like nature was attested by the surgeon Guy de Chauliac (c. 1300–1368) who described the 'wolfish fury' of ulcerated cancers and the need to feed the beast-like disease. The tumour must be 'fed' with food to avoid it eating the patient's flesh:

Some people appease its treachery and wolfish fury with a piece of scarlet cloth, or with hen's flesh. And for that reason, the people say that it is called 'wolf' because it eats a chicken every day, and if it did not get it, it would eat the person.

—Pouchelle 1990: 168

Lupus is a disease that was not categorized as such in Antiquity. The first reference of the disease called ‘the wolf’ appears in a tenth-century affidavit by Eraclius, Bishop of Liège, who attested that he had been healed at the shrine of St Martin of Tours from an affliction called *lupus*. A later thirteenth-century chronicler claimed that the same bishop had been cured of an affliction ‘which people call the wolf’ which consumed the bishop’s flesh in a ‘wolfish manner’. Physicians were at a loss and although chickens were regularly split open and applied to the afflicted region of the body, he was not cured until he visited the shrine. For the twelfth-century Salernitan surgeon, Rogerius Frugardi, who wrote a *Practica Chirurgiae (Practice of Surgery)* the term *lupus* was used to describe corrosive facial lesions and lesions on the lower limbs. On the face it was *noli me tangere* (touch me not), and on the thighs, it was a type of cancer. His student, Roland of Parma, called the lesions on the lower body *lupula* (little she-wolf) (Benedek 2007: 2). The twelfth-century theologian, Peter of Blois, mentioned how an archbishop of Palermo had died of a disease that people called ‘the wolf’ and that it was *herpes estiomenus* (a Classical term for a corrosive skin disease, *herpes* from the Greek term to ‘slither like a serpent’, as the disease appeared to creep across skin and *estiomenus*, for ‘eating’). In the mid-thirteenth century, Gilbertus Anglicus in his *Compendium* likewise claimed that *lupus* was *herpes estiomenus*. The term *herpes* gradually became preferred in medical texts, with the snake analogy replacing the wolf (Demaitre 2013: 92–4).

Leprosy

Different forms of leprosy could be distinguished by an excess of one of the humours and each one was given an animal metaphor which best characterized the signs of the disease. Constantine the African’s late eleventh-century *Pantegni* (his adaptation of the tenth-century medical encyclopaedia of ‘Alī ibn al-‘Abbās al-Majūsī, known as Haly Abbas in Latin) established the basic scheme of four types of leprosy with their animal metaphors (Rawcliffe 2006: 75). By the time of the Montpellier professor of medicine Bernard de Gordon (fl. 1270–1330), the four sub-types of *elephantia*, *leonine*, *tyria* and *alopecia* were fully developed (Demaitre 2007: 176–8).

Elephantia was ascribed to the elephant and was caused by an excess of black bile. The skin would be blackish and thick, accompanied by nodes. The term *elephantia* itself was contentious, as it had a long history from Ancient Greek medicine and, confusingly, could be used as a synonym for leprosy or as a separate disease that caused extremities to swell (which is still called elephantiasis). In the Canon of Medicine of Avicenna (Ibn Sīnā, d. 1037), elephantiasis was a leg affliction and one of the stages of the manifestation of leprosy. In Constantine the African’s late eleventh-century *Viaticum* (an adaptation of Ibn al-Jazzar’s *Kitab Zād al-musāfir wa-qūt al-ḥāḍir*), *elephantia*

was one of the four forms of *lepra* (Demaitre 2007: 86–9). For the early thirteenth-century physician Gilbertus Anglicus, in his *Compendium medicinae*, what he termed *elephantia* was due to melancholic blood:

It takes its name from the elephant, just as the elephant surpasses other animals in size and strength and ugliness, so this variety is greater and stronger than the others, as regards both its cause and cure. Likewise, as the elephant is a spotted animal (*maculosum*), so in elephantia (but this is common to all forms of leprosy).

—Grant 1974: 753; Gilbertus Anglicus 1510: fols 339–40

Leonina was ascribed to the lion and yellow bile was given as its cause. The signs of *leonina* were the loss of eyebrows and a bulging forehead, accompanied by yellow skin and urine. The symbolic terminology of two of these sub-types, *elephantia* and *leonina*, had a very long history. The Ancient Greek physician Aretaeus discussed in detail the rough skin of the elephant when detailing the former, and how the wrinkles on the forehead of the latter resembled a lion or an angry person. Avicenna would similarly remark that *leonina* made the patient's face look terrifying (and added that this form was mostly commonly seen in lions themselves). For Gilles de Corbeil in the late-twelfth century, the ferocity of the lion was itself a metaphor for this terrible disease (Demaitre 2007: 91–3).

The third form was *tyria* which had the characteristics of a snake. It was named for the highly venomous tyrus snake, which lived in the region around Jericho (Rubin 2014: 234–53). A patient suffering with *tyria* (caused by an excess of phlegm) would have a very pale face, with white scaly skin and pale urine. Descriptions of this form often emphasized the snake-like shedding of skin. In his thirteenth-century *Practica*, surgeon Roger de Baron characterized the disease as a serpent that 'gets rid of its filth by rubbing, thus those afflicted by this sort of leprosy are always wanting to scratch themselves' (Pouchelle 1990: 174).

