

Lucyna Kostuch (Jan Kochanowski University in Kielce)♦

STUPID ANIMALS IN ANCIENT NATURAL HISTORIES

Abstract. Over the centuries since antiquity, nature writers have evaluated different animal species. One criterion for such an evaluation has been intellect. At the lowest point on the scale of intellectual abilities was *stupidity*. Ancient authors often attributed inadequate intellect to various animal species by using pejorative expressions. The aim of this study is to determine which animal species Greek and Roman writers considered as inferior in the hierarchy of intellectual abilities, and why these species were chosen in particular. Furthermore, the paper attempts to verify the evaluations formulated in antiquity in light of contemporary observations of nature.

Keywords: ancient animals, *stupidity*, classical study, natural history, modern research.

Introduction

A lively debate took place in antiquity concerning how similar or how different the intellectual abilities of animals (Greek: *thēria*, *zōa*; Latin: *feri*, *bestiae*, *animalia*) were to those of humans (*anthrōpoi*, *homines*)¹. Many modern researchers have attempted to determine whether intellect was attributed to animals, and to what degree². Even though the literature on the subject is extensive, it does not exhaust further opportunities for research.

♦ Address for correspondence: Department of History, Jan Kochanowski University in Kielce, ul. Uniwersytecka 17, 25–406 Kielce, Poland. Email: l.kostuch@wp.pl.

¹ For Greeks see *LSJ*: *thēr(ion)*: a beast, wild animal; *zōon*, *zōion*: a living being; *anthrōpos*: a human being; for Latin see *OLD*: *ferus*, *bestia*, *animal* and *homo*.

² See e.g. U. Dierauer, *Tier und Mensch im Denken der Antike*, J.-L. Labarrière, *De la phronesis animale*, R. Sorabji, *Animal Minds and Human Morals*, U. Dierauer, *Raison ou instinct?*, S. T. Newmyer, *Speaking of Beasts ...*, J.-L. Labarrière *Raison humaine et intelligence animale ...*, S. T. Newmyer, *Animals, Rights, and Reason ...*, I. S. Gilhus, *Animals, Gods and Humans*, A. Alexandridis, M. Wild & L. Winkler-Horaček (eds.), *Mensch und Tier in der Antike: Grenzziehung und Grenzüberschreitung*, G. E. R. Lloyd, *Aristotle on the Natural*

Ancient authors did not limit their interests to studying the differences between the human and the animal mind (Greek: *nous*; Latin: *mens, intellectus*). Many works by ancient writers of natural history evaluated animal species in terms of their intellectual abilities. On the lowest extreme of the scale of intellectual abilities was *stupidity*. Ancient authors often attributed poor intellect to various animal species by using pejorative expressions. Thus, the following questions come to mind: which animal species did Greek and Roman writers consider as inferior in the hierarchy of intellectual abilities, and why these species in particular? And: are the evaluations formulated in antiquity confirmed by the contemporary observations of non-human animals and nature?

Ancient observations, natural history writers and research assumptions

Because neither the conditions nor the methodological guidelines for objective observations of nature existed in antiquity, anecdotal material was the main source of information at the time. Admittedly, the material was collected without the use of appropriate tools and rigorous research rules; however, as was noted by Liliane Bodson, the lack of methodology cannot, *a priori*, invalidate the entire Greek and Roman naturalistic legacies¹.

Today, it would be difficult to distinguish any strictly zoological ancient works, except for the works of Aristotle (primarily *History of Animals*², *Parts of Animals*, *Generation of Animals*). The term *zoology* itself was coined many centuries later³. Little is known about the zoological works written before Aristotle⁴. In the case of many ancient works about animals, including the works of Theophrastus (primarily *On the Intelligence and Character of Animals*⁵), only their titles or fragments have survived.

Instead of the term *zoology*, we can use the broader term *natural history*, which denotes *an enquiry into the natural world (physis, natura)*⁶. The term *natural history* is used to refer to the works of Pliny the Elder, Plutarch, Aelian, and Oppian. However, it has to be emphasised that Greek and Roman writers included observations of nature as part of their literary works in various genres. *Vice versa*, ancient natural history writers drew their knowledge from myths, poetry, dramas, etc. Ancient authors also drew information from oral tradition, which Pierre Pellegrin referred to as the *spontaneous zoology of the man in the street*⁷. This is why, it is often difficult to determine whether a given ancient

Sociability ..., S. T. Newmyer, *Being the One and Becoming the Other*, S. T. Newmyer, *Tool Use in Animals ...*, S. T. Newmyer, *The Animal and the Human ...*

¹ See L. Bodson, *Zoological Knowledge ...*, p. 556 & G. Lorenz, *Tiere im Leben der alten Kulturen*, pp. 186–192.

² For discussion of authorship of the last books of *History of Animals* see D. M. Balme, *Introduction*.

³ The term *zoology* was coined in the 17th century. See *The Classical Tradition*, (eds.) A. Grafton & al.

⁴ See T. Popa, *Zoology*, pp. 281–282.

⁵ See Diogenes Laertius, *Lives of the Eminent Philosophers* 5.49 & E. B. Cole, *Theophrastus and Aristotle on Animal Intelligence*.

⁶ R. French, *Ancient Natural History*, p. 4.

⁷ P. Pellegrin, *Aristotle's Classification of Animals*, p. 47.

text should be taken as a metaphor or as natural history. As Stephen R. L. Clark noted: *Can we even distinguish 'Philosophy' from poetry, history, natural science, theology or proverbial wisdom?*¹ Such is the case with Plato's works. The animals in Plato's dialogues generally perform a metaphorical function; however, in the *Timaeus*, the philosopher shows a clear interest in science². Therefore, we should adopt a broad understanding of the concept of natural history, to include texts that discuss animals from different points of view, such as those included in the works of Varro, Seneca the Younger, Galen, Philostratus, Porphyry, and the physiognomists.

The extant accounts indicate that ancient authors tried not to exclude any animals known to them from their descriptions. They wrote not only about *stupid* animals, but also about animals that were small, useless to humans, dangerous, unpleasant to the human senses, etc. Ancient research assumptions have survived that substantiate the necessity of observing all animals. The oldest references to animals can be found in the Homeric similes, which include the gadfly, woodworm and dog tick³. In the first book of the *Parts of Animals*, Aristotle explains that we should resist being childishly disgusted when researching meaner (*atimos*) animals and those of little value⁴. The extant texts by Theophrastus indicate that he was interested in the entire spectrum of the animal world, including the reproduction of flies⁵. Aristotle's declaration concerning the need to observe all animals undoubtedly constituted a model for later researchers of animals, as is evidenced by Pliny the Elder's work (*Natural History*), in which out of his respect for nature the Roman writer declared his plans to conduct a detailed study of even the most disgusting animals⁶. Plutarch, who is considered to be the greatest ancient animal *psychologist* and the first thinker in history who consistently searched for traces of humanity in animals⁷, most likely had a similar idea. In the dialogue entitled *Whether Land or Sea Animals are Cleverer* he offered a broad comparison of the intellectual capacities of land and sea animals. Aelian declares in the prologue to his compilation *On the Nature of Animals* that he wanted to study the unique traits of each

¹ S. R. L. Clark, *Ancient Mediterranean Philosophy*, p. VII.

² See P. Pinotti, *Gli animali in Platone ...*. As for the *Timaeus* as an unusual dialogue focused on natural science see e.g. G. L. Campbell, *Origins of Life and Origins of Species*, p. 243 *pace* A. M. Leroi, *The Lagoon ...*, p. 26: [...] The *Timaeus*: *it is not a work of natural philosophy at all, but a poem, a myth* [...].

³ See L. Bodson, *The Beginning of Entomology in Ancient Greece*, p. 4. On the essential validity of the Homeric simile in the context of zoology see O. Körner, *Die Homerische Tierwelt*, p. 2 & H. Rahn, *Das Tier in der Homerischen Dichtung*.

⁴ See Aristotle, *Parts of Animals* 645a.

⁵ See Theophrastus 359A in: W. W. Fortenbaugh, P. M. Huby, R. W. Sharples & D. Gutas (eds.), *Theophrastus of Eresus* (= Photius, *Bibliotheca* 278 527b).

⁶ See Pliny, *Natural History* 29.39.140: *hoc quoque animal inter pudenda est, sed propter admirationem naturae priscorumque curae totum in hoc loco explicandum*. For Aristotelian influence on Pliny see e.g. T. Fögen, *Plinius der Ältere zwischen Tradition und Innovation ...*

⁷ See A. Dyroff, *Die Tierpsychologie des Plutarchos von Chaironeia* & S. T. Newmyer, *Animals, Rights, and Reason ...*, p. 18.

animal thoroughly. In summary, we may conclude that ancient authors did not consider any animal as undeserving of attention.

Stupidity as part of the animal world

Greek and Roman writers often attributed inadequate intellect to certain animal species by using pejorative expressions. This is illustrative of the concept *aischrologia*, which denoted shameful and offensive language, including the vocabulary referring to the intellect¹. Of course, there was no separate terminology that referred to animals; therefore, the same words were used to describe a *stupid* human and a *stupid* animal. In the Greek language a stupid animal was described with adjectives such as *anoētos*, *euēthes* and *amathēs*², while in Latin, terms such as *stultus* and *brutus*³ were used. *Stupid* animals can also be found in the comparisons between humans and animals; that is, someone could be insulted by being compared to an animal that was considered stupid. *Stupid* animals also appear in ancient physiognomical treatises⁴, according to which a physical similarity to a *stupid* animal was proof of someone's stupidity. In this case it should be noted that stupidity had first to be attributed to an animal before it could refer to a human through analogy.

The lack of an ancient definition of stupidity is a significant research problem. As Jacques Jouanna noted: [...] *the explanation of intelligence was a problem that fascinated the intellectual circles of the fifth century in their inquiry into nature [...] Doctors and philosophers elaborated brilliant or extravagant ideas on the matter, and debates flowed.*⁵ G. Roccatagliata wrote that ancient authors treated stupidity as the effect of a lack of harmony or failed adaptation⁶; however, medical writers and philosophers wrote primarily about

¹ See M. Janse, *Aischrology*, p. 76 & pp. 79–80 (*Aischrology with References to Physical, Intellectual and Habitual Characteristic*) and also e.g. S. Koster, *Die Invektive in der griechischen und römischen Literatur*.

