

Galen's Approach to Anatomy and the Soul

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Abstract. Galen was a philosopher and physician who paid particular attention to the importance of anatomy. After all, anatomical demonstrations could be used to address such issues as the localization of the various parts of the soul, like the *hegemonikon*. These demonstrations, in turn, served as a means of refuting opposing theories like those of the stoics. What's more, one can find a number of similarities between Galen's philosophical approach and his anatomical practice, including his method and use of analysis, guided observation, differentiation of parts, etc. For instance, his theoretical preference for the concept of the tripartite soul, each part possessing specific properties and interaction dispositions, was reflected in his practical activities. Also, a comparison between two of his late treatises, *De motibus obscuris* and *De moribus*, reveals a continuity between his approach to anatomo-physiology and his moral philosophy. Moving beyond dichotomies between the rational and irrational parts of the soul or between voluntary and involuntary movement, both treatises reveal Galen's new preference for thinking in terms of interactions in both anatomo-physiology and in moral philosophy in order to overcome some difficulties of interpretation related to strict dichotomies. He appears more and more interested in forging new tools to approach the complexity of biological and psychological actions and behaviors.

Keywords: Galen, anatomy, medical education, method, observation, soul

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Anatomy belongs to the field of medicine, whereas inquiry into the soul belongs to philosophy. However, we know that Galen cultivated the domains of both medicine and philosophy, because he was considered to be both a doctor and a philosopher by himself, his contemporaries, and subsequent generations [1]. This double competence is also clearly apparent in his biographical treatises *On his own books* and *On the order of his own books*. We are now fortunate enough to have access to other newly discovered and rediscovered treatises which have been edited and quickly translated into several modern languages. These treatises include *On his own opinion* and the recently discovered *De indolentia (On avoiding distress)*, which is of incredible interest, along with many others [2–6]. As most of the newly discovered writings were written rather late in Galen's career, they show the evolution of his thought and personal choices. Galen no longer needs to fight against

his intellectual enemies and so his new goal becomes the clarification of his own medical and philosophical (especially moral) conceptions, molded by his personal experience.

For this reason, it may be interesting to look at the way both domains are connected – not so much in terms of doctrines, debates, theoretical positions, attitudes against other school of thought, etc., but rather in the way he proceeds. In other words, in the kinds of cognitive activities which he was commonly engaged in with regards to medicine and philosophy. Some of his later writings allow us to examine the extent of continuity and consistency in his oeuvre.

To begin with, let us consider what kind of activities are involved in anatomy. Is it possible to compare them in detail with Galen's philosophical thinking?

Let us review when and how Galen was trained in anatomy, and why he was particularly attracted to it.

On several occasions Galen speaks about his family, his first training in philosophy at the age of fourteen, and his subsequent medical education

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three years later. We do not know much about the history of anatomy after the brilliant period of the Alexandrian masters Herophilus and Erasistratus. After them, according to Galen, there was a period of decline until the field experienced a new impulse in Roman times¹. He also speaks about the way in which he was trained to learn and the method he was taught of acquiring and improving knowledge. Methods that he himself taught to those who wished to learn anatomy were outlined in several opuscula that he had written already in his youth. Such methods include the continuous practice of observation, analysis, differentiation, careful specification, etc. Two principles are important. First, there is no observation without preliminary instruction. Second, there is no recognition (or even consciousness of recognition) without familiarity.

This process is exemplified by Galen's own teachings. In *Anatomical administrations* (I, 2) he urges an anatomy student to become familiar with dissections, because "to recall observed phenomena demands continued familiarity". This is particularly true for unexpected observations: "For to understand when suddenly seen, one must have observed each part at leisure beforehand, preferably in human subjects or, failing these, in animals similar to men". After this general statement, he recalls a particular event his youth: "During an epidemic of the anthrax in many cities of Asia, a number of patients presented body parts stripped of skin and even of flesh. I was then still at home (that is before 152 AD) studying under Satyros... All of us, who saw Satyros demonstrating on exposed parts, recognized them explicitly and completely, telling the patients to make this movement or that, such as we knew was effected by this or that muscle, sometimes contracting or displacing the muscles a little to observe a large artery, nerve or vein lying beside them". Such knowledge reveals a preliminary training involving the passive observation of what was shown by the master and one's own capacity to observe. He continues: "We then saw some students, as though blind, unable to recognize the parts, uselessly raising or displacing the exposed muscles, which needlessly distressed the patients, or even making no attempts to observe". If we want to determine what kind of knowledge was required for medical

students in Galen's time, we have only to look at the short anatomical treatises he wrote "for beginners". It is fascinating to see just how detailed this knowledge was [3, 4].