Finally, *alopecia*, caused by an excess of blood, was ascribed to the fox. It was the least harmful of the sub-types and sufferers would be burdened by hair loss and a red face and eyes.

These animal metaphors probably explain why eating the flesh of certain animals was alleged to be one of the causes of leprosy. Lion meat, according to one Salernitan author, might cause the leonine form of leprosy. Avicenna and other authors blamed the meat of donkeys (along with other 'bad foods' such as lentils) as a probable cause. Donkey meat was considered to be a melancholic meat (i.e. possessing the qualities of being cold and dry like the humour of black bile). Similarly, slugs were considered to be probable causes of the disease due to producing 'melancholic blood'. For the second-century Greek physician

Galen, phlegmatic meat was to blame (caused by the animal in question eating reptiles). Medieval authors were not consistent in identifying the meat to be avoided, as a variety of animals were suspected. This included eating fish and milk together, hare, the excessive consumption of beef, along with less commonly eaten animals such as foxes or bears (Demaitre 2007: 164–6).

Senses and humours

Animal analogy could also extend to the senses and humours. For the thirteenth-century Dominican writer Thomas de Cantimpré, certain animals surpassed man in each of the five senses: the eagle and the lynx in their sharp sight, the vulture in its sense of smell, the ape in its sense of taste, the spider in the sense of touch, and both the mole or the wild boar were man's superior when it came to hearing (Thomas de Cantimpré 1973: 106). These analogies were not definitive; for some, touch was most perfect in man in comparison to animals. The scheme laid out by Pliny the Elder in the first century gave taste and touch to man, with the eagle having vision, the vulture smell and the mole hearing (Woolgar 2006: 27).

In addition, animals and man could perceive sensations in different ways. For sight, animals had their eyes turned to the ground, while man had eyes high in the head so that he might look towards heaven. The sight of the basilisk, one of the most feared venomous serpents, could cause death merely by looking upon its victim. The sound of its hiss was similarly deadly (although its enemy the weasel was immune from its actions). Man could not compete with the night vision of creatures such as owls and vultures, while cats could see in the dark thanks to light shining from their eyes. The uncertain and transitory light of twilight was known as *inter canem et lupum* (between dog and wolf), when clear identification of beasts was difficult. For smell, apart from the vulture, other animals like the bear, elephant and the fox, were also considered to have an excellent sense of smell. In the bestiary tradition the panther has a marvellous odour, which attracts all the other animals and symbolizes Christ (Woolgar 2006: 148–150).²

By the end of the Middle Ages, four animals were linked with each one of the four humours. This appears to have originated in the fourteenth-century *Gesta Romanorum* (Deeds of the Romans) which recounts that after the Flood, in an attempt to cultivate the wild grapevine, Noah takes the blood of four animals (a lion, a lamb, a pig, and an ape) and pours it on the roots of the plant. The resulting wine, which makes Noah drunk, is sweetened by the blood of the animals. The origins of the story are very nebulous. A similar tale appears in the *Midrash Tanhuma*, a Late Antique collection of rabbinical material with the same animals, although the source that the *Gesta Romanorum* used is unclear. The *Libellus de imaginibus deorum* (*Little Book on the Images of the Gods*, c.1400) notes that the god Bacchus was depicted by the Ancients with a pig,

lion and an ape at the foot of a vine, stressing the connection of these animals to drunkenness. The *Calendrier des Bergers* (published by Guyot Marchand in 1493 and, ten years later, translated into English as the *Kalender of Shepherdes* – see Figure 0.3) connects a humoral complexion to a type of drunkenness associated with each animal. Thus, the choleric has ‘lion wine’ and ‘when he is drunk he wants to dance, make noise and fight’. The sanguine has ‘ape wine, the more he drinks the more cheerful he becomes and pursues the ladies’. The phlegmatic has ‘sheep wine ... when he is drunk he seems wise and more intent on his business than before’. The melancholic has ‘swine wine’ and ‘when he is drunk he wants only to sleep or to dream’ (Janson 1952: 239–50).

In a late-fifteenth-century manuscript now in the Bodleian Library (and in early printed Books of Hours from Paris in the 1490s), there is a depiction of Planet Man with personifications of the four humours in each corner (see figure 4.1). The humours’ respective animals follow the same scheme as that laid out in Marchand’s text; however, these books predate his work by a few years, thus their source must be elsewhere. Notably, drunkenness is not mentioned at all. The relevant labels for each complexion and their corresponding animal in this iconographic scheme are the following (there are also labels that connect the zodiac signs and elements to each complexion, and each of the planets to an inner organ):

The choleric has fire and the lion, he has a perilous bad complexion

The sanguine has the monkey and the air, he is frank and joyful

The phlegmatic has water and the sheep, he is simple and sweet with a strong tendency for the practical

The melancholic has the pig and the earth, he is heavy and does not care for honour.

ANIMALS AS A SOURCE OF ILL HEALTH AND DISEASE

Urban health and animals

Animals, both alive and dead, abounded in medieval urban landscapes and had to be controlled by the authorities to ensure public health. Towns abounded with animals for a variety of reasons. To ensure a supply of fresh meat, animals had to be herded into towns and slaughtered in situ, so that the purchased meat would be fresh. Animals used for transportation and for moving goods would be stabled and moved along the lanes and roads. Small-scale animal husbandry was practised profusely by urban inhabitants, many animals roamed around the towns, and some might be kept to serve as guards or pets. Zoo-archaeological remains abound in excavations of medieval urban environments and are a

valuable source in understanding how animals and humans lived in a shared space (Sykes 2009: 347–61; Choyke and Jaritz, eds. 2017; O’Connor 2013).