² See *LSJ*: *anoētos*: unintelligent, senseless, silly; *euēthes*: simple-minded, silly (*euētheia*: simplicity, silliness, but also goodness of heart, guilelessness, generally in ironical sense); *amathēs*: unlearned, ignorant, stupid (*amathia*: ignorance, stupidity, lack of culture); *nōthēs*: sluggish, stupid; *nōthros*: slow, indolent, dull; *nēpios*: childish, untaught, silly; *abelteria*: silliness, stupidity, fatuity; *blakeia*: slackness, stupidity. Another term used to refer to various degrees of irrationality, from mild stupidity to true mental illness is e.g. *aphrōn*: senseless, silly, foolish. See M. Ahonen, *Mental Disorder in Ancient Philosophy*, p. 33.

³ See *OLD*: *stultus*: foolish, simple, silly (*stultitia*: folly, stupidity, foolishness, silliness); *brutus*: dull, stupid, insensible, unreasonable; other terms e.g. *stoliditas*: stupidity, dullness, obtuseness, brutish insensibility.

⁴ On physiognomy and science see E. C. Evans, *Physiognomics in the Ancient World* & M. M. Sassi, *La scienza dell'uomo nella Grecia antica*, pp. 46–80.

⁵ J. Jouanna, *Greek Medicine from Hippocrates to Galen*, p. 200. See also pp. 173–194.

⁶ See E. Roccatagliata, *A History of Ancient Psychiatry*, p. 51. See also pp. 171–172.

human stupidity¹. In antiquity, nobody studied animal stupidity as a separate subject. Mankind was the standard for the order of zoological inquiry².

Researching *stupidity* in the animal world involves another fundamental problem. There was no formal taxonomy of animals in antiquity. Aristotle never completed his systematisation of organisms and, furthermore, the work of the father of zoology is still the topic of lively discussion. The extant titles of the works by Theophrastus indicate a departure from Aristotle's method. Pliny partially recounted Aristotle's classification of animals, but this had no significant influence on later writers. In their short summary of the ancient findings concerning the classification of animals, Sian Lewis and Lloyd Llewellyn-Jones concluded that: *The history of taxonomy in classical antiquity is somewhat anomalous*.³

It seems that investigating which animals are *stupid* was an attempt to determine the maximum distance that separated humans and animals. This is part of a great ancient dispute about the differences between humans and animals. The ancients would ask themselves questions such as: Do animals have intellect? Are animals driven by something akin to intellect? Or: do they only possess practical knowledge? Are humans fundamentally different from animals? Is the difference purely quantitative? There is no need to present the entire complex debate in this paper, because it has been discussed in detail in the literature on the subject⁴. Generally, the Greek philosophers before Aristotle tended to believe that humans and animals were analogous in terms of their basic physical, mental and intellectual categories. Aristotle believed that humans were driven by intellect, as opposed to animals, which lived in accordance with nature⁵. On the other hand, the philosopher believed that many animals showed *resemblances of intelligent understanding*⁶. The post-Aristotelian philosophical debate started to strongly emphasise the differences between humans and animals. However, ancient authors were never unanimous in their opinions. Alcmaeon of Croton was notable among the Presocratics in that he claimed humans and animals possessed fundamentally different intellectual features. As far as the post-Aristotelian philosophy is concerned,

¹ E.g. Heraclitus in his fragments. DK 22B36, 22B117 & 22B118 connects human foolishness with dampness (water in the soul), Empedocles in DK 31A86 DK (= Theophrastus, *De Sensibus* 10–11) locates human intelligence and stupidity in blood, formed from the same stuff as the world & Hippocrates, *Regimen* 1.35 describes eight categories of persons, from the most intelligent to the most stupid (... less intelligent, stupid, very stupid). Different degrees of intelligence are to be explained by the different mixtures of fire and water that constitute the soul. Galen, *In Hippocratis De natura hominis commentaria* 1.40 states that blood determines simplicity of mind. On the typology of human intelligence see C. Enache, *The Intelligence Typology ...* & J. Jouanna, *Greek Medicine from Hippocrates to Galen*, pp. 195–227.

² See Aristotle, *History of Animals* 491a19–23. See also J. G. Lennox, *Is Reason Natural?*, p. 107 & passim.

³ S. Lewis & L. Llewellyn-Jones, *The Culture of Animals in Antiquity ...*, p. 9.

⁴ See above footnote 2 on p. 5.

⁵ See Aristotle, *Politics* 1332b3–5.

⁶ Aristotle, *History of Animals* 588a23–24. On apparent contradictions and inconsistencies in Aristotle's view see A. Coles, *Animal and Childhood Cognition ...*, W. W. Fortenbaugh, *Aristotle: Animals ...*, C. Osborne, *Dumb Beasts and Dead Philosophers*, pp. 100–134, S. T. Newmyer, *Being the One and Becoming the Other*, pp. 517–519 & S. T. Newmyer, *The Animal and the Human ...*, pp. 46–52 & passim.

Plutarch and Porphyry believed that animals were driven by intellect, albeit to a lower degree than humans¹.

The ancient philosophers gave various reasons why the intellectual abilities of animals are unevenly distributed. Diogenes of Apollonia claimed that thinking took place thanks to pure and dry air. Moisture weakened the intelligence; therefore, the animals that breathed moisture in from the ground and ate moist food had impaired intellect. Animals with firm and compact bodies, which were highly air-resistant, also lacked intelligence². Aristotle believed that intellectual abilities depended on the quality of the blood; that is, he believed that thin and cold blood translated into high intelligence³. Meanwhile, Pliny knew of two theories concerning the differences in animal intellect. According to the first, Aristotelian view just mentioned, it was the quality of the blood that decided about an animal's intellectual ability⁴. The other view concerned the thickness of an animal's skin. The Roman writer cited the opinion, most likely known to Aristotle already⁵, that animals are more or less stupid depending on the thickness of their skin and other external layers, like wool⁶. A thick layer prevents the flow of clean air, causing stupidity. Pliny himself, however, had doubts. In his opinion, the theory was sound in the case of oysters, tortoises, oxen and pigs; however, crocodiles and hippopotamuses were fairly clever and the intelligence of elephants exceeded that of all four-legged animals⁷. Intelligence is also connected to environment. The theory is summarised in Vitruvius, who notes a conjunction between deficiency of intelligence and cold, wet climate:

[...] *northern peoples steeped in a thick climate amid reluctant air, are chilled by the damp, and have sluggish minds. We can observe this in the case of snakes: they move quickest when the heat has drawn away the damp with its chilling effect; but in the rainy and wintry seasons they are chilled by the change of climate, and are sluggish and motionless.*⁸

The ancient need to indicate the least clever species of animals could originate from the agonistic mental framework of the ancient world. The world was perceived in terms of a rivalry. However, it should be noted that demonstrating the *stupidity* of a species did not entirely discredit a species. The agonistic interpretation employed by ancient authors could concern only one

¹ For a useful synthesis see S. T. Newmyer, *Being the One and Becoming the Other*, p. 507 & passim.

² See Diogenes of Apollonia DK 64A19 (= Theophrastus, *De Sensibus* 39–44).

³ See Aristotle, *Parts of Animals* 648a2–12 & 650b14–27.

⁴ See Pliny, *Natural History* 11.92.226.

⁵ See Aristotle, *History of Animals* 610b23.

⁶ See Pliny, *Natural History* 11.92.226: *magis aut minus bruta*.

⁷ See Pliny, *Natural History* 11.92.226–93.227.

⁸ Vitruvius, *On Architecture* 6.1.9 (following Herodotus, the Hippocratics, Plato, Aristotle, Posidonius). See also Strabo, *Geography* 2.3.7: *In like manner the excellence of horses, oxen, and other animals, results not alone from the places where they dwell, but also from their breeding. Posidonius confounds all these distinctions.*

specific trait, which resulted in differing evaluations of an animal. Pliny believed that the sheep was *stupid*; however, at the same time, the natural historian praised sheep wool¹. *Stupidity* also did not exclude resourcefulness, which allowed animals to solve life problems. Seneca observed that even stupid animals were clever enough to stay alive². Therefore, animal *stupidity* may be treated as part of an ancient discussion. Even though, undoubtedly, the opinions about the lack of intellectual abilities in a given animal species recurred in ancient literature and formed stereotypes, some margin for divergence still remained.

Regardless of the discussion about how similar human and animal intellectual abilities were, ancient authors perceived *stupidity* and *intelligence* as two extremes on the scale of animal intellectual abilities. Aristotle observed practical intelligence (*phronesis*) and stupidity (*euētheia*) in animals as opposing states, analogously to courage and cowardice, or good and evil³. In his opinion, animals possess a certain kind of knowledge (*gnōsis*), with some species having more of it than others, and some having very little⁴. Some animals were gifted with the ability to learn and to teach other animals, as well as the ability to learn from humans⁵. Therefore, animals possess various degrees and forms of intellectual abilities⁶. Aristotle placed the following species in the group of animals with higher intelligence: the elephant, stag, bee, ant, hornet, wasp, and some birds, including the crane⁷. Similarly, Plutarch saw stupidity and acuity as the extremes of animal intellectual abilities. In the dialogue *Whether Land or Sea Animals are Cleverer*, we can read that the cases of stupidity (*abelteria*, *blakeia*) in some animals become clear against the acuity of other animals. This can be observed when we compare the donkey and the sheep with the fox, wolf and bee. One of the interlocutors in Plutarch's dialogue considers the sheep to be an animal more stupid than the dog⁸. Another work of the philosopher (*On the Failure of Oracles*) mentions slow and dull (*nōthros*) animals that live longer than clever species⁹. The vast range of the intellectual abilities of animals was also noticed by Porphyry, who cited and paraphrased Plutarch¹⁰. Similarly, Philostratus of Athens wrote that: *we acquire certain opinions of the several*

¹ See Pliny, *Natural History* 8.75.199, 8.72.187.

² See Seneca, *Letters* 121.24.

³ See Aristotle, *History of Animals* 608a15–16 & 610b20–22.

⁴ See Aristotle, *Generation of Animals* 731a33–35.

⁵ See Aristotle, *History of Animals* 608a18–20.

⁶ Different species possessed intelligence in different degrees and forms. See A. Coles, *Animal and Childhood Cognition ...*

⁷ See Aristotle, *History of Animals* 611a15, 612b21–22, 614b18–19, 622b20–22 & 630b17–18.

