

CALL FOR PAPERS

Aristotle and his predecessors on heat, *pneuma* and soul

Prague, June 12-14, 2014

A three-day international conference on the role of the concepts of heat, *pneuma* and soul in ancient Greek theories of life will take place in Prague, organized in cooperation between Charles University in Prague and the August-Boeckh-Antikezentrum, Humboldt-Universität zu Berlin. The organizers are Hynek Bartoš (Department of Philosophy, Charles University) and Colin Guthrie King (Institut für Philosophie, Humboldt-Universität zu Berlin). The confirmed speakers for the conference are Gabor Betegh (Central European University - Budapest), Klaus Corcilius (University of California/Berkeley), Pavel Gregorić (University of Zagreb), Richard King (Universität Bern), James Lennox (University of Pittsburgh), and Anna Marmodoro (University of Oxford). Geoffrey Lloyd (University of Cambridge) and Philip van der Eijk (Humboldt-Universität zu Berlin) will give comments.

To apply for presenting at the conference, please submit a proposal of 500-750 words to hynek.bartos@centrum.cz by **November 30, 2013**. Accommodation and some expenses for travel are available for those whose presentations are selected, particularly for early-career scholars.

Topics and questions

For the modern biologist, life and life-processes are generally conceived in terms of »organisms«. An »organism« in the current sense of the term is a material system of mutually dependent parts and processes; it forms a physical and functional unity; and it engages in processes such as nutrition and reaction to its environment.¹ Living things, conceived in this way, are organic systems whose ontological status as living things depends upon a certain functional unity maintained, at the basic level, in activities which preserve their physical organization. If the functional unity is lost or permanently changed, the organism ceases to exist.

Aristotle famously conceived of the soul as the formal essence of such living things as have »instrumental body« (*DA* 2.1, 412a27–b1) and, in general, as the first actualization of a »physical, instrumental body« (σῶμα φυσικὸν ὀργανικόν, 412b4–6). But there is a difference between the Aristotelian concept of a besouled being and the modern concept of an organism. Aristotle posits that living things cannot be explained exclusively by reference to their parts (be they material or functional) and processes that occur in them. His theory of living things features as its central tenet that these must be understood in terms of a unity including both matter and form, a unity provided for by the soul.

The hylomorphic theory of living things and its attending assumptions has been the object of much debate in recent decades. It is generally recognized that Aristotle's psychology is the source for his unified theory of living beings and their life processes. As such, Aristotle's is a general psychology, including some of what would now be considered physiology. The sources and contexts for the »physiological« aspects of Aristotle's psychology are manifold, and seldom themselves the object of discussion. In this conference, we propose to focus upon two particular, and particularly difficult, components of Aristotle's psychology: the concepts of innate heat, and connate *pneuma*. The purpose of the conference is to contextualize these concepts within the history of both the metaphysics of the body and ancient medical theory of life and the soul. The topic of the conference is thus Aristotle's theory of innate heat and *pneuma* within the

¹ Georg, Toepfer, »Organismus«, in: id., *Historisches Wörterbuch der Biologie. Geschichte und Theorie der biologischen Grundbegriffe*, Band 2: Gefühl-Organismus, Berlin 2011, 777.

framework of his theory of bodily processes, animal movement and psychology, and in the context of ancient Greek philosophy and medicine. We also welcome contributions concerning the background of this topic in ancient Greek religion, as well as cross-cultural studies of concepts of life including non-Greek science.

I. Innate heat

Aristotle considered innate heat (also called vital or natural heat) an essential feature of life, and employed this concept in his explanations of various vital functions and organic structures of living organisms, including digestion, generation and reproduction, breathing, the heart and vascular system, perception, and even thinking. Aristotle defined heat as a necessary condition for the existence of the nutritive soul, located the seat of innate heat in the heart, and interpreted the functions of virtually all inner organs and structures of animal bodies as teleologically subordinate to this central organ.