The idea that foul air (*miasma*) could adversely affect human health played a major role in the attempts to lessen the impact of noxious animal smells on the urban population. As also pointed out earlier in this volume by Jørgensen, animal manure on the streets was recognized as an issue that had to be addressed, both as a cause of ill health and because it impeded the passage of people in the streets (Ciecieszki, 2013: 91–104). A fourteenth-century ordinance from Oxford remarked that, along with the smells from the butchering trade, manure could affect the population’s health as:

so much filth, dung and other offal is in the streets, ways and lanes within the walls, that the air is so infected by abominable smells that certain of the magnates and others who come to the town and the scholars and burgesses there are often detained by severe sickness and some die.

—Ciecieszki, 2013: 95

Animals were butchered within the boundaries of medieval towns and cities. Ordinances and other regulations, like those discussed earlier by Jørgensen, sought to control where animals could be slaughtered and the proper disposal of hides, offal, blood and other waste products. The location of animal markets and butchers might be established by ordinance. For example, in an example already mentioned briefly by Jørgensen above, the butchers of St Nicholas Shambles in London were the object of complaints concerning the pernicious smells and their practice of throwing entrails on the pavement. In 1342–1343 they were given a small section of land by the Fleet River to encourage them to go to a pier and dispose of the animal entrails there. However, a few years later, the Prior of the Hospital of St John of Jerusalem complained that the pier belonged to the hospital and that the practice of disposing animal remains caused ‘stench arising therefrom . . . so bad as to be injurious to the health’. Complaints about butchers abound in urban regulations and the authorities attempted to regulate the practice in diverse ways, from legislating how the waste was to be disposed to ordering that animals not be butchered on the street but behind it (Carr 2008: 450–61).

Many urban centres attempted to control the presence of live animals meandering inside their walls. Swine, in particular, were considered to pose a danger to material goods, property and people. Some regulations banned roaming swine on the streets, some allowed them loose on a certain day of the week when they were allowed out of their sties so that their owners could clean their enclosures. The disposal of the pig manure during the cleaning of their sties could also be regulated. Urban pigs belonging to multiple households might also be taken en masse out to pasture by a swineherd. Some towns banned



FIGURE 4.2: Urban pigs, Marco Polo, *Le livre des merveilles* (early-fifteenth century). Paris, Bibliothèque Nationale, MS français 2810, fol. 7. Credit: Getty Images.

the keeping of pigs inside their walls altogether, only allowing pigs destined for slaughter to enter. An exception to the common ban on swine roaming at will was usually made for the pigs belonging to the Hospital Brothers of St Anthony. The pig was long associated with St Anthony; a combination of various traditions, including the use of pig fat in treating St Anthony's fire (*Ignis sacer*) and the saint's association with swineherds and the healing of pigs. Late medieval iconography of the saint depicts him with a pig, often with a bell around its neck. Pigs considered unsuitable for slaughter would have a bell attached to their necks by the order's proctor. The Hospital Brothers of St Anthony's swine were allowed to roam free in the streets, with their identifying bells. Inhabitants considered it meritorious to feed these animals, and they served as income for the house. However, this privilege could be abused; in 1311 the City of London demanded that the house's tenant, Roger de Wynchester, stop putting bells on any pigs that he found, as only those that had been given formally to the house should be belled (Jørgensen 2013b: 429–51).

Animals attacking the body: venom and poison

Bites by venomous animals, notably snakes, scorpions, spiders and rabid dogs were considered to be distinct from wounds inflicted by other means and could cause severe physical and mental symptoms for the patient, including derangement and hallucinations. In medical literature on animal bites, venomous animals receive the larger share of attention (Walker-Meikle, 2017: 151–8). Nearly all the sources concentrate on the idea of the animal biting or

puncturing the skin's surface. The bites of non-venomous animals receive little attention in the literature, which might briefly discuss the bites of animals such as apes, cats, non-rabid dogs, crocodiles and weasels, but the symptoms were almost always considered mild (pain at the site of the bite). Birds almost never appear among the categories of biting animals, which is limited to quadrupeds, aquatic animals and the crawling beasts.