⁸ See Plutarch, *Whether Land or Sea Animals are Cleverer* 4 & 10 (= *Moralia* 962f & 967a).

⁹ See Plutarch, *On the Failure of Oracles* 20 (= *Moralia* 420e).

¹⁰ See Porphyry, *On Abstinence from Killing Animals* 3.23.3.

*animals and think of some of them as royal animals, of others as silly, of others as witty, and others as innocent*¹.

Paradoxically, an animal's similarity to a human could become an obstacle for acknowledging its high intelligence. For instance, the ancient accounts are full of anecdotes about the extraordinary intellectual abilities of apes²; however, their talent was considered to be purely the result of mimetic abilities³.

In antiquity, animals were not always evaluated equally within a given species or genus or family. Many ancient authors claimed that the intellectual abilities of elephants are similar to those of humans⁴, with the exception of marsh elephants which, according to Philostratus, the people in India considered to be stupid (*anoētos*)⁵. Xenophon wrote that: [...] *high-bred puppies, keen workers and good tacklers of game, make first-rate hounds and useful dogs, if well trained, but if untrained, turn out stupid, crazy, disobedient brutes*⁶. For Columella⁷, the mental derangement of dogs may be caused by early sexual activity⁸.

The ancient accounts concerning the *stupidity* of some animal species come from a late period. The oldest account attributing inadequate intellect to the pelican comes from the 2nd century CE, and it is possible that the concept itself has Egyptian roots⁹. The mindlessness of the mule was not mentioned until Catullus¹⁰.

Stupid quadrupeds

Cognitive deficits were most often attributed in antiquity to four-legged farm animals, with the exception of the horse, which was considered to be an *aristocratic* animal. The horse occupied the top of the hierarchy of farm animals and was not associated with hard labour. Instead, the horse was valued for its

¹ Philostratus, *Life of Apollonius of Tyana* 5.14: *euēthēs*.

² The ancients were no clearer on the distinction between *ape* and *monkey*. See K. F. Kitchell Jr., *Animals in the Ancient World from A to Z*, p. 5, s.v. *Ape*.

³ E.g. Strabo, *Geography* 15.1.29, Philo, *De Animalibus* 46: *Even the most stupid monkey is a very artful gesticulator and playful enchanter*, Aelian, *On the Nature of Animals* 5.26, Galen, *On the Usefulness of the Parts of the Body* 1.22, 3.16 & Oppian, *The Chase* 2.605. See W. C. McDermott, *Ape in Antiquity*, p. 111: *ape displays a combination of stupidity and cleverness & passim*.

⁴ E.g. Cicero, *On the Nature of the Gods* 1.97, Pliny, *Natural History* 8.1.1, Plutarch, *Whether Land or Sea Animals are Cleverer* 12 (= *Moralia* 968b–f), Philostratus, *Life of Apollonius of Tyana* 2.14 & Solinus, *Wunder der Welt* 25.2.

⁵ E.g. Philostratus, *Life of Apollonius of Tyana* 2.13.

⁶ Xenophon, *Memoirs of Socrates* 4.1.3: *mataioō*.

⁷ Lucius Junius Moderatus Columella was a prominent writer on agriculture in the Roman empire (1st century CE).

⁸ See Columella, *On Agriculture* 7.12.11.

⁹ See Artemidorus, *Oneirocritica* 2.20 & Horapollo, *Hieroglyphics* 1.54. See L. Prada, *Oneirocritica Aegyptiaca* ...

¹⁰ See Catullus, *Poems* 83. See K. F. Kitchell, 'Animal Literacy' and the Greeks ... , p. 199.

speed, submissiveness, loyalty and beauty¹, and Pliny also added that the animal is characterised by exceptional acuity².

Varro was of the opinion that the sheep was the first domesticated animal in the world of the Greeks and Romans³. However, no intellectual qualities were attributed to the sheep on account of its long history and long-lasting relationship with humans. In antiquity, a *sheep* was a popular term referring to someone who was stupid and lazy⁴. Aristotle concluded that the sheep was the stupidest of all four-legged animals. In the philosopher's opinion, the sheep was *simple-minded and stupid* (*euēthes kai anoēton*). The sheep's inability to think is proven by its behaviour. The animal goes to deserted areas, which are completely empty, and moreover, it starts the journey when it is cold outside. Then, when it starts snowing, the shepherd has to bring the sheep home. This means that the shepherd has to push the sheep or bring a male, which the female will follow, because the animal would die if it were left alone⁵. Pliny confirms Aristotle's opinion that the sheep is unable to think independently and formulates a general thesis that the stupidest animals are covered with wool. Their stupidity manifests itself as the fear of going anywhere; therefore, the Roman writer advises leading one animal around the corner, to enforce obedience in the flock⁶. According to Synesius⁷, everybody knows that the sheep is the stupidest farm animal because it has the thickest fur⁸. Even Aelian, who dedicates little attention to animal shortcomings, wrote that the sheep tends to be stupid (*nōthēs*)⁹.

The second animal which in antiquity was considered extremely stupid was the donkey. The domesticated donkey was a popular animal among the Greeks and Romans and had been used for farm work from the most ancient times. As with the sheep, the donkey's usefulness did not go hand in hand with a positive opinion of its intellectual abilities. The *stupidity* of the donkey was supposedly indicated by the small size of its head, prominent eyes and an upper lip that hung over the lower lip. It was believed that people with such traits lacked

¹ See e.g. M. Griffith, *Horsepower and Donkeywork ...*, J. Gregory, *Donkeys and the Equine Hierarchy ...* & L. Calder, *Cruelty and Sentimentality ...*, pp. 45–46.

² See Pliny, *Natural History* 8.65.159. *Pace* Ps.–Aristotle, *Physiognomics* 810b33: *anoētos*.

³ See Varro, *On Agriculture* 2.2.2 & S. Lewis & L. Llewellyn-Jones, *The Culture of Animals in Antiquity ...*, p. 73.

⁴ See *LSJ: probaton* & *OLD: ovis*. For physiognomical treatises see e.g. *Anonymous Latin Book of Physiognomy* 78, Adamantius the Sophist, *Physiognomy* 2.2. & Cicero, *On the Ends of Good and Evil* 2.13.40.

⁵ See Aristotle, *History of Animals* 610b23–28.

⁶ See Pliny, *Natural History* 8.75.199: *stultissima animalium lanata*.

⁷ Synesius of Cyrene (4th–5th CE) was a Neoplatonic philosopher, sophist, and bishop of Ptolemais in the Cyrenaica.

⁸ See Synesius, *Eulogy of Baldness* 5.3.

⁹ See Aelian, *On the Nature of Animals* 7.19. For other examples see: *Anonymous Life of Aesop* 97 & Philostratus, *Life of Apollonius of Tyana* 8.7.15.

intellect¹. Let us add that referring to someone as a *donkey* was very offensive². Philo believed that the donkey was the stupidest (*nōtheastaton*) animal (but at the same time, it was gifted with hearing better than a human's)³. Galen wrote that the donkey is considered to be the stupidest of all domesticated animals⁴. The opinions about the donkey's stupidity were not limited only to the Greek and Roman worlds. According to Plutarch, the Egyptians considered the donkey to be the stupidest (*amathestaton*) domestic animal⁵. In Aelian's account the donkey has the same flaw as the sheep; that is, it is *stupid*⁶.

The goat was not considered in antiquity to have cognitive abilities much greater than those of the sheep and the donkey. The ancients also mentioned the destructive tendencies of goats. Aristotle observed that when one goat was grabbed by the end of its beard, other goats would stop and stare at it in surprise⁷. Pliny repeats this information after Aristotle claiming that goats also become dumbfounded after consuming a certain type of herb⁸. However, it should be added that Pliny tells an anecdote about the goat's cleverness (*sollertia*). Mucianus⁹ observed two goats working out how to pass each other on a narrow bridge¹⁰.

Another *stupid* animal was the pig, which was domesticated in antiquity along with the sheep and the goat. Varro could not imagine a farm without pigs¹¹, yet a human's close contact with the pig was not accompanied by a good opinion about the acuity of this animal. As with the *sheep* and the *donkey*, a *pig*, in antiquity, was an insult indicating ignorance and a lack of intelligence and manners¹². The pig's appearance betrayed its mindlessness, which is why people whose brows are skewed down towards the nose and up towards the temples were considered stupid like a pig¹³. Pliny referred to the pig with the pejorative term *brutus*. Let us add, however, that the Roman writer also saw

¹ See Ps.–Aristotle, *Physiognomics* 811b24–25 & 812a10 & *Anonymous Latin Book of Physiognomy* 119.

² See *LSJ: onos* & *OLD: asinus*. See also I. Opelt, *Die lateinischen Schimpfwörter ...*, p. 240 & pp. 259–262, M. Griffith, *Horsepower and Donkeywork ...*, p. 227 & K. F. Kitchell Jr., *Animals in the Ancient World from A to Z*, p. 58, s.v. *Donkey*.

³ See Philo, *On the Posterity and Exile of Cain* 161 & Philo, *On Abraham* 266.

⁴ See Galen, *Method of Medicine* 2.133 K.

⁵ See Plutarch, *Isis and Osiris* 31 & 50 (= *Moralia* 363c & 371c).

⁶ See Aelian, *On the Nature of Animals* 7.19. For other examples see *Anonymous Life of Aesop* 24 & 47 & Saint Ambrose, *Hexameron* 6.3.11.

⁷ See Aristotle, *History of Animals* 610b29–32: *mōrainō*.

⁸ See Pliny, *Natural History* 8.76.204: *stupeo*. See also other sources: Antigonus of Carystus, *Rerum mirabilium collectio* 107 & Philostratus, *Life of Apollonius of Tyana* 8.7.15.

⁹ Gaius Licinius Mucianus was the general, statesman and writer (1st century CE).

¹⁰ See Pliny, *Natural History* 8.76.201.

¹¹ See Varro, *On Agriculture* 2.4.3.

¹² See *LSJ: hys* & *OLD: sus*. On the Greek insult 'Boiotian pig' see D. W. Roller, *The Boiotian Pig*, I. Opelt, *Die lateinischen Schimpfwörter ...*, p. 25 & K. F. Kitchell Jr., *Animals in the Ancient World from A to Z*, p. 151, s.v. *Pig*. We find the *pig* used as a symbol of ignorance already in Plato, *Republic* 535e & Plato, *Theaetetus* 166c.