Aristotle's expositions of the concept of innate heat often conclude with a remark suggesting that the present discussion is not fully comprehensive, and that more precision on the topic should be supplied later in some other accounts.² Most often he defines the topic (or eventually the title of the treatise) as *περὶ τροφῆς*, but, as a matter of fact, there is no such extant treatise in the Aristotelian corpus, either of this title or of a content fully devoted to the topic of nutrition, and it actually remains a question whether any such treatise was ever written by Aristotle. In any case, it is clear that reconstructing Aristotle's concept of innate heat and its various functions requires a complex comparative study of selected passages in specific contexts in Aristotle's authentic works (e.g. *DA*, *PA*, *PN*, *GA*, *GC* or *Meteorology IV*), and those now considered spurious (e.g. *Problemata* or *De spiritu*).³

We suggest the following aspects and questions for further investigation of this complex and historically influential concept: In speaking about innate heat (and particularly the connection between soul and fire), Aristotle regularly refers to his (often unnamed) predecessors.⁴ This testimony is valuable for the history of ancient philosophy and science, yet it poses many difficulties: How can we critically assess Aristotle's reports, given that most sources on ancient conceptions of innate heat are indebted to them? What was the original context of the views on innate heat which Aristotle integrates into his own theories of soul and animal physiology? How are we to assess Aristotle's views on innate heat within the context of ancient theories of life and life-sustaining processes? And finally: How are we to understand the medical and philosophical tradition from which Aristotle derives the association of heat with »breath«, or *pneuma*?

² E.g. *DA*, 416b28-31; *PA*, 674a19-21, 653b13-15, 678a17-20; *Somn.* 456b6; *GA*, 784b2-3. Cf. also *PA*, 650b8-11 and *Meteor.* IV, 381b12-13.

³ Cf. P. Louis, »Le traité d'Aristote sur la nutrition«, *Revue de philologie, de littérature et d'histoire anciennes*, 78, 1952, 29-35; Lefèvre, Ch. (1972), *Sur l'évolution d'Aristote en Psychologie*, Louvain, 182-214; J. Althof, »Warm, kalt, flüssig und fest bei Aristoteles. Die Elementarqualitäten in den zoologischen Schriften« (Hermes Einzelschriften H. 57, hrsg. v. J. Blänsdorf/J. Bleicken/W. Kullmann), Stuttgart 1992; J. Althof, »Aristoteles' Vorstellung von der Ernährung der Lebewesen«, in: W. Kullmann/S. Föllinger, *Aristotelische Biologie. Intentionen, Methoden, Ergebnisse* (Philosophie der Antike, hrsg. v. W. Kullmann/K. Abel, Bd. 6), Stuttgart 1997, 351-364.

⁴ E.g., *DA*, 403b31-404a1, 405a5-8; 416a9-18; *PA*, 652b7-19.

2. *Pneuma*

This last question leads us to the second central topic of our conference, the notion of *pneuma*. Aristotle distinguishes at least three different kinds of *pneuma*: a connate *pneuma*, which is present in all animals (*PA* 2.16, 659b17–18); an external *pneuma*, which is present in those animals with respiratory systems (*PA* 4. 13, 697a25–b1); and a type of *pneuma* which Aristotle invokes as an explanatory principle for the differentiation of the parts of animals in embryological development (*GA* 2.6, 741b37 ff.).

There is some controversy surrounding the status of *pneuma* as a principle in Aristotle's psychology and theory of living things. Following Jaeger (1913), many scholars have accepted the interpretation that for Aristotle, what makes living bodies »organic« is the innate *pneuma* which gives them life. This view has been recently challenged, however, by a deflationary account of *pneuma* as a purely material entity for which Aristotle supplies efficient-causal explanation.⁵ The dispute concerning the status of *pneuma* as an explanatory principle is implicated in related debates concerning the theory of material substance, particularly as it concerns Aristotle's embryology and theory of animal movement. We propose to further develop these interpretive debates through contextualizing the notion of *pneuma* as it appears in *De partibus animalium*, *De motu animalium*, *De generatione animalium*, and the *Parva naturalia*. For we think that a well-founded understanding of the notion of *pneuma* as an explanatory concept in Aristotle's psychology must be sought against the background of the development of related concepts in the history of science and religion, e.g. in concepts of life and life-sustaining principles. This is, as Jaeger once noted, a field in which religious conceptions and early medical and scientific theories influence each other, even when they diverge.⁶