On the subject of venomous snakes, Avicenna's *Canon of Medicine* was a major source for the Latin tradition, along with Classical antecedents (Avicenna 1556: 911–40). In Albertus Magnus' monumental thirteenth-century commentary on Aristotle, *De animalibus* (*On Animals*), nearly all the information on the bites of serpents derives from Avicenna. After dividing them into three classes – from the most deadly to least venomous – and listing conditions which could change the toxicity of the snake's venom (sex, age, geographical location, emotional state and the weather) and the hot nature of snake venom, he detailed sixty-one venomous 'crawling creatures'. Analogies abound in the descriptions of the animals and the signs of their bites. For example, the teeth of an asp extending out of its mouth are compared to those of a boar. The bite of the horned asp was like being pricked by pins or having nails driven into the site of the bite. A patient bitten by the *falitusus* or the *prester* was compared to someone suffering with dropsy. The *serps* consumes the flesh and bones akin to a 'voracious flame' while

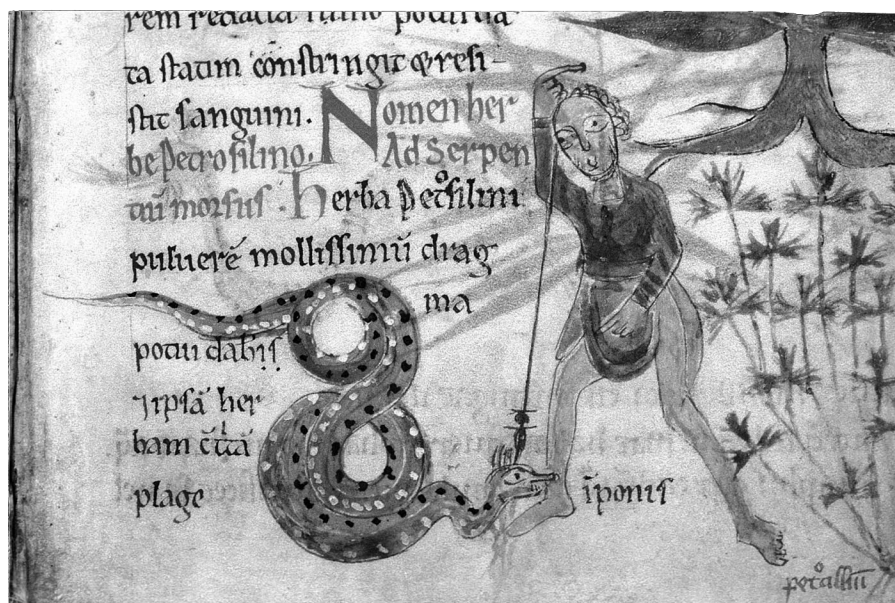


FIGURE 4.3: Snake bite, Pseudo-Apuleius Platonicus, *De medicaminibus herbarum* (late-twelfth century). London, British Library, MS Harley 5294, fol. 42 (detail). Credit: British Library/Public Domain.

the flesh of one bitten by the *spectaficus* liquefied like oil (Albertus Magnus 1999: 1708–38).

In the next chapter, Albertus discusses vermin (bees, mosquitoes, toads, flies, etc.), some of which were also considered venomous. The patient bitten by the rutela spider would urinate a watery material that resembled a spider's web (and at times, something that resembled a spider could be found in the urine). A firefly was so cold that it could put out a fire like ice. The scorpion's venom was considered to be cold (as opposed to the hot venom of the viper) and the pain of the bite was compared to being pricked by a needle. A patient stung by a scorpion might believe that they were being crushed 'in the pestles used to crush salt'. If the scorpion had a 'strong malice', the patient will feel as if the spot had been cauterized by fire (Albertus Magnus 1999: 1739–64).

Despite these highly alarming signs, many authors stressed that most venomous snakes, spiders and scorpions did not reside in their own geographical locations. Bernard de Gordon, professor of medicine, remarked that the tyrus, dragon, asp and basilisk did not reside around Montpellier and that most local snakes were not very venomous (although one had to keep an eye on scorpions, which were common in regions such as Avignon). Similarly, the French surgeon Henri de Mondeville notes that many of the most venomous serpents were never seen in France, the local spiders were quite harmless, a few non-venomous lizards might bite and the major cause of snake bite was due to people dragging grass snakes out of their burrows and shoving them in sacks or harassing them in other ways (Walker-Meikle 2013–2014: 85–104).

A curious connection can be found between melancholy and spider-bite in the case of the tarantula. Tarantulism is addressed by the physician William of Marra, who wrote an extensive treatise on poisons for Pope Urban V entitled *Sertum papale* (The Papal Garland, c.1362). A tarantula bite could be treated by playing music, as its venom caused melancholy (an excess of black bile) and music could produce joy and prevent the venom from penetrating the patient's vital organs. William of Marra dismissed the explanation of the 'vulgar' who claimed that it was due to the tarantula itself singing as it bit the victim, who himself could be treated by hearing similar music. This narrative is likely one of the earliest sources on Southern Italian tarantism, a form of hysteria resulting in uncontrollable dancing believed to be caused by the bite of a tarantula.³

Animals could also be a font of poison, whether by eating or touching them. For William of Marra, following other authors, a variety of animals are poisonous (in contrast to venomous animals that bite). Animals could be poisonous in themselves (such as the Spanish fly or the sea hare), could have poisonous body parts (eating cat brain could drive a person witless), or an animal by-product could have gone off, such as coagulated milk or cold fish that was three or four days old (for more on fish as a problematic food, see Iona McCleery's chapter in this volume). Marra even listed as poisonous the act of choking on roast meats

(for which the first recommendation was to make the patient vomit). If a live green frog had crawled into a patient's mouth, warm water was to be shaken near the mouth, to encourage the animal to depart.⁴

Rabies and the imagination

The rabid dog, with its poisonous saliva, was considered to be one of the mostly deadly of venomous beasts. In Antiquity, hydrophobia was the most famous symptom. Other symptoms, mostly derived from the patient's own imagination, start to make an appearance in late antiquity but were developed and expanded on by medical writers in Arabic and became hugely influential in the later Western medical tradition.