¹³ See Ps.–Aristotle, *Physiognomics* 812b25–27.

pigs behaving in a manner indicating a certain resourcefulness. He wrote that lost animals are able to find their way home or to cover their tracks while fleeing. Moreover, Pliny tells an anecdote about pigs that were kidnapped by pirates and came back to the shore when called by the swineherd¹. However, Aelian interprets the same story as an example of the obedience of the pigs rather than their cleverness².

Ancient authors rarely used the term *stupid* with reference to specific species of wild quadrupeds. Only some manifestations of their behaviour are described as *stupid*. Pliny wrote that the deer is a naïve animal that is dumbfounded by everything. It fails to notice the hunter and even if it does see him, it admires his bow and arrows³. In his description of the bear the Roman writer observed that no animal is as adept at reckless destruction as is the bear⁴.

It would seem that the sources taken together indicate a strong ancient association between the four-legged animals' lack of acuity and their domestication⁵. Thus, a question arises concerning whether it was believed that domesticated animals were unable to make associations and predictions because they no longer needed to think once humans took control over them. Was higher intelligence attributed to wild animals because they were outside direct human supervision? It turns out that *stupidity* was not equated with the domestication of animals. In Plato's famous *devolution*, it is said that land animals and wild beasts have descended from the humans who did not devote themselves to thinking by practicing philosophy⁶. In the *Republic* we read that wild animals (*thēria*) lead their lives in ignorance⁷. Aristotle observed that if there were enough food in the world, wild animals would spontaneously fraternise with humans and other animals. The philosopher provided the example of crocodiles fed by Egyptian priests; however, he wrote that they become more docile, rather than more stupid, through taming⁸. Aristotle also observed that the elephant is the easiest to tame out of all wild animals and, at the same time, he wrote that the elephant's ability to understand is superior to all other animals⁹. Similarly, in Plutarch's work (*Whether Land or Sea Animals are Cleverer*) we read that when animals come into contact with a human, they adopt some of the human's customs, but it is not suggested that this causes the animals to lose their

¹ See Pliny, *Natural History* 8.77.207–208.

² See Aelian, *On the Nature of Animals* 8.19.

³ See Pliny, *Natural History* 8.50.114: *stupeo*.

⁴ See Pliny, *Natural History* 8.54.131: *Nec alteri animalium in maleficio stultitia sollertior*.

⁵ Stupidity was also attributed sometimes to oxen (see Sosithus in: *TrGF*, fr. 4) and to cattle (see Dio Chrysostom, *Discourses* 35.9).

⁶ See Plato, *Timaeus* 91e. For the so-called *devolutionary* theory in Plato's *Timaeus* see G. L. Campbell, *Origins of Life and Origins of Species* & G. L. Campbell, *Zoogony and Evolution in Plato's Timaeus* and on Plato's joke: A. M. Leroi, *The Lagoon ...*, p. 26.

⁷ See Plato, *Republic* 411e: *amathia*.

⁸ See Aristotle, *History of Animals* 608b30–609a2 & Lucretius, *On the Nature of Things* 5.868–869: *For these have eagerly fled from the wild beasts, they have sought peace and the generous provision [...]*.

⁹ See Aristotle, *History of Animals* 630b17–18, Strabo, *Geography* 15.1.42 & Arrian, *Indica* 13–14.

intellectual abilities¹. Sometimes, tamed animals were explicitly considered to be superior to wild animals. Aristotle wrote that tamed animals are better than the wild ones². Likewise, we read in *Problems* that a tamed animal is better than a wild one, which is inferior³. Aelian wrote that sagacious people value docile and cautious animals to a higher degree than wild animals⁴. Of course, we may conclude that ancient authors considered the animals that allowed themselves to be used by humans to be *better* than other animals. This anthropocentric belief is paradoxical in that the four-legged farm animals who had lived for centuries in proximity to the intelligent humans were considered to be the stupidest animals.

Stupid birds

The surviving ancient accounts suggest that the most problematic issue was assessing the cognitive abilities of birds. Based on what is known about the religion of the Greeks and Romans, it can be assumed that in antiquity birds were considered to have exceptional knowledge. Winged creatures were considered to be the messengers of the gods. In fact, ancient literature describes the intelligence of birds on many occasions⁵. The innovativeness of ravens, which were able to raise the level of water in a container by throwing stones into it, was noticed even in antiquity⁶. Even though the term *birdbrain* has no ancient provenance, we can find accounts in which the birds lack intellect; or at least, some birds do.

Diogenes of Apollonia claimed that all birds are stupid (*aphrōn*) due to their firm and compact body. Although the birds breathe in fresh air, it travels no further than the area of their stomach⁷. In Plato's vision birds appeared in the world as a result of the metamorphosis of *light-minded* (*kouphoi*) people⁸.

The *stupidity* of a marine bird called the *kepphos*, which is traditionally identified with the stormy petrel, was proverbial⁹. The *kepphos* was considered to be a symbol of stupidity, at least in Athens, as is proven by Aristophanes' comedies¹⁰. The conclusion about the bird's lack of intellect was based on the

¹ See Plutarch, *Whether Land or Sea Animals are Cleverer* 23 (= *Moralia* 975f) & Plutarch, *Table-Talk* 7.4.5 (= *Moralia* 703e).

² See Aristotle, *Politics* 1254b7.

³ See Ps.-Aristotle, *Problems* 896a3.

⁴ See Aelian, *On the Nature of Animals* 10.16 and for example: 2.6, 2.11, 4.44, 5.39 & 17.5.

⁵ See L. Bodson, *Some of Aristotle's Writings ...* & J. Mynott, *Birds in the Ancient World*, pp. 236–240.

⁶ See Aesop 390 in: *A Series of Texts Relating to Aesop ...*, p. 479, Pliny, *Natural History* 10.60.125, Plutarch, *Whether Land or Sea Animals are Cleverer* 10 (= *Moralia* 967a) & Aelian, *On the Nature of Animals* 2.48.

⁷ See Diogenes of Apollonia DK 64A19.

⁸ See Plato, *Timaeus* 91d–e.

⁹ *Kepphos* = *Hydrobates pelagicus*. See W. G. Arnott, *Birds ...*, pp. 90–91, s.v. *kepphos, kemphos*.

¹⁰ See Aristophanes, *Peace* 1067 & Aristophanes, *Plutus* 912. See also W. G. Arnott, *Birds ...*, p. 90 & J. Mynott, *Birds in the Ancient World*, p. 85, n. 1. Similarly, a cuckoo (*kokkyx*) is a symbol of stupidity. See J. Mynott, *Birds in the Ancient World*, p. 390 (*cuculus*) & W. G. Arnott, *Birds ...*, p. 103, s.v. *kokkyx*.

fact that hunters had no trouble catching it (by splashing the bird with sea foam)¹. Nemesianus² evaluated a bird called the *terax* (*tetrax*) in a similar manner. The author wrote that it is the stupidest bird, because it lets itself be caught even when it can see the snares being set for it³. Manifestations of stupidity were also noticed in the case of a bird called the *laros*, which has been identified with the gull, whose ravenous appetite doomed it to perish upon contact with the hunters⁴.

The ancients considered the pelican to be a slow-witted bird. Artemidorus claimed that pelicans appearing in dreams represent unreasonable people, who act rashly⁵. Horapollo⁶ explained that the Egyptians considered the pelican to be foolish (*aphrōn*) and wrote that the bird dug holes in the ground to lay its eggs in instead of laying them somewhere higher. Humans would make use of the bird's *stupidity* and set fire around the laid eggs, and when the pelican tried to extinguish the flames, it would set its feathers on fire, thus becoming easy prey⁷.

It would seem that ancient authors attributed mindlessness to those birds that made themselves easy prey for humans. However, such behaviour of birds was not always explained as *stupidity*. Some birds were trapped by a mirror or a bowl of oil. Humans used the fact that these birds did not recognise their own reflection and thought they were seeing another specimen from their own species. The behaviour of such birds was explained by their social nature and desire rather than as stupidity⁸.

The ancients were particularly interested in the *stupidity* of the ostrich; however, it should be stressed that the ostrich was not always classified as a bird at that time⁹. The reason for calling the ostrich *stupid* was its habit of hiding its head in the bushes when in danger. Diodorus Siculus wrote that some people considered the ostrich to be stupid and mindless. The author himself defended the bird, explaining that it does so to protect the weakest part of its body¹⁰. Pliny, however, believed that the ostrich hiding its head in a bush was convinced that it had become completely invisible, which is why the Roman writer concluded

¹ See Aristotle, *History of Animals* 593b14–15, 620a13, Nicander, *Alexipharmaca* 166, Dionysius, *On Birds* 2.11 & Tzetzes, *On Lycophron* 76.

² Marcus Aurelius Olympius Nemesianus (flourished c. 280 CE), Roman poet born in Carthage. Two fragments of a poem on bird-catching are ascribed to Nemesianus, though the attribution is doubtful.

³ See Nemesianus, *Fragments on bird-catching* 1: *avium est multo stultissima*. See W. G. Arnott, *Birds ...*, p. 241, s.v. *tetrax*.

⁴ *Laros* is commonly an unspecified gull. In popular speech the *Laros* symbolised stupidity. See W. G. Arnott, *Birds ...*, pp. 130–131, s.v. *laros, laris*.

⁵ See Artemidorus, *Oneirocritica* 2.20.

⁶ The author of *Hieroglyphica*, written probably in the 4th or 5th century CE and then translated into Greek by a certain Phillipus, was purportedly an Egyptian.

⁷ See Horapollo, *Hieroglyphics* 1.54.

⁸ On sparrows, cocks, partridges, quails, jackdaws see Clearchus fr. 36 and 3 (= Athenaeus, *The Learned Banqueters* 389f & 393a–b) & Aelian, *On the Nature of Animals* 4.30.

⁹ See Aristotle, *Parts of Animals* 697b15 & Pliny, *Natural History* 10.1.1.

¹⁰ See Diodorus Siculus, *Library of History* 2.50.6: *aphrosynē kai nōthrotēti psyches*.

that the ostrich is stupid (*stoliditas* – stupidity)¹. Oppian also considered this technique of the ostrich as stupid and infantile (*nēpios*)².

