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## Introduction

# Alcmaeon of Croton between Medicine and Philosophy

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The complexity of Alcmaeon of Croton is already evident in the challenging definition of his intellectual profile<sup>1</sup> and in the explanations of his relationship with the powerful Pythagorean community of the Achaean colony<sup>2</sup>. This complexity is reflected as well in the sustained interest his work and methodological approach to the investigation of nature and human being have elicited, both among ancient authors and modern scholars.

Ancient sources cite him, comment upon him, and refute him. His intellectual authority must have been considerable, if Aristotle deemed it appropriate to compose an entire work titled *Πρὸς τὰ Ἀλκμαιώνας α'*, which Diogenes Laertius<sup>3</sup> lists among the Stagirite's writings, positioned between a *Πρὸς τὰ Μελίσσου α'*<sup>4</sup> and a *Πρὸς τὰ Πυθαγορείους α'*<sup>5</sup>.

From the first modern study dedicated to him in 1832 by M.A. Unna<sup>6</sup> to the year 2024, slightly more than a hundred scholarly contributions have addressed Alcmaeon, not counting the entry “Alcmaeon” updated by Carl Huffman in July 2025 for the *Stanford Encyclopedia of Philosophy*<sup>7</sup>, or the 31 entries indexed in *PubMed* that situate him at the origins of research in neurology, neurosurgery, and the history of neurology and medicine<sup>8</sup>. This substantial variety of contributions is particularly striking given the scant quantity of testimonies and frag-

ments available to scholars—testimonies which, however limited, suggest the breadth of Alcmaeon’s intellectual interests and the originality of his inquiry, which resists assimilation into the pervasiveness of Pythagorean thought, even when he appears to adopt the dualistic logic of opposing pairs<sup>9</sup>.

Perhaps it was precisely his interaction with the well-known Croton’s medical school<sup>10</sup> that inspired his critical engagement with the Pythagoreans, in a culturally vibrant and complex environment such as that of the Western Greek colonies, in the sixth and fifth centuries BCE.

Thus, Alcmaeon’s multifaceted intellectual profile places him in a domain that appears more sapiential than strictly philosophical, within the more comprehensive field of natural sciences in a broad sense, where the interest in anatomy, physiology, and pathophysiology of living beings occupies a distinctly prominent role<sup>11</sup>.

The essential prerequisite for a comprehensive and accurate approach to Alcmaeon’s thought is, of course, the compilation of a reliable and exhaustive collection of all testimonies that can be attributed to him with philological caution. From this standpoint as well, recent years have yielded notable developments.

From the Teubner edition by J. Wachtler (1896)—structured in three parts, the second of which includes 23 fragments (to use the editor’s terminology) accompanied by commentary of varying depth in Latin—to the edition by Hermann Diels and Walter Kranz (1952 = 24 D-K), which famously distinguishes between testimonies and fragments, and to the Italian edition by Maria Timpanaro Cardini (1958-1964, pp. 133-167), which adds little to the D-K edition except for an introduction and commentary to the text, we will have to wait until 2016 for a reconsideration of the D-K edition by André Laks and Glenn Most (= L-M).

Laks and Most (L-M), who entrusted the section on Alcmaeon to the expert editorial care of Stavros Kouloumentas, acknowledge Diels-Kranz’s edition as the only true critical precedent. They propose a new organization of the sources concerning ancient thinkers, grouping the texts into a set P (genuine or presumed biographical data), a set D (doctrinal material), and a set R (reception of the doctrine in antiquity).

In Alcmaeon’s case, this reorganization achieves the goal of rendering more clearly the complexity of his intellectual pursuits and investigations: indeed, section D outlines a path that, beginning with man’s methodological approach to mortal things (τεκμαίρεσθαι) and the identification of a principle that may be defined as dualistic complementarity ([...] εἶναι δύο τὰ πολλὰ τῶν ἀνθρωπίνων [...]) moves from the heavens to the earth, from celestial bodies to the human body<sup>12</sup>. In this way, indeed, one seems to discern the unity of a design—perhaps entirely our own—even from the few elements that have come down to us.

At the beginning of section D, one might have also included a fragment<sup>13</sup> of methodological content that Page attributes to Alcman, and which Diego Lanza had already argued was attributable to Alcmaeon<sup>14</sup>. In his edition of Alcman, Claude Calame plac-

es it among the *fragmenta Alcmani olim tributa* (293), excluding its attribution to the choral-melic poet both because of the easy confusion between Ἀλκμάν and Ἀλκμαίων and for dialectological reasons<sup>15</sup>. This fragment, upon which Gregory Vlastos was later to base his interpretation of Alcmaeon's intellectual profile<sup>16</sup>, appears in the edition by Magali Année (2019), though not in Georg Wöhrle's, done in collaboration with Theophanis Tsiampokalos (2022). These are two editions that, in totally different ways, challenge more traditional approaches. The first adopts an experimental approach that, by the editor's own admission, introduces no major departures from the D-K and L-M texts<sup>17</sup>.