The seventh-century medical author, Paul of Aegina, who was a great influence on Avicenna and other writers in Arabic, considered the disease to be a form of melancholia, the poison taking on the nature of black bile and thus, like many melancholics, the rabid patient would fear things. Patients may say that they see an image of the dog that bit them in the water (Paul of Aegina 1846: 163).

The rabid patient adopting canine behaviour and barking is remarked on by Rhazes (Muhammad ibn Zakariyyā al-Rāzī, 841–926) who, apart from suggesting therapeutics for rabies, described the behaviour of his afflicted patients. One of his patients barked like a dog at night and soon died. Another patient saw water and was seized by trembling, which ceased once the water was removed. Another refused to drink water, despite having the desire, as he claimed that it contained the entrails of dogs and cats (Rhazes 1544: 194–6).

Avicenna was hugely influential on medieval scholarship of the disease. Psychological symptoms included melancholic ideas, nightmares and a fear of light and open spaces. In the final stages of the disease, the patient would have visions of dogs, see the entrails of dogs in water, and believe that their urine was full of pieces of flesh in the shape of little dogs (Avicenna 1556: 923).

On the influence of these authors in medieval medical tradition, the Montpellier medical author, Bernard de Gordon, in his *Lilium medicinae* (*Lily of Medicine*) would adapt what he had read in Rhazes and Avicenna. Following Avicenna, the patient suffers nightmares, has hiccups, and feels stings all over their body; once they refuse water and lose their mind, they are almost certain to die. The explanation of why patients abhor water, claiming to see dog entrails and dung in it, following Rhazes, is because naturally and rationally a man would abhor those things, even though the only reason the patient believes that they see those things is due to their imagination being corrupted. And finally, concerning the peculiar sight of others observing the flesh of puppies in their urine, Bernard de Gordon explains that it is due to the poison (of the rabid dog) being cold, which congeals blood in such a way that what look like pieces of flesh is actually congealed blood (Bernard de Gordon 1486: 14r).

A similar approach was taken by the early fourteenth-century French surgeon Henri de Mondeville in his *Chirurgia*, who wrote extensively on animal bites. His major source was Moses Maimonides' influential late twelfth-century treatise on poisons and their remedies, which had been recently translated into Latin in the early-fourteenth century.⁵ De Mondeville stated that it is only the patient who sees things, and they are the product of his imagination. Thus, the victim of a rabid dog-bite should not examine his own urine, because he may see what seem to be tissue shreds in the form of little dogs. When bled, he should not look at his blood, because he would imagine that he saw bits of the dog's entrails. For Mondeville, the fear of water is due to internal corruption of the patient's imagination. He claimed that when rabid patients see water their imaginations stray; they believe that they see the water inside themselves. When asked why they fear water, the patients reply that it is full of the dog's intestines and feces and thus what little reason remains in their minds is enough to be horrified by the products of their own deranged imaginations (Henri de Mondeville 1893: 456–7).

The great commentator of Avicenna, Gentile da Foligno (d. 1348), questioned the possibility of the imagination of the bitten patient producing these forms, arguing:

Against the appearance of minute forms or particles like dogs in the urine of one suffering from hydrophobia it is argued that serpents do not so appear when one is stung by a scorpion, and that neither the matter, agent, nor place is favourable for generation. On the other hand, it is pointed out the dog's nature is more like ours than is that of the serpent or scorpion, and that the slower action of the canine poison gives more opportunity for such an effect. The counter question is then raised whether if such a man bit another man, human or canine forms would appear in the second case.⁶

However, other authors maintained that the imaginative powers of the deranged patient could produce these canine substances. The Paduan Pietro d'Abano (c. 1257–1316) reading the same Arabic sources, described how the moment the patient saw water, they would imagine dogs to be in that water and, even though dying of thirst, they would run away for fear of the dogs they imagined they saw (once this happened, there was no hope for the patient). As the disease takes its course, the patient becomes crazed (*rabidus*) and emits sperm and phlegm in the shape of little dogs (*in modum catulorum*). This is due to the imagination of the patient, which seals the shape of dogs onto damp substances (Pietro d'Abano 1476: ch. 65: 9).

In the mid-fourteenth century, William of Marra wrote extensively on rabies when discussing all types of poisons. Dogs are more prone to rabies, even though there are more melancholic animals (colder and drier) such as wolves and bears, due to the changeable nature of a dog's lifestyle: eating different things,

sometimes sleeping by the fire indoors, at other times sitting outside in the cold. In addition, a dog can become very sad or angry due to the actions of its master, whether due to unkind words or beatings and may thus become more melancholic and more prone to rabies. Rabid humans attack others with their teeth as they have become canine in their nature. William claimed that the afflicted patient often dislikes water as it reminds them of the dog that bit them. This was due to vapours from the patient's eyes that are reflected from the water, and as the vapours are infected with rabies, the patient believes he sees the dog in it. He explains that seeing little bits of flesh or fat in the patient's urine is due to both the *spiritus* of the dog and the imagination of the patient. William uses as an example to back this up the maternal imagination of a pregnant woman, whose foetus can be affected by what her mind concentrates on.⁷