We know that after his first studies in his home of Pergamon, Galen followed teachers in other cities like Smyrna and stayed for a time in Alexandria, the Mecca of anatomy, where in Alexandrian times Herophilus had made fabulous discoveries in the sphere of human anatomy. The anatomical education and training Galen received during this period led him to turn his attention towards something that must be recognised. It was this attention that allowed him to make distinctions, separations and identifications between different structures which, despite acting differently, do not act independently. This kind of anatomical awareness can be seen in a number of Galen's works, both anatomical and philosophical, and is employed at various levels of demonstration. It is evident, for example, when Galen attempts to show that there are three centers or parts of the soul, located in three different parts of body – the brain, the heart and the liver. For this demonstration, in many places in the long treatise *De placitis Hippocratis et Platonis*, the reader must follow a guided observation, like: "First consider (episkepsai) the largest artery which grows out from the heart like a tree trunk and splits in two, its lesser part rising to the head, its greater part extending downward. Next observe (theasai) .. all its offshoots..."². This guided observation serves as a point of departure for a chain of reasoning which, when applied to the venous system, leads the observer to recognise that the liver is the source of the veins, blood and vegetative power, or soul. But this anatomical demonstration is still much more important when it comes to the other two centers of the soul – the hegemonic part, located in the brain and the nerves, and the affective part, located in the heart.

Each of these demonstrations uses the method of guided attention, and we can clearly observe it in his didactic book *On Anatomical Procedures*. Concerning the dissection of the forearm, the student needs to turn his attention towards what is particularly delicate to dissect: "give special attention to what you do now, for not far from its end

¹ *De placitis Hippocratis et Platonis* V 650 [7, p. 480, 28–30].

² *De placitis Hippocratis et Platonis* VI, 3 377. On the method used in *De Placitis* for the governing part see T. Tieleman [8].

the tendon extends under the palmar skin”³. The apprentice has to learn to separate, remove, distinguish, recognise, and reveal structures that are not visible, and nevertheless which exist as parts of a whole. To accomplish this, the procedure must be done methodically.

The purpose of this enormous work is well-known. Galen himself says that there are several purposes of anatomical inquiry in the following well-known passage: “Anatomical study has one application for the man of science who loves knowledge for its own sake, another for him who values it only to demonstrate that Nature does nothing in vain. A third for one who provides himself with data from anatomy for investigating a function, physical or mental, and yet another for a practitioner who has to remove splinters and missiles efficiently, to excise parts properly, or to treat ulcers, fibulae and abscesses” (*On anatomical administrations* II, 2).

But to come back to the method of guided attention, differentiating, observing, repeating, analysing etc., we can also easily find analogues in Galen’s works of moral philosophy, such as *On diagnosis and treatment of the affections and errors*. There is a striking similarity between the recommendations of Galen and Marcus Aurelius to exert oneself intellectually and morally in order to become “better” [10]. Thus, the resemblance between medical training and moral training in Galen’s system is important, as they both involve knowledge, method and cognitive activities.

Another point of comparison between these spheres of intellectual activity is Galen’s preference for systems that involve multiple centers, particularly those with a tripartite nature, as well as for a hierarchical model of organisation. An example of this can be found in simplified form in a small treatise – or rather a summary of his treatise – that has been transmitted under the title *De causis respirationis*: “There are three kinds of causes of breathing, to speak summarily: the faculty of choice, the organs that minister to choice and third, the use for which we need the former two (dynamis proairetike, organa, chreia)”.

This tripartite nature of the causes of respiration reminds us of another triad favoured by Galen – the tripartite soul, which is a major theme of the first books of *De placitis Hippocratis et Pla-*

tonis. Of course, one cannot claim that the three-fold nature of the soul is excursively Galenic. But one cannot avoid drawing an analogy between the activity of distinction, separation, and specification of body parts in the case of anatomy and the diversification and distinction between the parts of soul which cooperate to ensure the unity of human psychological functioning.

In one word, Galen’s preference for a multiplicity of functional elements in souls may be compared with his anatomical description and explanation of the functions of the body.

So much for the methodological analysis, by which we have tried to compare Galen’s anatomical approach with his philosophical approach, the former with its practical method of learning and discovery, the latter as a means of understanding reality and accessing truth in its all of its multiplicity and complexity.

Are there other points of contacts between anatomy and philosophy? Can we speak of an anatomy of the soul?

Several years ago our attention was drawn to a treatise entitled *De motibus obscuris* (although the title has changed), which appeared to be Galenic, although it was only available in Arabic and two medieval Latin versions⁴. Since then this treatise has been edited, translated and commented on by Vivian Nutton [5]. The treatise begins with the question of what kind of movement is involved in respiration. Galen mentions a debate among physicians about whether it is voluntary, involuntary or both. From this example of *aporia*, or puzzlement, Galen gives other examples which offer similar difficulties like, for example, the movement of the tongue and penis and the role of the esophagus in swallowing and vomiting (this example is not very pleasant). These movements contradict the claim (more or less accepted since Alexandrian times) that all voluntary movements are effected by muscles, whereas other movements are brought about without muscles.

