Conference *Nutrition and Nutritive Soul in Aristotle and Aristotelianism*
22-24 March 2017
Abstracts

Wednesday 22 March 2017

James Lennox
'The most natural of functions': reproduction as a nutritive function

It is well known that Aristotle claims that the same capacity (δύναμις) of the soul is nutritive and generative (*De an*. 416a19; cf. 415a23-6). In my presentation I want to explore certain implications of that claim, especially as they pertain to his investigation of generation as a kind of form replication. For not only does Aristotle claim that generation is *one* of the functions of the nutritive soul, but that to produce another like itself is the *most natural* of functions for a living thing (415a26-28). In order to understand Aristotle's thought that generation is a function of the nutritive soul, then, it will be important to explore the causal principles that lie behind his understanding of substantial generation as form replication. In coming to grips with this idea as it is expressed in *De anima* II.4, we will need to explore a number of texts in *De partibus animalium* and *De generatione animalium* as well.

Thursday 23 March 2017

Mary-Louise Gill
Aristotle on nutrition and self-maintenance

In *De Anima* II.4 Aristotle speaks of three roles of nutritive soul: it causes growth, preserves the substance of a living organism, and enables an organism reproduce another like itself. This paper focuses on the second role, soul maintaining an organism as the thing that it is. At the end of *De Anima* II.4, Aristotle speaks of three entities involved in nutrition, (1) that which is fed (the living body), (2) that by which it is fed, itself divided into two items, food and heat, and (3) that which feeds (nutritive soul). The paper treats food and blood (said in *Parts of Animals* to be food in its final form and the matter of the whole body), and then self-maintenance of the living body by the nutritive soul. The paper discusses two main texts, the last part of *De Anima* II.4 and *Metaphysics* Q.8.

Richard King
Nutrition and hylomorphism in Aristotle

In this paper, I discuss the relationship between hylomorphism and nutrition, and make the case that nutrition allows us to understand the problematic relation between form and matter, or better between dynamis and entelecheia, in the case of living things. Often, interpreters find it difficult to distinguish between form and matter in living things, since human form e.g. never exists without human matter. Aristotle's theory of nutrition (trophê, trephein) presupposes the theory that living things are composed of matter and form. (Other theories of trophê do not have this commitment.) In this paper I wish to argue that in fact this concept of trophê is presupposed at the moment when Aristotle argues that soul is the primary actuality of

a natural instrumental body. For nutrition allows us to distinguish between form and matter in living things.
Once we have distinguished them, there is the further question of what binds them. Here nutrition helps as well. For a) form grows and not matter, and this growth is the work of nutrition; b) while form does not exist without matter it does not exist in the same matter, and so requires maintenance, replacement. While other forms of change, (coming to be, alteration, locomotion) apply to non living things, growth, and hence nutrition, applies uniquely to living things, and so can provide us with a physical, and not a logical account of the subjecthood of body. And hence for the status of the soul as form, and actuality of the natural instrumental body.

Andrea Libero Carbone
Why do not animals grow on without end? Aristotle on nutrition and form

In a dense passage of *GA* II 6, 745a 4 ff. Aristotle tackles the question of why, even though animals keep on nourishing themselves, they do not grow on without end. As childlike as this query may seem, the answer given in the passage is admittedly partial. Further, it requires Aristotle to take into account a rather complex network of topics, whose detailed study is, moreover, announced as forthcoming in his lost (or never written) writings on nutrition. These topics include, on the one hand, a fine-grained distinction between different parts and uses of nutriment and residues, and, on the other hand, an analysis of the relationships between growth and form, shape and size, essence and limit, outline and structure. In order to reconstruct the theoretical framework of what may have been Aristotle's fuller answer, then, we shall explore a number of passages of his psychological and biological works.

David Lefebvre
Growth and generation in *Generation of animals* II 4

In *DA* II 4, Aristotle claims without demonstration, that the nutritive soul has two functions: generation and the "assimilation of food" (415a26, 416a19). By "generation," Aristotle means, for whatever living being, "to produce another being like it" (415a29; 416b15-17). Food is used to preserve the living being that already exists and to produce the generation of another being like it. As Aristotle explains it, the nutritive soul "produces the generation not of that which is nourished, but of another like it" (416b15-16). On reflection, it becomes clear that, if generation belongs to the nutritive soul, it is because generation contributes in some way to the preservation of the being, as nutrition does, and not because it generates the being itself. In *GA* II 4 (740b12-741a2), things are slightly different. Aristotle intends to demonstrate that the nutritive soul is also generative. The core of his demonstration is that the matter of growth is identical with the matter out of which the living being is formed from the very beginning (ἐξ ἀρχῆς). My presentation will focus on two points. First, I will devote some time to a close reading of *GA* II 4 (740b12-741a2) in order to clarify Aristotle's demonstration. One important principle of Aristotle's embryology is that "nothing generates itself" (*DA* II 4, 416b16-17; *GA* II 1, 735a13), so how are we supposed to understand Aristotle's claim that the nutritive soul is "generative" of the living being itself (*GA* II 4, 740b37)? Then, I will turn to a comparative study of two different kinds of texts: *DA* II 4 and *GA* II 1 (735a12-26), on one side, and *GA* II 4 (740b12-741a2), on the other side. It is obvious that Aristotle doesn't mean to say the same thing when he claims (in *DA* II 4 or *GA* II 1) that the nutritive soul is

generative because its function is to "reproduce another being of one's kind", and when he states (in *GA* II 4) that the nutritive soul "generates" the being itself. I will try to elaborate on how Aristotle envisions the difference between generation and various kinds of growth.