A rigorous linguistic and morphosyntactic analysis of selected fragments, combined with the recognition of a Neopythagorean and Neoplatonic tradition that assigns a psychagogic function to sound and emphasizes not only the semantic but also the phonic-pragmatic<sup>18</sup> value of words, leads Année to identify a rhythmic structure in Alcmaeon's writings—and in rhythm, one of the constituent powers (δυνάμεις, which intermingle within bodies) of his medical knowledge.

The second edition abandons both the Diels-Kranz distinction between testimonies and fragments, and the L-M attempt to organize the material thematically. In Wöhrle's edition, the *testimonia* are arranged according to a doxographical criterion that follows the chronological progression of the witnesses. Each testimony is preceded by a few lines of contextualization, accompanied by a German translation and thematic references (*Similien*). The collection, which in Alcmaeon's case extends from Isocrates to the Greek humanist tradition, includes—unlike D-K and L-M—the Arabic tradition as well.

In this way, the edition establishes itself as a valuable tool serving scholarly interpretation, enabling researchers to navigate freely among texts and contexts with full respect for their historical coordinates.

Thanks to the support of these new tools, it is now possible to revisit Alcmaeon and the intricacies of his thought with a more critically informed attitude. This issue aims precisely to present a series of contributions which, in light of recent philological advances, seek to grasp the theoretical inseparability of Alcmaeon the physician from Alcmaeon the philosopher, the *longue durée* of his reflections, and the effects of their reconstruction within transmission contexts.

The intellectual and professional profile of the Croton's thinker fully justifies a multidisciplinary approach to the study of his thought: the proximity between the Pythagorean school and the well-known medical school of the Magna Graecia colony necessarily produced a fruitful interaction, which in part influenced Alcmaeon in conceptualizing his biological and physiological inquiries—especially given that medicine was considered by the Pythagoreans one of the most important μαθήματα.

Thus, while it is true that Diogenes Laertius attributes to Alcmaeon a primary interest in medicine, it is equally true that at this chronological stage (between the last

decade of the sixth and the first half of the fifth century BCE), and indeed for many decades to come, it is difficult to draw rigid disciplinary boundaries where the object of investigation is *physis* in which man is viewed as an integral part, within a perfect ontological harmony.

Such a distinction would only emerge later, based on the development of a method tailored to the essentially empirical demands of diagnosis and therapy<sup>19</sup>.

The outlines of this trajectory are already discernible in Alcmaeon, precisely by virtue of his affiliation with a school capable of training physicians of the caliber of Democedes, who—thanks to his ability to conceptualize the course of a pathology and to calibrate therapeutic intervention—replaced the wise Egyptian physicians at the Persian royal court<sup>20</sup>.

Alcmaeon's scientific interests range from anaesthesiology to embryology, from the circulation of blood in the vessels in relation to sleep and death to the interaction between the sensory organs and the brain—seen as the true acropolis of the body, as it is the *hermeneutes* of perceptions that physiologically reach it, and which it coordinates through the uniquely human faculty of σύνεσις<sup>21</sup>.

In this regard the influences he exerted on the Hippocratic author of *On Sacred Disease* are meaningful. Also Alcmaeon's is the notion of health as a balance of opposing forces, which—in the conceptualization of disease—are not in themselves qualitatively positive or negative, but become so insofar as they harmonize or prevail dysfunctionally over one another, perhaps analogously to what might occur in the political organization of cities, and notably that of Croton<sup>22</sup>.

This breadth of interest is traversed by a unifying element: the human capacity for τεκμαίρεσθαι, that is, for inferring on the basis of a reliable sign. Only the gods can know the invisible; it is the task of the physician to identify the tangible signs of ἀφανές<sup>23</sup>.

Marco Cilione's contribution takes as its starting point Alcmaeon's reflections on the origin of semen in the brain<sup>24</sup> and on the first emission of semen upon the completion of the fourteenth year of age<sup>25</sup>, in order to trace the *longue durée* of a medical theory that associates the development of deliberative capacity with the production of male seed, within a biological framework of age categories articulated by heptadic series. This model may also have influenced the establishment of criteria for determining the transition from boyhood to adolescence for males in Roman law.

Francesca Gambetti compares the epistemological doctrines of Alcmaeon and Parmenides, with the aim of identifying similarities and differences, as well as a possible reworking of the former's inquiries in the latter's formulation of a theory of knowledge. In proposing a new rational model for explaining *physis* within the framework of a materialist epistemology, Parmenides may well have drawn upon the results of Alcmaeon's investigations, whose philosophical as well as medical significance could not have gone unnoticed.

