

## About the Greek origin of acarology: a short note on *Argas* and the Acari

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**Abstract:** The article presents the etymology and Greek roots of two terms in modern acarology. The origin of acarological nomenclature is analysed in the context of Homer's *Odyssey* and Aristotle's *Parts of Animals* and *History of Animals*. The Greek concept of the smallest animals "acari" as indivisible has been influencing European culture for centuries. The article shows the influence of the Greek tradition on zoology in the 18<sup>th</sup> century, at the time of birth of modern acarology. The works of French naturalists, the founders of this science, are analysed in this context.

The knowledge of Greek, Latin, and generally, of the classical culture is less and less frequent among naturalists today. Furthermore, zoology and botany are taught without any connection with the Classics. Students in natural sciences may have the impression that the origin of zoology and botany does not go beyond the late 18<sup>th</sup> century, when Carl Linnaeus (1707–1778) developed a new taxonomy. Yet, naturalists of that epoch commonly shared a rather good classical background. They often employed it in names of botanical and zoological species. By contrast, today's names of taxa are applied by scientists rather automatically, with no awareness of the history and etymology of the names. Usually they also ignore, to some extent at least, the origin and history of their science.

The systematics of invertebrates proposed by Aristotle (384–322 BC) was in use without any major modifications till the mid-18<sup>th</sup> century, i.e. for more than 20 centuries. However, the first reference to a taxon of Acari appears in one of the first European texts preserved. In fact, we are used to think that the *Odyssey*, be it a work by Homer or not, is almost 400 years older than Aristotle's *Parts of Animals* and *History of Animals*, both written around the middle of the 4<sup>th</sup> century BC. The importance of

the *Iliad* and the *Odyssey* for the history of zoology and the beginnings of systematics was already emphasized in the 19<sup>th</sup> century by Groshans (1843) and, more recently, by Zucker (2005).

The *Odyssey* 17, 290–304 reads:

“Thus they spoke to one another. And a hound that lay there raised his head and pricked up his ears, Argos, the hound of Odysseus, of the steadfast heart, whom of old he had himself bred, but had no joy of him, for ere that he went to sacred Ilios. In days past the young men were wont to take the hound to hunt the wild goats, and deer, and hares; but now he lay neglected, his master gone, in the deep dung of mules and cattle, which lay in heaps before the doors, till the slaves of Odysseus should take it away to dung his wide lands. [300] There lay the hound Argos, full of vermin [κυνοραιοστέων]; yet even now, when he marked Odysseus standing near, he wagged his tail and dropped both his ears, but nearer to his master he had no longer strength to move.” (Homer 1919, transl. A. T. Murray)

As it happens, the faithful dog of Odysseus still waiting for him, neglected and lying in excrements, is said to have *κυνοραιοσταιί*, inaccurately rendered by Murray (Homer 1919) as *vermin* and correctly by Lattimore (Homer 1965) as *dog ticks*<sup>1</sup>. The most authoritative dictionary, *A Greek–English Lexicon* by Liddell – Scott – Jones (LSJ 1940) supports this, since it gives for *κυνοραιοστής*: “*dog-tick, Ricinus communis*” [the scientific name *Ricinus communis* refers to the castor bean plant, but the authors probably meant the castor bean tick, *Ixodes ricinus*].

The lack of precise description of *κυνοραιοσταιί* in the Homeric passage results in various translations and interpretations of what the word refers to. Which dog parasite did the author mean by *κυνοραιοσταιί*? Its translation as *vermin* is too vague. Other candidates are *lice* or, better, *ticks*. Why do we opt for the latter rather than for the former? Note that dog lice are not as common as dog ticks. We have also in mind the folk conviction that excrements kill sucking lice and fleas. If so, Odysseus’ dog could not have them and, by this token, we are more inclined to admit that *κυνοραιοσταιί* should be understood as *ticks*.

Most probably as a result of this description, because of the Odysseus’ dog’s name, Pierre-André Latreille (1762–1833), one of the first modern acarologists, named a new genus *Argas* (Audoin et al. 1822). With this label, he described the Acari in 1795. We wrote *most probably* because in his original description, published in the *Magasin encyclopédique*, Latreille (1795) gives no etymology of the word or reason of naming the genus so. The word *argas* is non-existent in Greek or at least it is not found in the available Greek texts. Neither LSJ (1940) nor Chantraine (1968) provide such an entry in their lexicons and the same applies to the most recent *Etymological Dictionary of Greek* (Beekes & Beek 2013)<sup>2</sup>. Accordingly, this word seems to be nothing more than a deformation of *Argos* into *Argas* due to either a typographical or listening error.

<sup>1</sup> See also Bérard (Homer 1924): *poux*; and Onesti (Homer 1963): *zecche*. This proves a license or incompetence in translating the term still in the 20<sup>th</sup> century.