Hynek Bartoš
Vital heat and digestion in Aristotle and his medical predecessors

Aristotle assumes that life of all plants and animals depends on a kind of vital heat (or fire): every living individual remains in existence and prosperity only as long as its vital heat is kept in balance (especially in terms of hot-cold) and fed on appropriate nutritive moisture (which is essentially wet-dry). If properly nourished and moderated, the vital heat causes various kinds of *pepsis*, which on Aristotle's account explains generation and nutrition of all organic bodies and their parts. These assumptions are fundamental building blocks of Aristotle's physiological and embryological explanations, yet they are never discussed in detail and properly justified in his extant works. Instead, on several occasions Aristotle refers to his predecessors (named as well as unnamed), recognizes their merits in the field of efficient causality and indicates that his own notion of vital heat draws – with minor corrections and improvements - upon a common tradition.
In the first part of my paper I will briefly review the key passages attesting the concept of vital heat in Aristotle (*DA, PA, PN, GA, GC* and *Meteor.*) and attempt to identify its most essential features (such as the capacity to move and shape the underlying matter) and conditions (e.g. the balance in terms of hot-cold and the necessity of a continuous and moderated supply of nourishing moisture). In the second part, I shall turn to the evidence of Aristotle's predecessors in which Hippocratic texts play a significant though still rather underestimated role. Picking up the threads of recent discussions of the topic (e.g. Tracy, Freudenthal, Betegh), I will suggest that some of the Hippocratic texts (namely *Carn.*, *Vict.*, *Aph.*, *Nat. Pue*. and *Flat.*) attest the most explicit formulations of the particular features of Aristotle's notion of vital heat and the most reliable evidence for its use as an explanatory principle before Aristotle.

Giouli Korobili
Aristotle on the role of heat in plant life

Any modern scholar of Aristotle's natural philosophy would right away admit that, according to Aristotle, all living things, in order to maintain their lives, undoubtedly need, among other factors, a principle of soul and vital heat. Despite this scholarly consensus, so little has been written concerning vital heat in plants, even though Aristotle treats them as ensouled beings endowed with the most basic part of the soul, the nutritive soul. Above all, one of the most crucial questions remains obscure: 'What does this vital heat actually do inside a plant?', especially in the light of the idea that plants present far less complexity of structure than animals and humans. In this paper, I shall try to give an answer to this question by offering an interpretation of the role heat plays in the internal processes taking place throughout a plant's life cycle.

Friday 24 March 2017

Gweltaz Guyomarc'h

Dividing an apple. Nutritive soul and parts of the soul in Alexander of Aphrodisias

The nutritive soul provides a relevant test case to examine Alexander's conception of the parts of the soul, since it appears in Alexander's *De anima* along with methodological considerations, e.g. the Stoic analogy with the division of an apple. At first sight Alexander does not seem to draw a distinction between parts of the soul and its powers or faculties (such as the one Gregoric and Corcilius 2010 ascribe to Aristotle). And yet, when approaching the nutritive soul in his *De anima*, Alexander claims the powers for growing and for reproducing are both linked (συνέζευκται) to the power for nourishing. The questions it raises amount to understand how those capacities relate to each other: are they essentially one and the same? Is the difference between them only a conceptual one? And finally and more generally: if a soul is a kind of cluster or a bundle of different powers, what makes the bond between them?

Tommaso Alpina

Avicenna's treatment of nutrition in psychology and medicine: Intersection or Subalternation?