3. Soul

The issues addressed above are pertinent to broader questions in the interpretation of Aristotle's psychology. On one recent interpretation, Aristotle's *De anima* has a »programme«, indeed a reformist one. According to this interpretation, Aristotle came in *DA* to reject the view, held by Plato and in several passages also by Aristotle himself, that the soul and the body interact. The author of *De anima* claims that the soul can move the body, but that the soul is not moved by the body.⁷ The reason for this innovation lies in the rejection of a mechanistic conception of the soul, and the development of a new metaphysical position which makes logical space for an entity which can be engaged in activity (ἐνέργεια) without being moved or changed (κινεῖσθαι).

Whether or not one accepts this interpretive thesis, it raises important and fruitful questions for the historiography of ancient science and the interpretation of Aristotle's psychology. If in fact there was such a »reform« in Aristotle's psychology based upon the

⁵ R. A. H. King, *Aristotle on Life and Death*, London 2001, 124–126; S. Berryman, 'Aristotle on *Pneuma* and Animal Self-Motion', *Oxford Studies in Ancient Philosophy* 23 (2002), 85–97; K. Corcilius, *Streben und Bewegung: Aristoteles' Theorie der animalischen Ortsbewegung*, Berlin-New York, 2008, 332–343; K. Corcilius and P. Gregoric, 'Aristotle's Model of Animal Motion', *Phronesis* 53.1 (2013), 52–97.

⁶ See Werner Jaeger's programmatic remarks at the beginning of his »Das Pneuma in Lykeion«, *Hermes* 48, 1913, 29–74: »Die Theorie vom Pneuma bis an ihre Wurzeln, die im religiösen Erdreich liegen, hinabzuverfolgen, wird für die Forschung in dem Maß zur Pflicht, als daß sie das Dunkel über den Lehren und führenden Köpfen der Medizin und Naturwissenschaft des 6. und 5. Jhdts. zu lichten vermag, deren Koryphäen mit der religiösen Bewegung der Orphik und ihren Anschauungen über die Seele, ihr Wesen und Geschick in kräftigem Lebenszusammenhange stehen«.

⁷ Stephen Menn, »Aristotle's Definition of Soul and the Programme of the *De Anima*«, *Oxford Studies in Ancient Philosophy* 22, 2002, 83–139 and K. Corcilius and P. Gregoric, 'Aristotle's Model of Animal Motion', *Phronesis* 53.1 (2013), 52–97.

conception of the soul as an unmoved mover, it would likely have entailed a complete re-thinking of the activity of the soul and its relation to the body, also at the level of nutritive soul. Can the processes described by the notions of *pneuma* and vital heat be conceived in terms of an active soul which is not moved? For example: The concept of nutritive soul is in some of Aristotle's treatises, i.e. *GA*, closely connected with the notion of "innate *pneuma*". How would a reform of the type proposed play out with respect to Aristotle's embryology? And what are we to make of *MA* 10, in which Aristotle seems to identify σύμφυτον πνεῦμα with an unmoved mover located in the heart (703a11 ff.)? This passage suggests that Aristotle at least entertained the notion of localizing the interaction of body and soul (or at least: the action of soul upon body) in a particular point, as Descartes is famed to have done with the pineal gland.⁸ Is such a localization of the cause of animal movement as the result of psychic activity compatible with the »new programme« in Aristotelian psychology? Finally, there are historiographical consequences of this interpretation. Stephen Menn has suggested that Aristotle reaches his new view *via* critique of interactivist theories of the relation of body and soul (in *DA* I), whereas Corcilius and Gregoric argue that Aristotle targeted earlier conceptions of the soul which took the soul to be subject to motion. However that may be, are we warranted to understand the psychological background assumptions of Aristotle's philosophical and medical predecessors and contemporaries in these terms?

⁸ See Friedemann Buddensiek, »Aristoteles' Zirbeldrüse? Zum Verhältnis von Seele und *pneuma* in Aristoteles' Theorie der Ortsbewegung der Lebewesen«, in: Dorothea Frede and Burkhard Reis (eds.), *Body and Soul in Ancient Philosophy*, Berlin/New York 2006, 309–329.