Sabrina Grimaudo retraces the stages of scholarship on fr. 24 B 4 D-K, beginning with the pioneering analyses of Mario Vegetti and Giuseppe Cambiano, and continuing to the more recent interpretations of Stavros Kouloumentas and S. Martín. Her contribution also explores the reception of the political metaphor employed by Alcmaeon in texts specifically addressing concepts of health and disease, particularly in Galen. With regard to Alcmaeon's doctrine of the *πόροι*, Francesco Lopez offers a fascinating comparison between Theophrastus's testimony<sup>27</sup> and column 56 of the Shabaka Stone, suggesting a direct or indirect influence between Egyptian Pharaonic medicine and the medical school of Croton. The sources converge on three points: the role of the senses as mediums that produce perception according to their specific nature; the convergence of perception through channels toward a hegemonic organ—identified in the Egyptian testimony as the heart, and in Alcmaeon's as the brain; and the articulation of thought into two forms, namely wisdom and understanding.

Lorenzo Perilli analyzes the dualistic conception present in all aspects of the doctrines attributed to Alcmaeon and places it within the broader phenomenon of dualism as a hallmark of archaic mentality—not only Greek—which is also reflected linguistically in the existence of the grammatical dual alongside the singular and plural. The contribution extends from ancient culture to modernity, examining Carl Gustav Jung's interpretation of duality and the binary system used in digital environments.

In her contribution, Antonietta Provenza deals with the relationship between *isonomia* and *harmonia*, examining the life and work of Alcmaeon within the environment of Croton, characterized by the presence of the most important Pythagorean sect in Southern Italy. The essay focuses on Alcmaeon's relationship with Pythagorean musical speculation, highlighting the notion of *symmetria* in Philolaus' fr. 17, and the affinities between *harmonia* in Archytas' fr. 1 and the notion of *isonomia*, and moreover the many aspects of Alcmaeon's influence on Aristoxenus of Tarentum, both for what concerns the relationship between *aisthesis* in the musicologist's speculation and *tekmeria* in 24 B 1 DK, and the spatial notion of *diastema* in Aristoxenus' harmonics. Theophanis Tsiampokalos retraces the legacy of a zoological belief attributed to Alcmaeon—namely, that goats breathe through their ears<sup>28</sup>—which persisted for centuries despite its refutation by Aristotle. Here too, the analysis of Alcmaeon's testimony provides an opportunity for broader methodological reflection, touching upon the thinker's zoological interests as well as the mechanisms by which a scientific theory may, over time, be attributed to various scholars as a result of unexpected accidents in text transmission.

Andrea Velardi reinterprets Alcmaeon's formulation of *tekmairesthai* in light of Aristotle's theory of the syllogism and the interplay between semiotics and medicine. Alcmaeon thus emerges as the inaugural moment in an inferential theory of the sign which, passing through Charles Sanders Peirce and Umberto Eco, leads ultimately to contemporary semiotics and medical diagnostics.

Through these contributions, the authors aim to offer the readers a comprehensive portrait of Alcmaeon's intellectual profile and fields of inquiry, in an attempt to restore his complexity precisely by way of the variety of themes addressed by him and the diversity of exegetical approaches adopted.

The task remains difficult, given the challenges posed by a tradition that often reconstructs with considerable effort the cultural coordinates within which Alcmaeon developed his interpretation of nature and of the human being—a tradition that does not always share our own commitment to historical and philological restoration.

Nevertheless, there remains the conviction that the ongoing refinement of scholarly methods and investigative strategies enables us to look upon ancient Greek thinkers—and Alcmaeon among them—with ever renewed and discerning eyes, in order to grasp the enduring fertility of their texts and speculations even in relation to the demands of contemporary thought.

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10. Hdt III 131.
11. Diog. Laert. VIII 83 (= D3 L-M; Alk 42 Wöhrle).
12. With some inconsistency, as Franco Giorgianni points out, so that in the part relating to Seed and Embriology (D20-D29) it might have been more logical to place D21 (Origin of the Seed) before D20 (The First Production of the Seed), also because D21 and D19 share the motif of the centrality of the brain.

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21. 24 A 5 D-K (=D11 L-M; Alk 11 Wöhrle).
22. 24 B 4 D-K (=D30 L-M; Alk 28, 61 e 62 Wöhrle).
23. 24 B 1 D-K (= D4 L-M; Alk 42 Wöhrle). See Cilione M, *Pythagorica Medica. Scienza e sapienza nella tradizione preippocratica*. Roma: L'Erma di Bretschneider; 2023. pp. 52-53.
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28. 24 A 7 D-K (=D14 L-M; Alk 4 Wöhrle).