In the opening lines of the Qānūn fī l-ṭibb (Canon of Medicine) Avicenna outlines the epistemological status of medicine: it is a derivative natural science, therefore its philosophical and epistemological underpinnings, that is, the theory and principles of humoral pathology, are given in natural philosophy – the theoretical science to which medicine is said to be subordinated–, and their investigation is declared off-limits to the physician. This statement chimes with what Avicenna says about medicine in his Risāla fī Aqsām al-ʻulūm al-ʻaqliyya (Epistle on the Divisions of the Intellectual Sciences). In providing the theoretical setting of the medical investigation in the first part of the first book of the Qānūn, Avicenna lists the things that the physician must accept on authority, because their existence has been already ascertained elsewhere (i.e. in natural philosophy). Among those things there are the psychic faculties, their existence, their number, and their location. Consequently, in dealing with the diseases related to and affecting the psychic faculties, Avicenna has to assume their ascertainment provided in natural philosophy and, notably, in psychology. Nutrition, and the nutritive soul seem not to escape this paradigm: Avicenna provides a formal account of nutrition in the Kitāb al-nafs (Book of the Soul, i.e. the psychology of the Kitāb al-Šifāʾ [Book of the Cure]), and a mechanical account of it in the first book of the Qānūn. However, is it really indisputable that the mechanical account of nutrition provided in medicine is subordinated to its formal account in natural philosophy? And, more generally, is the treatment of the psychic faculties in the Kitāb al-nafs the theoretical ground for the medical investigation devoted to them in the Qānūn? A close scrutiny of the text and, in particular, of the passages devoted to nutrition and the nutritive soul, seems to provide a more refined picture: with particular reference to the psychic faculties, medicine seems not to entirely depend on natural philosophy but, rather, to integrate the conclusions of natural philosophy with another theoretical framework, most likely inherited by the previous medical tradition.

Bernd Roling

Animals out of body: debates on the hibernation of animals in early modern times

Albertus Magnus in his commentary on the 'Parva naturalia' was maybe the first philosopher and naturalist to deal with the question of the hibernation of animals: How it was possible, that nutrition of many creatures seem to be interrupted, but animals like bears or martens nevertheless continued live and regained complety their vital energies in spring? Albert developed a model, with a kind of closed nutritive system in its center, that became quite attractive for later natural philosophers. In Italy physici like Fortunio Liceti were debating Alberts ideas, later on especially the famous Danish polyhistor Ole Borch wrote a large treatise on the problem. The paper wants to give a survey of the debate, taking the continuity of Aristotle and Galen in early modern medicine and zoology as starting point.

Christoph Sander

Nutrition and magnetism. Early modern perspectives on an odd couple

Already in Antiquity, Galen linked magnetic attraction with the idea that animal parts are able to attract their own ‘specific quality’. According to this analogy, e.g. a kidney attracts urine just like the magnet attracts iron. In the Middle Ages, Averroes argued that foodstuff and iron possess a specific disposition which allows them to move themselves towards the body/magnet. Thus, the concepts of ‘specific attraction’ and ‘dispositional self-movement’ were regarded as crucial to understanding the powers of a magnet and a living body. Particularly in the early modern period these concepts were spelled out differently by Aristotelians, Galenists and Paracelsians. During this period, the magnetism-nutrition-analogy was also transformed into a vitalist principle in order to explain magnetic attraction itself. Natural philosophers such as Gerolamo Cardano suggested that a magnet, being alive in some way, seeks out iron as its foodstuff – a popular idea among alchemists as well.
This paper aims to trace the complicated history of two intertwined concepts, ‘nutrition’ and ‘magnetism’, which were closely related to each other in pre-modern times but appear to be unrelated from a modern perspective. By uncovering the historical origin(s) of this relation, its rationale, its subsequent transformation and its dissolution, not only the historical concept of ‘nutrition’ will come into sharper view from the perspective of the history of ideas. At the same time, from the perspective of the philosophy of science, this historical study presents a test case scenario for discussing the importance of analogies in the formation of scientific theory.

Andreas Blank

Antonio Ponce de Santacruz on nutrition and the question of emergence

Standard historiography has it that emergentism—the view that, once material composites have reaches some level of complexity, potencies arise that cannot be reduced to the potencies of the constituents—was clearly articulated in some ancient thinkers, including Aristotle, Galen and the Aristotelian commentators Alexander of Aphrodisias and John Philoponus. There is also a consensus that this view left some traces in medieval and Renaissance thought, often complicated by theories of celestial causation, only to fall into oblivion after the Pomponazzi affair up until the advent of

the nineteenth-century British emergentists. I will argue that this narrative can be challenged, and that emergentism remained a viable option in early seventeenth-century. In particular, I will show that emergentist intuitions play a role in the discussion of nutrition in the natural philosophy of Antonio Ponce de Santacruz, royal physician to the Spanish king Philip IV. To substantiate this interpretation, I will explore how Santacruz in his commentary on the first part of Avicenna's *The Healing* (1624) uses the analogy between nutrition and the process that takes place when elements gain their independence after having been part of a mixture, as well as the analogy between nutrition and the generation of seeds. In the former case, Santacruz analyses the occurrence of independent elements as involving the emergence of elementary forms from qualities that persisted in the mixture—an idea that has close parallels in the thought of Galen. In the later case, Santacruz analyses the occurrence of the substantial form of the body part that is nourished in analogy with the emergence of the substantial forms of living beings from the material qualities of the seeds—an idea that has close parallels in the thought of Philoponus. As Philoponus does, Santacruz connects his views concerning emergence with a conception of downward causation—the idea that novel causal potencies change the material basis from which they emerge. As it turns out, Santacruz applies a highly eclectic approach to downward causation, combining ideas from medieval medical theorists such as Gentile da Foligno with Platonic strands in Aquinas's natural philosophy.