Parasites

Many human parasites, such as lice and intestinal worms, were believed to be spontaneously generated, be that by an excessively hot head producing hair lice or worms generating in ulcers. Many authors claimed these parasites were born by putrefaction, often caused by a combination of heat and humidity. Worms and flies were believed to be born from the earth, a completely accepted natural phenomena, like the fleas that Albertus Magnus described as being 'born from dust that has been warmed and moistened, especially if animal hair and the spirit exhaled from animals' bodies are mixed.' Similarly, 'the *seta* is a vermin about one cubit long . . . it is born by chance, from the hairs of horses' or 'the woodborer . . . is born out of a corrupt humor in the wood' (Albertus Magnus 1999: 1752, 1759, 1763). Their parasitical equivalents were born in the putrefying dead or living body. They had a strong association with sin and the concept of the body after death of being 'food for worms' as remarked by Alan of Lille in the twelfth century:

O man, remember that thou were a liquid of semen, and that as thou art receptacle of filth, though shalt also be food for worms. For after death, a worm is born from the tongue, which represents the sin of the tongue; thread-worms are born of the stomach to signify the sin of gluttony; a scorpion is born of the spine to mark the sin of lust; a toad is born of the brain to show the sin of pride.

—Pouchelle 1990: 169–71

ANIMALS NOURISHING OR HEALING THE BODY

Regimens of health

This genre of dietetic texts was extremely popular in the late medieval period, as pointed out in this volume by Iona McCleery. Readers could attempt to bring

their health into balance by regulating the non-naturals (see volume introduction). Each food had two qualities (hot, cold, dry or moist), and could be connected to the respective humour. Thus, there could be ‘good’ animals to eat and ‘bad’ animals whose consumption should be avoided. The late thirteenth-century *Regimen Sanitatis Salernitanum* (Salernitan Regimen of Health) is a metric poem that counsels the reader with mainly dietetic recommendations to maintain the body in balance and its recommendations are similar to other regimens of health. Good food included testicles, pig intestines (other animal intestines were to be avoided), pork (with wine, without wine it was worse than mutton), brains (that of chickens was the best), marrow, veal, fowls of all kinds (e.g. quail, partridge, pigeon) were considered nourishing. Animals to avoid included venison, goat, beef and rabbit as these were viewed as melancholic and thus detrimental. Eels were bad for the voice. The milk of assorted animals was praised, from goats to camels, although asses’ milk was considered the best. Cheese had a cold quality and could cause constipation; it could be eaten with bread by a healthy person, but without if the person was in ill health (cheese was good to serve after meat, as were nuts after fish). Offal, the heart and stomach of animals, was viewed as hard to digest. Milk was to be avoided directly after blood letting (Wallis 2010: 485–510).

Animals as materia medica

Animal products played their part in medieval pharmacology. Both imported and freshly obtained animal products were used in medical recipes. Eggs, milk, blood, flesh, bile and grease from a variety of animals were regularly used. Animal excrement was used as an ingredient but overwhelmingly was used topically. Two of the most notable imported ingredients were castoreum and ambergris. Castoreum is the secretion from a beaver’s castor sacs (not its testicles, despite the popular medieval tradition) and a major ingredient in many compound recipes. Beavers were hunted for their meat, fur and precious castor sacs. Ambergris, a substance formed in the intestines of sperm whales was another prized product and was found washed up on beaches. The use of the animal in particular recipes might have a theoretical background based on its qualities (a mixture of hot, cold, moist or dry) or experimental (based on practice) (Ventura 2010: 303–62). In the experimental vein, the late thirteenth-century medical practitioner and Dominican Friar, Nicholas of Poland, praised greatly the virtues of serpents, lizards and frogs, which he recommended that his patients eat (Eamon and Keil 1987: 180–96).

One of the most popular compound medicines was theriac, which had an animal connection in both its ingredients and what it treated and was widely manufactured and supplied by medieval apothecaries. The drug was prized as a panacea for a variety of ailments from snake and reptile bites to expelling dead

foetuses and nephritic and intestinal conditions. The list of ingredients was very long, including mumia, castoreum, pitch, poppy and the ground-up flesh of either vipers or the tyrus snake. The latter was the venomous serpent from Jericho, which also gave its name to the ‘snake-like’ type of leprosy, as seen above.

Living animals could also be used to assuage ailments. A long tradition, dating back to Pliny the Elder, maintained that a small dog, pressed to the stomach could alleviate pains due to its animal heat. Pets were noted for their ability to assuage cares. The thirteenth-century chronicler Richard of Durham describes a bishop of that diocese keeping pet monkeys ‘to ease the burden of his worries’. In the thirteenth-century Tristan Romance, Tristan gives his beloved a magical lapdog with a bell which banishes loneliness (Isolde is quick to remove the bell so that she does not forget her love, although she keeps the dog) (Walker-Meikle 2012: 90–1).