Stupid sea animals

Ingvild S. Gilhus is of the opinion that sea animals were considered in antiquity to be highly intelligent and cunning. This is supposedly due to the fact that the Greeks and the Romans knew little about the animals living in the sea³. In fact, ancient authors considered the world of sea animals to be completely different from the world of land animals. They admitted their ignorance of the sea depths. The truth is that they considered fish to be clever at laying traps for other fish and for fishermen⁴. However, the case of the dolphin seems to contradict the thesis that the ancients attributed intelligence to sea animals due to a lack of knowledge about them. The dolphin was well-known and was considered to be close to humans and the friendliest of sea creatures towards them, and also very clever⁵. Thus, it seems that the ancient evaluation of the intellectual abilities of fish and other sea animals was inconsistent and ambiguous. As William Fortenbaugh noted: *The fact that fish lack voice marks them off from other animals that occupy a higher position on the scala naturæ*.⁶

Diogenes of Apollonia believed that fish, just as birds, lack intelligence as indicated by the firmness of their bodies⁷. According to Plato, fish, oysters and other aquatic animals descended from the most witless and the stupidest humans⁸, which is why the philosopher considered aquatic creatures completely lacking in intellect. Plutarch wrote that *fish* was used as a mocking term to refer to stupid people⁹. In his description of the world of sea animals, Oppian observed that some of the fish inhabiting the sea are cunning, while others are stupid (*aphrōn*)¹⁰. The author listed at least a few species among the *stupid* fish, including the tuna and the mackerel¹¹.

¹ See Pliny, *Natural History* 10.1.2.

² See Oppian, *Fishing* 4.630–631.

³ See I. S. Gilhus, *Animals, Gods and Humans*, pp. 19–20 & p. 74.

⁴ See e.g. Plutarch, *Whether Land or Sea Animals are Cleverer* 23–36 (= *Moralia* 975e–985c) & Oppian, *Fishing* 1.35–55, 3.92–97.

⁵ See Plinius, *Natural History* 9.8, Plutarch, *Whether Land or Sea Animals are Cleverer* 36 (= *Moralia* 984c), Aelian, *On the Nature of Animals* 2.6, 2.8, 6.15 & Oppian, *Fishing* 5.416–558.

⁶ W. W. Fortenbaugh, *Theophrastus of Eresus*, p. 386, n. 666. On voiceless fishes see e.g. Hesiod, *Shield* 212, Lucretius, *On the Nature of Things* 2.1083, Pausanias, *Description of Greece* 8.21.2, Ovid, *Metamorphoses* 4.50, Oppian, *Fishing* 1.129 & Athenaeus, *The Learned Banqueters* 331d & 348a. In *History of Animals* 535b14–16 Aristotle wrote that fishes are voiceless but emit certain sounds and squeaks. See also Aristotle, *On the Soul* 420b10–12, Pliny, *Natural History* 11.112.267. On muteness and stupidity see Ch. Leas, *Silent Witnesses ...*, p. 467.

⁷ See Diogenes of Apollonia DK 64A19.

⁸ See Plato, *Timaeus* 92b: *ek tōn malista anoētōtatōn kai amathestatōn*.

⁹ See Plutarch, *Whether Land or Sea Animals are Cleverer* 22 (= *Moralia* 976b): *ichthys*.

¹⁰ See Oppian, *Fishing* 2.198.

¹¹ See Oppian, *Fishing* 3.576–619. For other other fish: 2.186–198, 2.199–224, 3.338–370, 3.443–481 & 3.529–575.

In the context of cognitive abilities, the octopus attracted particular interest in antiquity. Plutarch noted that no swimming animal can be caught easily by a human, excluding the animals attached to a rock¹. The group of animals that could be hunted easily also included the octopus. Aristotle wrote that the octopus was a *stupid* (*anoētos*) animal because it approached anyone who put their hand into the water. In his opinion, the female turns stupid after she lays eggs and she does not notice that she is being carried by the waves, thereby becoming easy prey². Similarly, Clearchus of Soli and, later, Pliny saw the fact that the octopus approaches the hand of a person who wants to capture it as a manifestation of the animal's stupidity³.

Pliny adds, however, that despite its stupidity, the octopus can be clever⁴. It can get out of the water and plunder fish ponds or destroy open pots containing salted fish⁵. Aelian described the case of an octopus that swam through a sewer into a house, crushed the clay pots containing smoked fish and ate their contents⁶. Anecdotes circulated in antiquity about octopuses coming onto land in search of fruit, olives and figs⁷. It should be also noted that attention was paid to the mimetic abilities of the octopus, which can make its body resemble rocks, a feat that Oppian called *cunning intelligence* (*mētis*)⁸. However, the cleverness of the octopus was not assessed as the effect of an intelligent mind, but rather as the product of the monstrous nature of the animal, which was supposedly able to enlarge its body to the size of a whale⁹.

When did animals stop being *stupid*?

Even until the 20th century the observations and descriptions of animals were subjective, due to the lack of rigorous research rules. The father of evolution, Charles Darwin, called the marine iguana a *stupid* creature¹⁰. At the same time, this low evaluation of the animal from the Galápagos did not prevent Darwin from claiming that even earthworms show a certain kind of intelli-

¹ See Plutarch, *Whether Land or Sea Animals are Cleverer* 24 (= *Moralia* 976d).

² See Aristotle, *History of Animals* 622a.

³ See Clearchus, *Animals which Live in the Water* = Clearchus fr. 101 & 102 Wehrli (= Athenaeus, *The Learned Banqueters* 316b & 317b) & Pliny, *Natural History* 9.29.86: *brutum habeatur animal*.

⁴ See Pliny, *Natural History* 9.30.90: *Tanta sollertia animalium hebetissimis quoque est*.

⁵ See Pliny, *Natural History* 9.30.92.

⁶ See Aelian, *On the Nature of Animals* 13.6.

⁷ See Aristotle, *History of Animals* 622a, Clearchus fr. 102 Wehrli (= Athenaeus, *The Learned Banqueters* 317c), Aelian, *On the Nature of Animals* 9.45 & Oppian, *Fishing* 1.310 & 4.264–307.

⁸ See Oppian, *Fishing* 2.295–296. See also M. Detienne & J.-P. Vernant, *Cunning Intelligence ...*, pp. 37–39. Antigonus of Carystus, *Rerum mirabilium collectio* 25, wrote that for this reason an octopus (*polypous*) is difficult to hunt.

⁹ See Aelian, *On the Nature of Animals* 13.6: *kētos* (any sea-monster or huge fish), *LSJ*, s.v. & Pliny, *Natural History* 9.30.91 (*Cetera, quae idem retulit, monstro propiora possunt videri*; Pliny quotes Trebius Niger, a follower of the Roman proconsul on Boetica). See Plutarch, *Whether Land or Sea Animals are Cleverer* 9 (= *Moralia* 965e) for also octopuses, self-cannibalism and foolishness.

¹⁰ See Ch. Darwin, *Journal of Researches ...*, p. 385: *It is a hideous – looking creature, of a dirty black colour, stupid, and sluggish in its movements*.

gence¹. The father of ethology, Konrad Lorenz, also called animals stupid (*dumm*), doing so also in his most important work *On Aggression*². In his popular book *King Solomon's Ring*, Lorenz provided the following description of the eagle: [...] *all true birds of prey are, compared with passerines or parrots, extremely stupid creatures. This applies particularly to the golden eagle, 'the eagle' of our mountains and our poets, which is one of the most stupid among them, much more so indeed than any barnyard fowl.*³

Why did Lorenz call these animals *stupid*? The answer to this question can be found in the introduction to *A Dictionary of Ethology*. There it is explained that the development of animal studies in the 20th century created a technical language based partially on colloquial language; and after all, humans easily notice *stupidity* in the behaviour of animals⁴.

Today the word *stupid* used with reference to animals appears rarely in scientific reports. At the beginning of the 21st century an article was published with the following subtitle: *The discovery of a remarkable memory shows that sheep are not so stupid after all.*⁵ Other researchers considered this title to be inappropriate or even thoughtless⁶. Although the term *stupid* has been almost eliminated from science as inappropriate, researchers are still pondering how to correctly refer to the intellectual states and manifestations of the behaviour of animals⁷.

Ancient accounts and modern scientific research

Modern researchers believe that there is no point in using a single linear scale to describe the cognitive abilities of different animal species⁸. Today researchers analyse the subjective world (*Umwelt*) of the experiences of an animal, its self-awareness and the degree of evolutionary adaptation to its living conditions. It is believed that each species occupies its own ecological niche. As Clive D. L. Wynne astutely points out: *each species has its own problems to solve, and has therefore evolved its own skills to solve them*⁹. Admittedly, psychometric tests have been suggested to research animal intelligence, but

¹ See Ch. Darwin, *The Formation of Vegetable Mould, ...*, pp. 90–91: [...] *show some degree of intelligence.*

² See K. Lorenz, *On Aggression*, p. 22 & p. 138: the Tasmanian devil, the marsupial wolf and the barracuda.

³ K. Lorenz, *King Solomon's Ring*, p. 50.

⁴ See K. Immelmann & C. Beer, *A Dictionary of Ethology*, p. IX.

⁵ K. M. Kendrick, A. P. da Costa, M. R. Hinton, A. E. Leigh & J. W. Peirce, *Sheep don't Forget a Face*, pp. 165.

⁶ See F. de Waal, *Are We Smart Enough ...*, p. 72: [...] *a title to which I object, since I don't believe in stupid animals* [...] & Ch. Nicol, *Behaviour as an Indicator ...*, p. 36: *Nature's thoughtless headline.*

⁷ See e.g. R. W. Mitchell, N. S. Thompson, H. L. Miles (eds.), *Anthropomorphism, Anecdotes, and Animals* & F. B. M. de Waal, *Anthropomorphism and Anthropodenial ...*, pp. 255–280, M. Bekoff (ed.), *Encyclopedia of Animal Behavior*, s.v. *anthropomorphism* & F. de Waal, *Are We Smart Enough ...*, pp. 22–29.

⁸ See e.g. F. de Waal, *Are We Smart Enough ...*, p. 13, C. Allen & M. Bekoff, *Species of Mind*, p. 180, A. M. I. Auersperg, G. K. Gajdon & A. M. P. von Bayern, *A New Approach to Comparing Problem ...*.

⁹ C. D. L. Wynne, *Animal Cognition ...*, p. 3.

their aim is to evaluate the individual cognitive abilities of the animals within one species or genus, and not to create a *scala naturæ*¹.