These difficulties, according to Galen, may be due to a temporary ignorance of anatomy, and he gives several examples to support this claim from his own experiences of a later discovery solving a problem (the movement of the upper eyelids, for example). But for the movements that he exam-

³ *Anatomical Procedures* I, 5 [9].

⁴ Debru. Galen *On the unclear movements*, in Nutton (2002) 79-86.

ines he offers another hypothesis – the presence, in the depths of the body, of some entity (Nature?) or some being (Creator) who imparts knowledge to the body part so that it can act for itself.

This knowledge can be thought of as a kind of immanent cognitive faculty – not a rational one, of course, but something more than a tendency, or desire, or impulse.

After detailed descriptions and comments, Galen suggests a third possibility that moves beyond the anatomical dichotomy – some bodily movements are sometimes or partly voluntary and sometimes or partly involuntary. Most of these movements are explained by a kind of complex system (it is involuntary with the help of...), a mixed status which can, for instance, explain phenomena such as coughing, sneezing, and even involuntary laughing and the transmission of such behavior from one individual to another.

This kind of fluctuation between the voluntary and the involuntary, the rational and the irrational, was accepted by the 14th century Christian Bishop Nemesius von Emesa, an enthusiastic Galenist in many respects. According to him, the Creator (God) had organised things according to a *sumplexis* (from *sumplekein*, English *entwain*, French *entrelacer*): “The Creator, in accordance with his supreme foresight, wove the functions of soul together with the natural and vice versa” (*On the nature of man*, p. 27). As with Galen, von Emesa’s conception of different kind of movements united in an interactive relationship corresponds to a philosophical understanding of the soul [11].

The conception of a differentiation and relationship between movements is a model that can be applied to the nature and functioning of the parts of the soul as well. This is the case in Galen’s treatise *De moribus* in Latin, *peri êthôn* in Greek (although the text is only available in Arabic)⁵. Lesser known than his other psychological writings, such as the treatise *On the passions and errors of the soul*, it offers a striking parallel with *De motibus obscuris*.

At the beginning of the treatise, the author says, “a character trait (English translation of *êthos*) is a state of the soul that induces someone

to perform the actions of the soul without consideration or choice”. Examples include the involuntary reaction of someone who “when surprised by a terrible sound, is frightened and shocked, and when they see or hear something amusing, they laugh involuntarily” (this is the same example as in the *De motibus obscuris*); they often wish to refrain from this action but they are unable to do so.

The next question seems to exactly parallel the one concerning the nature of movements: “Therefore philosophers investigated whether character traits belong only to the irrational soul or whether some of them are shared by the rational soul”. The reader will find that the language here looks very much like that found in *Obscure movements*, where the question was raised of whether automatic physiological movements were voluntary, involuntary, or a mixture of both.

“We notice that the unthinking motion of the soul, when a character trait induces it to hunger for a thing or to avoid a thing or to hunger for pleasure or to avoid pain or the like, indicates that traits of character belong to the non rational soul”.

Similar indications are provided by what we see of the character traits in infants and in animals – example which are also developed in *De motibus obscuris*.

From now on, Galen refers his analysis to the dichotomy between rational and irrational or voluntary and non-voluntary. He inserts in this frame tripartition of soul: rational, desiderative and vegetative, all located in distinct parts of body or organs. A separation, differentiation, attribution which was the case of other philosophies as well, was also characteristic of an anatomical approach as it was demonstrated above

Moreover, what is more galenic is the description of functioning of these parts of the soul, described as a combination, a cooperation, with one active, the other helping, the other passive, etc... It is not the place to develop the question of the origin of tripartition of the soul, mentioning Plato’s discussion with the Stoics, for example. What is interesting here is what we may call the anatomical method of analysis, in order to understand a complexity of functioning.

One interesting aspect of this complexity is the developmental model of a child’s moral consciousness – which looks in a way very modern.

⁵ Translated into English by Mattock and more recently by Daniel Davies under the title *Character Traits*, in P.N. Singer [6].

For example, it is said that rational soul may act on its own, without help as when it knows truth, and the agreement and disagreement of things. It is not strong enough to control the impulse of desiderative soul, and has to call for help the second soul; the spirited soul, center of courage and energy. Other combinations are possible, as in the bodily movements.

Thus, reading these texts together not only shows similarities between anatomical and philosophical approaches, but also a similarity of problematics. In particular the importance given

more and more to the unclear, the complexity, in biological explanation, as well as in philosophical understanding. Late treatises, that we were lucky to discover, offer new insights on Galen's evolution towards a better consciousness of the moving limits between certainties and uncertainties. At the same time, we feel how strong and coherent was his intellectual and personal commitment during his long and incredibly productive life. For all these reasons, the task of reading and translating Galen as much as possible in any modern language is an important and noble enterprise.

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