PARALLELS BETWEEN ANIMAL AND HUMAN MEDICINE

Veterinary medicine

Veterinary medicine in the period overwhelmingly focused on the horse, although there were also texts on care for hounds and hawks. Medieval hippiatric medicine had many parallels to human medicine, particularly when many authors of the former adopted Galenic humoural theory. Thus blood letting was a fundamental therapy when treating horses. In a similar way, medical astrology, where planets and stars were believed to influence the body, was adapted in hippiatric texts. The author Laurentius Ruisius (1288–1347) in his *Hippiatrica sive marescalia* was likely the first to apply to horses the medical theory of ‘zodiac man’. The sky was divided into twelve sections, each ruled by one of the twelve signs of the zodiac. When the moon was in a particular sign, no surgery or any medical treatment was to be attempted on the part of the horse’s body ruled by that zodiac sign. For example, if blood-letting the horse was planned, if the moon was in Aries, the horse’s head should not be bled; if the moon was in Virgo, the shoulders should not be bled; and similarly, if the moon was in Cancer, the area around the shoulders should not be bled. It was a direct parallel to the zodiac correspondences for human patients, with hooves instead of feet for Pisces or the rump instead of thighs for Libra (Laurentius Ruisius 1867: 432–4).

There were two iconographic traditions of the ‘zodiac horse.’ The first appears in vernacular manuscripts of Laurentius Ruisius’ work and depicted the horse under a prominent sun, with lines from twelve moons going to the zodiac signs which were placed by the body part they influenced. The second iconographic scheme, seen in Manuel Díes’ early fifteenth-century *Libre de cavalls* (Book of the Horse), had the horse placed in a circle. Apart from a prominent moon and sun and indications of the corresponding zodiac for each body part, all the

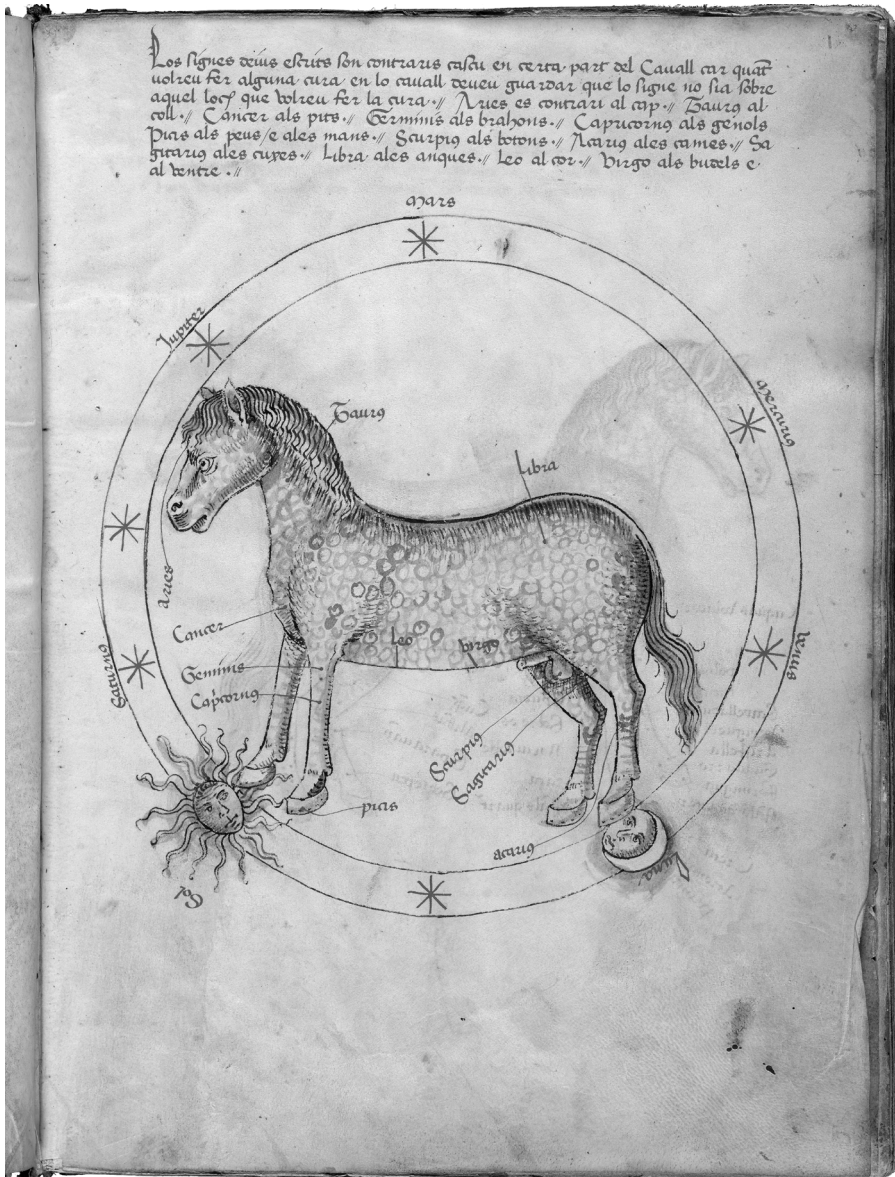


FIGURE 4.4: Zodiac horse, Manuel Dies, *Libre de cavalls* (late-fifteenth century). Beinecke Rare Book and Manuscript Library, Yale University, Beinecke MS 454 fol. 1. Credit: Beinecke Rare Book and Manuscript Library, Yale University.

planets, which similarly influence the horse's health, are depicted in the circle (Plancas 2012).⁸