Researchers are particularly interested in domesticated mammals. Modern studies show that changes in the brains of farm animals have occurred as a result of their domestication. Undoubtedly, their sensory sensitivity has become duller. To compensate for this loss domesticated animals have a better memory than their wild counterparts². Domesticated sheep can memorise and recognise the faces of other sheep as well as human faces³. Several studies indicate that donkeys also do not deserve their traditional stereotype of *stupid* animals⁴. Furthermore, goats can communicate with humans on a similar level to horses and dogs⁵ and the capabilities of pigs are, to a certain extent, similar to those of dogs and chimpanzees⁶.

Studies on the cognitive abilities of birds have shown that their thought processes are on a par with those of primates⁷. Interestingly, the studies undertaken by Louis Lefebvre reflect the ancient traditions. Lefebvre ranked a number of birds from the most to the least intelligent ones. The highest ranking was given to the Corvidae and the lowest was given to the ostrich⁸. Therefore, do the studies conducted by Lefebvre confirm the ancient observations? Yes, but not exactly. The ostrich does rank low not because of the habit of hiding its head, but rather because it was not as adept at solving problems related to obtaining food in its own habitat as other birds.

The ancient anecdotes about the octopus have been confirmed, to an extent, by the contemporary observations but with a different interpretation. Studies have proved that the octopus is endowed with one of the most complex brains among all invertebrates. Octopuses have an extraordinary nervous system which allows them to solve difficult problems. They can, for example, escape from closed containers. In a laboratory octopuses were found to have eaten crabs from neighbouring tanks and returned to their own tank unnoticed. Moreover, octopuses can recognise humans. The octopuses becoming stupid after laying eggs, as mentioned by Aristotle, is in reality due to the fact that the animals die after delivering their offspring⁹.

¹ However, see the *clever club* of animals: N. Emery, *Bird Brain ...*, p. 6 & passim.

² See D. Kruska, *Mammalian Domestication ...*.

³ See K. M. Kendrick, A. P. da Costa, M. R. Hinton, A. E. Leigh & J. W. Peirce, *Sheep don't Forget a Face* & K. M. Kendrick, *Sheep Senses ...*.

⁴ See F. J. N. González, J. J. Vidal, J. M. L. Jurado, A. K. McLean & J. V. D. Bermejo, *Dumb or Smart Asses?*

⁵ See e.g. Ch. Nawroth, J. M. Brett & A. G. McElligott, *Goats Display Audience-Dependent ...*.

⁶ See L. Marino & Ch. M. Colvin, *Thinking Pigs ...*.

⁷ See e.g. N. J. Emery, *Cognitive Ornithology ...* & J. Ackerman, *The Genius of Birds*.

⁸ For avian IQ scale see L. Lefebvre, *Feeding innovations and forebrain size in birds* quoted after: J. Ackerman, *The Genius of Birds*, p. 34.

⁹ See R. C. Anderson & J. A. Mather, *It's All in the Cues ...*, R. C. Anderson, J. A. Mather, M. Q. Monette & S. R. M. Zimsen, *Octopuses (Enteroctopus dofleini) ...*, J. A. Mather, R. C. Anderson & J. B. Wood, *Octopus ...* & P. Godfrey-Smith, *Other Minds ...*.

Conclusion

The extant sources allow for groups of animal species considered in antiquity as *stupid* to be distinguished. *Stupidity* was attributed to some species more consistently, while in the case of others this was done only occasionally. The manifestations of *stupidity* were particularly noticed in the behaviour of domesticated animals, first and foremost in the sheep and the donkey. *Stupidity* was also considered to be part of the customs of wild animals, such as the ostrich and the octopus. The natural historians in antiquity pondered whether birds and fish were *stupid*. It seems, however, that no separate work on *stupid* animals was written at the time. Rather, *stupid* animals were the result of the ancient discussion on the capabilities of the animal mind and of the attempts to systematise the animal world.

It is obvious that the key to understanding the behaviour of animals is obtaining knowledge about the world of their experiences. An eminent ethologist, Marc Bekoff, formulated this thought in the following manner: *I would argue that there are no stupid animals – only narrow-minded humans who do not take the time to learn more about the animals they call stupid.*¹ Therefore, what has from antiquity been called *stupidity* has been proven today to denote adaptational traits, perfected over thousands of years.

Bibliography

- A Series of Texts Relating to Aesop or Ascribed to Him*, (ed.) B. E. Perry, University of Illinois Press, Urbana 2007.
- Ackerman J., *The Genius of Birds*, Penguin Books, New York 2016.
- Aelian, *On the Nature of Animals*, ed. & transl. A. F. Scholfield, Harvard University Press, Cambridge, MA 1958–1959.
- Ahonen M., *Mental Disorder in Ancient Philosophy*, Springer, Heidelberg 2014.
- Alexandridis A., Wild M. & Winkler–Horaček L. (eds.), *Mensch und Tier in der Antike: Grenzziehung und Grenzüberschreitung*, Reichert Verlag, Wiesbaden 2008.
- Allen C. & Bekoff M., *Species of Mind. The Philosophy and Biology of Cognitive Ethology*, MIT Press, Cambridge, MA 1997.
- Anderson R. C. & Mather J. A., *It's All in the Cues: Octopuses (Enteroctopus dofleini) Learn to Open Jars* in: *Ferrantia* 59, 2010, pp. 8–13.
- Anderson R. C., Mather J. A., Monette M. Q. & Zimsen S. R. M., *Octopuses (Enteroctopus dofleini) Recognize Individual Humans* in: *Journal of Applied Animal Welfare Science* 13, 2010, pp. 261–272.
- Anonymous Latin Book of Physiognomy*, ed. & transl. I. Repath in: *Seeing the Face, Seeing the Soul: Polemon's Physiognomy from Classical Antiquity to Medieval Islam*, (ed.) S. Swain, Oxford University Press, Oxford 2007, pp. 549–635.
- Anonymous Life of Aesop*, ed. & transl. W. Hansen, Bryn Mawr College, Bryn Mawr, PA 2008.

¹ M. Bekoff, *Animals Matter*, p. 74.

- Antigonus of Carystus, *Rerum mirabilium collectio*, (ed.) O. Musso, Bibliopolis, Napoli 1986.
- Aristophanes, *Peace*, ed. & transl. J. Henderson, Harvard University Press, Cambridge, MA 1998.
- Aristophanes, *Plutus*, ed. & transl. B. B. Rogers, Harvard University Press, Cambridge, MA 1986.
- Aristotle, *Generation of Animals*, ed. & transl. A. L. Peck, Harvard University Press, Cambridge, MA 1942.
- Aristotle, *History of Animals*, Books I–III & IV–VI, ed. & transl. A. L. Peck, Harvard University Press, Cambridge, MA 1965 & 1970.
- Aristotle, *History of Animals*, Books VII–X, ed. & transl. D. M. Balme, Harvard University Press, Cambridge, MA 1991.
- Aristotle, *On the Soul*, ed. & transl. W. S. Hett, Harvard University Press, Cambridge, MA 1957.
- Aristotle, *Parts of Animals*, ed. & transl. A. L. Peck, E. S. Forster, Loeb Classical Library, Harvard University Press, Cambridge, MA 1937.
- Aristotle, *Politics*, ed. & transl. H. Rackham, Harvard University Press Cambridge, MA 1932.
- Arnott W. G., *Birds in the Ancient World from A to Z*, Routledge, London & New York 2007.
- Arrian, *Indica*, ed. & transl. P. A. Brunt, Harvard University Press, Cambridge, MA 1983.
- Artemidorus, *Oneirocritica*, ed. & transl. D. Harris–McCoy, Oxford University Press, Oxford 2012.
- Athenaeus, *The Learned Banqueters*, vol. 1–8, ed. & transl. S. D. Olson, Harvard University Press, Cambridge, MA 2006–2012.
- Auersperg A. M. I., Gajdon G. K. & Bayern von A. M. P., *A New Approach to Comparing Problem Solving, Flexibility and Innovation* in: *Communicative & Integrative Biology* 5, 2012, pp. 140–145.
- Balme D. M., *Introduction* in: *Aristotle: History of Animals, book 7–10*, Harvard University Press, Cambridge, MA 1991, pp. 1–30.
- Bekoff M., *Animals Matter. Biologist Explains Why We Should Treat Animals with Compassion and Respect*, Shambhala, Boston 2000.
- Bekoff M. (ed.), *Encyclopedia of Animal Behavior*, vol. 1–3, Greenwood Press, Westport 2004.
- Bodson L., *The Beginning of Entomology in Ancient Greece* in: *The Classical Outlook* 61, 1983, pp. 3–6.
- Bodson L., *Some of Aristotle's Writings about Birds Behavior and Issues Still Current in Comparative Psychology* in: *International Journal of Comparative Psychology* 9, 1996, pp. 26–41.
- Bodson L., *Zoological Knowledge in Ancient Greece and Rome* in: *The Oxford Handbook of Animals in Classical Thought and Life*, (ed.) G. L. Campbell, Oxford University Press, Oxford 2014, pp. 556–578.
- Calder L., *Cruelty and Sentimentality: Greek Attitudes to Animals, 600–300 BC*, Archaeopress, London 2011.