<sup>2</sup> LSJ gives ἄργαός, being a Doric contracted form for a Doric ἀργαίεις, an Attic ἀργήεις, which means: *white, shining*.

As for the Acari, they did appear for the first time in Aristotle's *History of Animals*. He mentions φθειρα (*lice*) in birds and fishes (557a10–30), and, in between (557a14–15), says that ass has neither lice nor ticks (κρότωνας<sup>3</sup>, LSJ: *tick*, *Ixodes ricinus*), while cattle has both. Next (557b1), Aristotle begins a new paragraph introducing other kinds of ζωδάρια (see LSJ 1940: ζωδάρτιον, “Dim. of ζῶον, *animalcule*, as a *grub*”). This is where (557b8) we come across *acari*:

“And on honeycomb, the one that grew old, there are, as well as in the wood, animals which seem to be the shortest of all animals and are called acari [ἄκαρι]<sup>4</sup>, being white and small. And others appear also in books, some of them being similar to those in cloths, while some other, without tail, to scorpions and very small.” (Aristotle 1964–1969, transl. R. Zaborowski)

The word *akari* (ἄκαρι), from which acarology took its name, derives etymologically from ἄ – and κείρω (LSJ 1940: *cut short, shear, clip*) and means *impossible to be cut*. An alternative etymology refers to *without head*, given that κῆρα means *head*. This explanation has been suggested since the head of these animals is invisible to the naked eye. For instance, as related by Krantz & Walter (2009): “Emmanuel (1982) noted [...] *A-kari* (without head) [...]”<sup>5</sup>. Yet, it is unlikely insofar as *\*akaros* is not attested in Greek and, therefore, is a naive etymology, of the same kind as those contrived by Plato in his dialogue *Cratylus*<sup>6</sup>.

It is interesting to note a conceptual parallel to *acari* understood as *impossible to be cut* (and not *without head*). The concept of the smallest animal as indivisible has been influencing European culture for centuries. Blaise Pascal (1623–1662) and Nicolas Malebranche (1638–1715) both employed an example of Acari (*ciron*) when writing about dimensions in *Pensées* (Pascal 1897: 72) “un ciron [...] c’est là l’extrême petitesse de la nature”, and in *De la recherche de la vérité* (Malebranche 1688: 6) “Ce qu’un ciron est à nôtre égard, ces animaux le sont à un ciron [...] cette proportion si étrange d’un homme à un ciron”. Some Acari feature also in 2 tables of Jean de La Fontaine (1621–1695): *La Besace* [*The Alms Bag*] and *La Souris métamorphosée en fille* [*The Mouse Turned into a Maid*] (La Fontaine 1874). Storage mite was thought to be the tiniest organism known at the time of invention of microscope, when several protozoans were observed and, also, at the time of Gottfried Wilhelm Leibniz’s (1646–1716) preoccupation with infinitesimals.

It was not before the mid-18<sup>th</sup> century that the systematics of animals and definition of insect have been revised. Until then, insects were defined as animals with sections (as the Greek *entomon* means “cut into sections”, see Drouin 2014). But

<sup>3</sup> As for its etymology, Beekes & Beek (2013) remains laconic: “Unexplained”.

<sup>4</sup> See also translations by Cresswell (Aristotle 1862: *acari*) and Thompson (Aristotle 1910: *the acari or mite*).

<sup>5</sup> They go on saying – but it is unclear to us whether they still follow Emmanuel or make their own conjecture: “Another possible derivation of the word *Acari* may have been from the Greek word *akares*, which means short or small”.

<sup>6</sup> Beekes & Van Beek (2013) indicate E. J. Furnée (*Die wichtigsten konsonanten Erscheinungen des Vorgriechischen*, Den Haag 1972: 371), who “connects it with κάρνος = φθειρα ‘louse’ (H.), which is quite attractive”.

still Linnaeus classified the genus *Acarus* as insects. The symbolic date of birth of acarology is 1800. This is when Jean-Baptiste Lamarck (1744–1829) proposed as a separate taxonomic group the Arachnida (including the Acari) in his lectures given at the National Museum of Natural History in Paris (Lamarck 1800).

To sum it up: we can say that acarology emerged from a revision of Greek taxonomic categories as well as from discussing Aristotle's concept of insect. The modern acarology is of Greek origin and, as it seems, we are in Homer's and Aristotle's debt in this respect. The first observations and descriptions of Acari were made by Greek poets, philosophers, and naturalists. Moreover, the name of the genus *Argas* and of the discipline concerned with it, incorporate Greek words. By a curious accident, in both cases we deal with an error: firstly with a deformation of Argos, the name of Odysseus's dog, and secondly with the inaccurate etymology ascribed to the Acari. Whether this error affects the discipline itself, we cannot say. However, "without head" may seem as much different from "too short to be cut" as the fragmented from the whole, be it hardly visible or invisible at all. In a word, because of linguistic blunders, the common approach to the very essence of acarology may be inexact in some cases or poorly grasped in others.

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