Saintly healing

There are also parallels between animal and human cures in hagiographical literature and in studies of saints' cults. For example, the miracles of William of Norwich (compiled in the 1170s), include the healing of a horse, a sow, a sparrow-hawk and the oxen of one Goscelin le Gros. Many of the animals in the sources are horses and hawks, belonging to the elite, but there were also livestock like sheep, cattle and swine, and some more unusual animals, such as a woman who asked St Thomas Cantilupe (d. 1282) to cure her pet dormouse that had been stood upon. The exact ailment is often not mentioned, just that the animal was ill, but occasionally there are references to swellings, broken limbs and other afflictions. The saint might be invoked by prayer or by a written or verbal charm, but a visit to the shrine by the owner might be in order. Surviving wax *ex votos* placed at the tomb of the fifteenth-century Bishop Edmund Lacy of Exeter include both human and animal parts (such as a horse leg). The animal itself might even be sent to the shrine for healing or even for prophylactic purposes. Louis Duke of Orléans (1372–1407) sent his entire pack of hounds to Saint-Mesmer so that they might be protected from rabies. When the dogs arrived at the shrine itself, a mass was sung and wax and money were presented to the saint (Aitchison 2009: 875–92).

Animals for anatomical study and experimentation

Anatomical texts of animals for didactic purposes were studied for parallels to human anatomy. One text was notable for its inclusion and influence. The *Anatomia porci* (*Anatomy of the Pig*) or *Anatomia Cophonis* (*Anatomy of Copho*) was written in Southern Italy (most likely at Salerno) at the end of the eleventh or beginning of the twelfth century. It was at times included in the *Articella*, the collection of medical texts that was a core part of the university curriculum. It is a short text detailing the dissection of a pig and maintains that the internal structure of this animal most resembles human anatomy. It instructs readers on how to conduct their own porcine dissection and thus understand the human body using the body of the pig (O'Neill 1970: 115–24).

Human medical treatment could even be preceded by experimentation on animals, to assure success in the former. The early twelfth-century chronicle of Guibert of Nogent recounts how King Baldwin I of Jerusalem (d. 1118) was suffering from a lance wound. His doctor was sceptical at the idea of covering the area in poultices and planned to operate on a Saracen prisoner with a similar wound to determine the best course of action. Baldwin refused so the physician suggested instead the use of a bear, saying to the king:

If you have decided that no man's life can be spent on your own well-being then at least give the order to bring forward a bear, an animal useless except for show, and have it hung up by its front paws, then struck with an iron blade that I may examine its entrails and I shall be able to measure how far it went in and therefore determine the depth of your own wound.

—Mitchell 2004: 161–2

A bear was delivered to the doctor, who performed his experiment, which confirmed his suspicions that it would be harmful to cover the wound without removing the pus first.

CONCLUSION

From rampaging pigs, delirious rabid patients, and beaver body parts to metaphors of disease and its pernicious attack on the human body, this chapter has attempted to present an overview of some of the multiple aspects in which animals had a meaning and a place in medieval medicine. It is clear that there are strong future directions for the development of animal studies in medical history. Significant work has already developed regarding animals and urban health and in zoo-archaeology, but further work could be done on animals in medical iconography and the symbolic use of animals in medical literature (briefly touched on here when discussing medical metaphors). Pharmacology is a particularly rich vein, as animals abound in the sources. Current scholarship (e.g. Ventura 2005, 2010; Buquet 2016) could be expanded by further research into the myriad sources and the animal products themselves, in both compounds and simples. A comparative approach, observing the huge influence of Galenism on equine medicine, would help broach the disciplinary divisions between 'human' and 'animal' medicine. Animals as nourishment are addressed in scholarship on food but perhaps the subject could be approached through a detailed examination of categories of animals. All in all, the field is vast, with interdisciplinarity at its centre, thus there is much still to write on animals in medicine.

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NOTES

1. For example, see Pouchelle (1990: 160–78), who discusses animal metaphors in Henri de Mondeville or Ventura (2005) on animal ingredients in recipes. For a

selection of recent scholarship on veterinary medicine see Shehada (2012), Curth (2013) and McCabe (2007).

2. For example, see Aberdeen University Library, MS 24 fol 9r. Originally available online: www.abdn.ac.uk/bestiary/ms24/f9r (accessed 1 October 2017).
3. Bibliotheca Apostolica Vaticana, MS Barbarini Lat. 306, pp. 145–7.
4. Animals crawling into the body, particularly snakes, is a long-standing motif: see Ermacora (2015) and also Bibliotheca Apostolica Vaticana, MS Barbarini Lat. 306 p. 97.
5. De Mondeville used Giovanni da Capua's translation of 1305: see Bos (2009: xv).
6. Bibliotheca Apostolica Vaticana, MS Vat Lat 2418, fols 210v–211: *Gentilis Commentarium super Tractatu Mesues de Venenis, qui est VIa IIIIti*. Question: *Utrum in urina morsi a cane, possint apparere canes*.
7. Bibliotheca Apostolica Vaticana, MS Barbarini Lat 306, pp. 124–35.
8. The first iconographic tradition can be found in Pierpont Morgan Library, MS M735; London, British Library, MS Add 15097; and Naples, Bib Gerolamini, MS Cf.2.7. For the second scheme, see Figure 4.4 as one example. For an incomplete list of manuscripts, see Cifuentes and Ferragud (1999: 93–127, n. 18).