- Campbell G. L., *Origins of Life and Origins of Species* in: *The Oxford Handbook of Animals in Classical Thought and Life*, (ed.) G. L. Campbell, Oxford University Press, Oxford 2014, pp. 243–246.
- Campbell G. L., *Zoogony and Evolution in Plato's Timaeus, the Presocratics, Lucretius and Darwin* in: *Reason and Necessity: Essays on Plato's Timaeus*, (ed.) M. R. Wright, Duckworth, London 2000, pp. 145–180.
- Catullus, *Poems*, ed. & transl. F. W. Cornish, Harvard University Press, Cambridge, MA 1913.
- Cicero, *On the Ends of Good and Evil*, ed. & transl. H. Rackham, Harvard University Press, Cambridge, MA 1931.
- Cicero, *On the Nature of the Gods*, ed. & transl. H. Rackham, Harvard University Press, Cambridge, MA 1933.
- Clark S. R. L., *Ancient Mediterranean Philosophy*, Bloomsbury Academic, London 2013.
- Clearchus, *Die Schule des Aristoteles. Texte und Kommentar*, vol. 3, (ed.) F. Wehrli, B. Schwabe, Basel 1948.
- Cole E. B., *Theophrastus and Aristotle on Animal Intelligence* in: *Theophrastus. His Psychological, Doxographical, and Scientific Writings*, (eds.) W. W. Fortenbaugh & D. Gutas, Transaction Publishers, New Brunswick, N.J. 1992, pp. 44–62.
- Coles A., *Animal and Childhood Cognition in Aristotle's Biology and the scala naturae* in: *Aristotelische Biologie. Intentionen, Methoden, Ergebnisse*, (eds.) W. Kullmann & S. Föllinger, Franz Steiner Verlag, Stuttgart 1997, pp. 287–323.
- Columella, *On Agriculture*, vol. 1–3, ed. & transl. H. B. Ash, E. S. Forster & E. Heffner, Harvard University Press, Cambridge, MA 1941–1955.
- Darwin Ch., *Journal of Researches into the Natural History and Geology of the Countries Visited During the Voyage of H.M.S. Beagle Round the World, under the Command of Capt. Fitz Roy, R.N.*, [2nd ed.] John Murray, London 1845.
- Darwin Ch., *The Formation of Vegetable Mould, through the Action of Worms, with Observations on their Habits* [1881], University of Chicago Press, Chicago 1985.
- Detienne M. & Vernant J.–P., *Cunning Intelligence in Greek Culture and Society*, transl. J. Lloyd, Harvester Press & Humanities Press, Sussex & New Jersey 1978.
- Diels H., Kranz W., *Die Fragmente der Vorsokratiker*, vol. 1–3, [6th ed.] Weidmann, Berlin 1951–1952 [= DK].
- Dierauer U., *Raison ou instinct? Le développement de la zoopsychologie antique* in: *L'animal dans l'antiquité*, (eds.) B. Cassin & J.–L. Labarrière, Vrin, Paris 1997, pp. 3–29.
- Dierauer U., *Tier und Mensch im Denken der Antike. Studien zur Tierpsychologie, Anthropologie und Ethik*, Grüner, Amsterdam 1977.
- Dio Chrysostom, *Discourses*, vol. 1–5, ed. & transl. J. W. Cohoon, Harvard University Press, Cambridge, MA 1932–1951.

- Diodorus Siculus, *Library of History*, vol. 1–12, C. H. Oldfather, C. L. Sherman, C. Bradford Welles, Russel M. Geer & F. R. Walton, Harvard University Press, Cambridge, MA 1933–1967.
- Diogenes Laertius, *Lives of the Eminent Philosophers*, ed. & transl. R. D. Hicks, Harvard University Press, Cambridge, MA 1925.
- Dionysius, *On Birds*, (ed.) A. Garzya, Teubner, Leipzig 1963.
- Dyroff A., *Die Tierpsychologie des Plutarchos von Chaironeia*, Bonitas–Bauer, Würzburg 1897.
- Emery N. J., *Cognitive Ornithology: The Evolution of Avian Intelligence* in: *Philosophical Transactions of the Royal Society B* 361, 2006, pp. 23–43.
- Emery N., *Bird Brain: An Exploration of Avian Intelligence*, Princeton University Press, Princeton & Oxford 2016.
- Enache C., *The Intelligence Typology in Hippocrates' De victu I 35* in: *Wiener Studien* 128, 2015, pp. 37–48.
- Evans E. C., *Physiognomics in the Ancient World*, American Philosophical Society, Philadelphia 1969.
- Fögen T., *Plinius der Ältere zwischen Tradition und Innovation: Zur Ideologie der Naturalis Historia* in: *Tradition und Erneuerung: Mediale Strategien in der Zeit der Flavier*, (eds.) N. Kramer & C. Reitz, De Gruyter, Berlin 2010, pp. 41–61.
- Fortenbaugh W. W., *Aristotle: Animals, Emotion, and Moral Virtue* in: *Arethusa* 4, 1971, pp. 137–165.
- Fortenbaugh W. W., *Theophrastus of Eresus. Sources for His Life, Writings, Thought and Influence. Commentary Volume 8: Sources on Rhetoric and Poetics (Texts 666–713)*, Brill, Leiden & Boston 2005.
- Fortenbaugh W. W., Huby P. M., Sharples R. W. & Gutas D. (eds.), *Theophrastus of Eresus. Sources for His Life, Writings, Thought and Influence. Part One: Life, Writings, Various Reports, Logic, Physics, Metaphysics, Theology, Mathematics*, Brill, Leiden 1992.
- French R., *Ancient Natural History*, Routledge, London & New York 1994.
- Galen, *In Hippocratis De natura hominis commentaria III*, (ed.) J. Mewaldt in: *Corpus Medicorum Græcorum* (= CMG), vol. V 9.1, Teubner, Leipzig & Berlin 1914.
- Galen, *Method of Medicine*, ed. & transl. I. Johnston & G. H. R. Horsley, Harvard University Press, Cambridge, MA 2011.
- Galen, *On the Usefulness of the Parts of the Body*, ed. & transl. M. T. May, Cornell University Press, Ithaca 1968.
- Gilhus I. S., *Animals, Gods and Humans. Changing Attitudes to Animals in Greek, Roman and Early Christian Ideas*, Routledge, London & New York 2006.
- Glare P. G. W., *Oxford Latin Dictionary*, [2nd ed.] Oxford University Press, Oxford 2012 [= OLD].
- Godfrey–Smith P., *Other Minds: The Octopus, the Sea and the Deep Origins of Consciousness*, Farrar, Straus & Giroux, New York 2016.
- González F. J. N., Vidal J. J., Jurado J. M. L., McLean A. K. & Bermejo J. V. D., *Dumb or Smart Asses? Donkey's (Equus asinus) Cognitive Capabilities*

- Share the Heritability and Variation Patterns of Human's (Homo sapiens) Cognitive Capabilities* in: *Journal of Veterinary Behavior* 33, 2019, pp. 63–74.
- Gregory J., *Donkeys and the Equine Hierarchy in Archaic Greek Literature* in: *Classical Journal* 102, 2007, pp. 193–212.
- Griffith M., *Horsepower and Donkeywork: Equids and the Ancient Greek Imagination* in: *Classical Philology* 101, 3/2006, pp. 185–246 & 101, 4/2006, pp. 307–358.
- Hesiod, *Shield*, ed. & transl. G. W. Most, Harvard University Press, Cambridge, MA 2007.
- Hippocrates, *Regimen I*, ed. & transl. W. H. S. Jones, Harvard University Press, Cambridge, MA 1931.
- Horapollo, *Hieroglyphics*, transl. G. Boas, Pantheon Books, New York 1950.
- Immelmann K. & C. Beer, *A Dictionary of Ethology*, Harvard University Press, Cambridge, MA 1989.
- Janse M., *Aischrology* in: *Encyclopedia of Ancient Greek Language and Linguistics*, vol. 1: A–F, (ed.) G. K. Giannakis, Brill, Leiden & Boston 2014, pp. 76–86.
- Jouanna J., *Greek Medicine from Hippocrates to Galen. Selected Papers*, transl. N. Allies, Brill, Leiden & Boston 2012.
- Kendrick K. M., *Sheep Senses, Social Cognition and Capacity for Consciousness* in: *The Welfare of Sheep*, (ed.) C. Dwyer, Springer, Dordrecht 2008, pp. 135–157.
- Kendrick K. M., Costa da A. P., Hinton M. R., Leigh A. E. & Peirce J. W., *Sheep don't forget a face. The discovery of a remarkable memory shows that sheep are not so stupid after all* in: *Nature* 414, 2001, pp. 165–166.
- Kitchell Jr. K. F., *Animals in the Ancient World from A to Z*, Routledge, London & New York 2014.
- Kitchell K. F., *'Animal Literacy' and the Greeks: Philoctetes the Hedgehog and Dolon the Weasel* in: *Interactions between Animals and Human in Graeco-Roman Antiquity*, (eds.) T. Fögen & E. Thomas, De Gruyter, Berlin & Boston 2017, pp. 183–204.
- Körner O., *Die Homerische Tierwelt*, Bergmann, München 1930.
- Koster S., *Die Invektive in der griechischen und römischen Literatur*, Anton Hain, Meisenheim am Glan 1980.
- Kruska D., *Mammalian Domestication and its Effect on Brain Structure and Behavior* in: *Intelligence and Evolutionary Biology*, (eds.) H. J. Jerison & I. Jerison, Springer, New York 1988, pp. 211–250.
- Labarrière J.–L., *De la phronesis animale* in: *Biologie, logique et métaphysique chez Aristote*, (eds.) D. Deveraux & P. Pellegrin, Éditions du CNRS, Paris 1990, pp. 406–428.
- Labarrière J.–L., *Raison humaine et intelligence animale dans la philosophie grecque* in: *Terrains* 34, 2000, pp. 107–122.
- Leas Ch., *Silent Witnesses: Deaf-Mutes in Graeco-Roman Antiquity* in: *Classical World* 104, 2011, pp. 451–473.

- Lennox J. G., *Is Reason Natural? Aristotle's Zoology of Rational Animals* in: *Aristotle's Anthropology*, (eds.) G. Keil & N. Kreft, Cambridge University Press, Cambridge 2019, pp. 99–117.
- Leroi A. M., *The Lagoon: How Aristotle Invented Science*, Penguin Books, New York 2014.
- Lewis S. & Llewellyn-Jones L., *The Culture of Animals in Antiquity: A Sourcebook with Commentaries*, Routledge, New York 2018.
- Liddell H. G., Scott R. & Jones H. S., *A Greek–English Lexicon*, Clarendon Press, Oxford 1968 [= *LSJ*].
- Lloyd G. E. R., *Aristotle on the Natural Sociability, Skill and Intelligence of Animals* in: *Politeia in Greek and Roman Philosophy*, (eds.) V. Harte & M. Lane, Cambridge University Press, Cambridge 2013, pp. 277–293.
- Lorenz G., *Tiere im Leben der alten Kulturen. Schriftlose Kulturen, Alter Orient, Ägypten, Griechenland und Rom*, Innsbruck University Press, Innsbruck 2000.
- Lorenz K., *On Aggression* [1963], transl. M. Latzke, Methuen, London 1966.
- Lorenz K., *King Solomon's Ring. New Light on Animal Ways*, Routledge, [1949], transl. M. K. Wilson, London & New York 2002.
- Lucretius, *On the Nature of Things*, ed. & transl. W. H. D. Rouse & M. F. Smith, Harvard University Press, Cambridge, MA 1924.
- Marino L. & Colvin Ch. M., *Thinking Pigs: A Comparative Review of Cognition, Emotion, and Personality in Sus domesticus* in: *International Journal of Comparative Psychology* 28, 2015 (Article ID 23859).
- Mather J. A., Anderson R. C. & Wood J. B., *Octopus: The Ocean's Intelligent Invertebrate*, Timber Press, Portland 2010.
- McDermott W. C., *Ape in Antiquity*, John Hopkins Press, Baltimore 1938.
- Mitchell R. W., Thompson N. S. & Miles H. L. (eds.), *Anthropomorphism, Anecdotes, and Animals*, State University of New York Press, New York 1997.
- Mynott J., *Birds in the Ancient World. Winged Words*, Oxford University Press, Oxford 2018.
- Nawroth Ch., Brett J. M. & McElligott A. G., *Goats Display Audience-Dependent Human-Directed Gazing Behaviour in a Problem-Solving Task* in: *Biology Letters* 12, 2016 (Article ID 20160283).
- Nemesianus, *Fragments on bird-catching* in: *Minor Latin Poets*, ed. & transl. J. W. Duff & A. M. Duff, Harvard University Press, Cambridge, MA 1935.
- Newmyer S. T., *Speaking of Beasts: The Stoics and Plutarch on Animal Reason and the Modern Case Against Animals* in: *Quaderni Urbinati di Cultura Classica* 63, 1999, pp. 99–110.
- Newmyer S. T., *Tool Use in Animals: Ancient and Modern Insights and Moral Consequences* in: *Scholia* 14, 2005, pp. 3–17.
- Newmyer S. T., *Animals, Rights, and Reason in Plutarch and Modern Ethics*, Routledge, New York & London 2006.
- Newmyer S. T., *Being the One and Becoming the Other. Animals in Ancient Philosophical Schools* in: *The Oxford Handbook of Animals in Classical*

- Thought and Life*, (ed.) G. L. Campbell, Oxford University Press, Oxford 2014, pp. 507–534.
- Newmyer S. T., *The Animal and the Human in Ancient and Modern Thought: The 'Man Alone of Animals' Concept*, Routledge, New York & London 2017.
- Nicander, *The Poems and Poetical Fragments*, ed. & transl. A. S. F. Gow & A. F. Scholfield, Cambridge University Press, Cambridge 1953.
- Nicol Ch., *Behaviour as an Indicator of Animal Welfare in: Management and Welfare of Farm Animals. The UFAW Farm Handbook, 5th edition*, (ed.) J. Webster, Wiley–Blackwell, Chichester 2011, pp. 31–67.
- Opelt I., *Die lateinischen Schimpfwörter und verwandte sprachliche Erscheinungen*, Winter, Heidelberg 1965.
- Oppian, *Fishing*, ed. & transl. A. W. Mair, Harvard University Press, Cambridge, MA 1928.
- Oppian, *The Chase*, ed. & transl. A. W. Mair, Harvard University Press, Cambridge, MA 1928.
- Osborne C., *Dumb Beasts and Dead Philosophers*, Oxford University Press, Oxford 2007.
- Ovid, *Metamorphoses*, ed. & transl. F. J. Miller & G. P. Goold, Harvard University Press, Cambridge, MA 1916.
- Pausanias, *Description of Greece*, vol. 1–5, ed. & transl. W. H. S. Jones, H. A. Ormerod & R. E. Wycherley, Harvard University Press, Cambridge, MA 1918–1935.
- Pellegrin P., *Aristotle's Classification of Animals. Biology and the Conceptual Unity of the Aristotelian Corpus*, University of California Press, Berkeley 1986.
- Philo, *De Animalibus. The Armenian Text with an Introduction, Translation and Commentary*, (ed.) A. Terian, Scholars Press, Chico 1981.
- Philo, *On Abraham*, ed. & transl. F. H. Colson, Harvard University Press, Cambridge, MA 1935.
- Philo, *On the Posterity and Exile of Cain*, ed. & transl. F. H. Colson & G. H. Whitaker, Harvard University Press, Cambridge, MA 1929.
- Philostratus, *Life of Apollonius of Tyana*, ed. and transl. F. C. Conybeare, Loeb Classical Library, Harvard University Press, Cambridge, MA 1912.
- Photius, *Bibliotheca*, vol. 1–8, ed. and transl. R. Henry, Les Belles Lettres, Paris 1959–1991.
- Pinotti P., *Gli animali in Platone: metafore a tassonomie in: Filosofi e animali nel mondo antico*, (eds.) S. Castignone & G. Lanata, Edizioni ETS, Pisa 1999, pp. 101–121.
- Plato, *Republic*, ed. & transl. Ch. Emlin–Jones & W. Preddy, Harvard University Press, Cambridge, MA 2013.
- Plato, *Theaetetus*, ed. & transl. H. N. Fowler, Harvard University Press, Cambridge, MA 1921.
- Plato, *Timaeus*, ed. & transl. R. G. Bury, Harvard University Press, Cambridge, MA 1929.
- Pliny, *Natural History*, vol. 1–10, ed. & transl. H. Rackham, W. H. S. Jones & D. E. Eichholz, Harvard University Press, Cambridge, MA 1938–1962.

- Plutarch, *On the Failure of Oracles* in: Plutarch, *Moralia*, vol. 5, ed. & transl. F. C. Babbitt, Harvard University Press, Cambridge, MA 1936.
- Plutarch, *Table-Talk* in: Plutarch, *Moralia*, vol. 8, ed. & transl. P. A. Clement & H. B. Hoffleit, Harvard University Press, Cambridge, MA 1969.
- Plutarch, *Whether Land or Sea Animals are Cleverer* in: Plutarch, *Moralia*, vol. 12, ed. & transl. H. Cherniss & W. C. Hembold, Harvard University Press, Cambridge, MA 1957.
- Popa T., *Zoology* in: *A Companion to Science, Technology, and Medicine in Ancient Greece and Rome*, vol. 1, (ed.) G. L. Irby, Wiley-Blackwell, Oxford & New York 2016, pp. 281–295.
- Porphyry, *On Abstinence from Killing Animals*, transl. G. Clark, Bloomsbury Publishing, London 2000.
- Posidonius, *The Fragments*, (ed.) L. Edelstein & I. G. Kidd, [2nd ed.] Cambridge University Press, Cambridge 1989.
- Prada L., *Oneirocritica Aegyptiaca: Artemidorus of Daldis, Egypt, and the Contemporary Oneirocritic Literature in Egyptian* in: *Artemidor von Daldis und die antike Traumdeutung. Texte – Kontexte – Lektüren*, (ed.) G. Weber, De Gruyter, Berlin & Boston 2015, pp. 298–299.
- Ps.–Aristotle, *Physiognomics* in: Ps.–Aristotle, *Minor Works*, ed. & transl. W. S. Hett, Harvard University Press, Cambridge, MA 1936.
- Ps.–Aristotle, *Problems*, ed. & transl. R. Mayhew & D. C. Mirhady, Harvard University Press, Cambridge, MA 2011.
- Rahn H., *Das Tier in der Homerischen Dichtung* in: *Studium Generale* 20, 1967, pp. 90–105.
- Roccatagliata E., *A History of Ancient Psychiatry*, Greenwood Press, New York 1986.
- Roller D. W., *The Boiotian Pig* in: *Essays in the Topography, History and Culture of Boiotia*, (ed.) A. Schachter, Dept. of Classics, McGill University, Montreal 1990, pp. 139–144.
- Saint Ambrose, *Hexameron*, transl. J. J. Savage, *The Fathers of the Church*, vol. 42, Catholic University of America Press, Washington, D. C. 1961.
- Sassi M. M., *La scienza dell'uomo nella Grecia antica*, Bollati – Boringhieri, Torino 1988.
- Seneca, *Letters*, vol. 1–3, ed. & transl. R. M. Gummere, Harvard University Press, Cambridge, MA 1917–1925.
- Solinus, *Wunder der Welt. Collectanea rerum mirabilium*, (ed.) K. Brodersen, WBG, Darmstadt 2014.
- Sorabji R., *Animal Minds and Human Morals. The Origins of the Western Debate*, Cornell University Press, Ithaca & New York 1993.
- Strabo, *Geography*, transl. H. C. Hamilton & W. Falconer, George Bell and Sons, London 1854.
- Synesius, *Eulogy of Baldness* in: *The Essays and Hymns of Synesius of Cyrene*, transl. A. Fitzgerald, Oxford University Press, Oxford 1930.
- The Physiognomy of Adamantius the Sophist*, ed. & transl. I. Repath in: *Seeing the Face, Seeing the Soul: Polemon's Physiognomy from Classical Antiquity*

- uity to Medieval Islam, (ed.) S. Swain, Oxford University Press, Oxford 2007, pp. 487–547.
- The Classical Tradition*, (eds) A. Grafton & al., Harvard University Press, Cambridge, MA & London 2010.
- Theophrastus, *De Sensibus* in: *Doxographi Græci*, (ed.) H. Diels, [4th ed.] De Gruyter, Berlin 1965.
- Tragicorum Graecorum Fragmenta*, (ed.) A. Nauck, [2nd ed.] Teubner, Leipzig 1889 [suppl. B. Snell, Olms, Hildesheim 1964 [= TrGF].
- Tzetzes, *On Lycophron*, ed. & transl. A. W. Mair & G. R. Mair, Harvard University Press, Cambridge, MA 1921.
- Varro, *On Agriculture*, ed. & transl. W. D. Hooper & H. B. Ash, Harvard University Press, Cambridge, MA 1934.
- Vitruvius, *On Architecture*, vol. 1–2, ed. & transl. F. Granger, Harvard University Press, Cambridge, MA 1931–1934.
- Waal de F. B. M., *Anthropomorphism and Anthropodenial: Consistency in Our Thinking about Humans and Other Animals* in: *Philosophical Topics* 27, 1999, pp. 255–280.
- Waal de F., *Are We Smart Enough to Know How Smart Animals Are?*, Granta Books, New York & London 2016.
- Wynne C. D. L., *Animal Cognition: The Mental Lives of Animals*, Palgrave Publishers, New York 2001.
- Xenophon, *Memoirs of Socrates*, ed. & transl. E. C. Marchant, Harvard University Press, Cambridge, MA 1923.