

# Galen on Mental Disorders

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Declaro que esta dissertação de mestrado é o resultado da minha investigação pessoal e independente, o seu conteúdo é original e todas as fontes consultadas estão devidamente mencionadas no texto, nas notas e na bibliografia.

Declaro ainda que esta dissertação de mestrado não foi aceite em nenhuma outra instituição para qualquer grau nem está a ser apresentada para obtenção de um outro grau para além daquele a que diz respeito.

O candidato,

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Lisboa, .... de ..... de .....

Declaro que, tanto quanto me foi possível verificar, esta tese/dissertação é o resultado da investigação pessoal e independente do candidato.

O orientador,

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O co-orientador



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Lisboa, .... de ..... de .....

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## Resumo

Este trabalho aborda a conceito de desordem psíquica na obra de Galeno (129-216). A primeira parte enquadra o pensamento de Galeno na visão da Filosofia e Medicina em vigor no início do séc. II d.C. De seguida descrevo a concepção Hipocrática de epilepsia, e a abordagem que Platão desenvolve no *Timeu* e *Fedro* acerca da loucura, para de seguida abordar a concepção de doença em Galeno, onde são analisados os conceitos de *nosêma*, *diathesis*, *pathos* e *energeia*. Após este excursus descrevo o ponto de vista de Galeno acerca da controvérsia sobre a localização da parte dirigente da alma (*hêgemonikon*) que se dividia entre defensores do encefalocentrismo (Platão, Hipócrates e Herófilo) e do cardiocentrismo (Aristóteles e os Estóicos). De modo a aprofundar a compreensão de Galeno acerca deste tema descrevo o trabalho anatómico-fisiológico desenvolvido pelos médicos Alexandrinos Erasistrato e Herófilo, activos no sec. III a. C., que descobriram, através de dissecação de animais e muito provavelmente de humanos, o papel dos nervos e tendões nas atividades cognitivas e sensório-motoras. Esta foi uma descoberta central para a argumentação de Galeno acerca da interacção mente-corpo assim como para a descrição das desordens psíquicas. Posteriormente apresento a metodologia de Galeno no que concerne ao processo de diagnóstico e etiologia, essencial para se compreender como é possível aceder a ‘entidades’ não visíveis, como o *hêgemonikon* e as suas diferentes faculdades: ‘imaginação’, memória e raciocínio. Por fim, analiso alguns casos clínicos de pacientes afectados por desordens do *hêgemonikon*, a saber: *phrenitis*, *mania* e *melancholia*. Os principais textos objecto de análise são: *Acerca dos Lugares Afectados*, *Acerca das Teses de Hipócrates e Platão* e *Que as Faculdades da Alma Seguem as Disposições do Corpo*. Todavia, outros textos de Galeno serão convocados consoante a necessidade de analisar os conceitos que me proponho compreender, entre eles *Acerca do Método Terapêutico* e *Acerca da Utilidade das Partes*.

Palavras-Chave: Galeno, Psíquico, Filosofia, Medicina, Loucura, Doença

## Abstract

This work focuses on Galen's (129-216) conception of mental disorders. As a way of setting the scene, I will give first an overview of the philosophic and scientific framework within which Galen is embedded, starting with a summary of Hippocrates' conception of epilepsy and Plato's notion of madness conveyed in the *On the Sacred Disease* and *Timaeus* and the *Phaedrus*, respectively. Next, I analyze Galen's definition of disease and the central concepts of *nosêma*, *diathesis*, *pathos* and *energeia*. The following step is to display the critical issue of the localization of the ruling part of the soul (*hêgemonikon*) within the body. There were two different viewpoints about that issue: the encephalocentrists (Hippocrates, Plato and Herophilus) and the cardiocentrists (Aristotle and the Stoics). However, in order to understand Galen's position we have to look at the works of the Alexandrian physicians Erasistratus and Herophilus. These two doctors discovered the function of the nerves and tendons by means of dissection, which turned out to be a central discovery for Galen's conceptions of mind/body interaction and his explanation of mental disorders. Next, I present Galen's scientific methodology and causal theory. The last chapter is devoted to applying Galen's concepts and methodology to the critical clinical notions as *phrenitis*, *mania*, and *melancholy*. The central texts under discussion are *On the Affected Parts, That the Faculties of the Soul Follow the Temperaments of the Body*, and *On the Doctrines of Plato and Hippocrates*.

Keywords: Galen, Psychic, Philosophy, Medicine, Madness, Disease

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## Abbreviations and Citations

Regarding the primary sources, abbreviations and citations I followed Jim Hankinson's considerations presented in *Cambridge Companion to Galen*, pgs. XIX-XXI, and appendixes I and II, pgs. 391-403. I used mostly Kühn's edition (*Galen Opera Omnia*, 20 vols. in 22, Leipzig, 1819–33) abbreviating it as K., with the abbreviated Latin title, book number and page, as it is traditionally used by scholars working on Galen's texts. For example: *On Affected Parts (Loc. Aff.)* K. VIII 250. Regarding Galen's works with recent critical editions, most of them in the *Corpus Medicorum Graecorum*, abbreviated *CMG*, I followed their text and pagination. In regard to Galen's treatise *That the Faculties of the Soul Follows the Mixtures of the Body (QAM)*, I used Müller edition on *Galen Scripta Minora*, abbreviated 'SM'. When not indicated, translations are my own. For further information, see bibliography.

## Introduction

Galen was born in Pergamum, an old Roman city in Asia Minor, in 129 A.D. and died, probably in Rome, around 216 A. D.<sup>1</sup> He was born into a well-established family. His father, Nicon, a well-tempered, and educated man was an architect who secured a liberal education for his son. According to Galen's words, he was well versed in geometry, mathematics and grammar—passions that he transmitted to Galen. Galen writes very little about his mother, but when he does, he condemns her distempered humours, irascibility and lack of control, comparing her character with that of Socrates' wife, Xanthippe. When his father died, Galen inherited a good fortune that afforded him the leisure to spend a long part of his life studying.

Galen began his education at fourteen, studying philosophy at Pergamum. He attended classes of teachers affiliated with Stoics, Aristotelians, Epicureans, and Platonists.<sup>2</sup> At sixteen, he also began to study medicine at Pergamum. He left his homeland after his father died, and after attending those different schools of thought with which he never fully engaged. His position regarding them was of a critical judgment, which enabled him to develop a distinctive way of thinking. After that, he began to travel physically. His first period of studying abroad took almost ten years. He began by going first to Smyrna, then Corinth and finally Alexandria, in search for the best physicians of his time, who could be described as Hippocratic with interests in anatomy.<sup>3</sup> He eventually came back to Pergamum in 157 A. D. to work as the official physician of gladiators. The medical and surgical expertise he developed during his formative journeys were very much appreciated at his native Pergamum, namely because he was much more successful than his predecessors in keeping those men alive. This expertise earned him a good

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<sup>1</sup> This is a short picture of Galen's life and works as well as of his education. In writing it, I took most of information from the works mentioned below. The most important sources, if not all, on Galen's life are his works, mostly, but not only, the bio-bibliographical treatises *The Order of My Own Books* (*Ord. Lib. Prop.*), and *On My Own Books* (*Lib. Prop.*) both edited by Boudon-Millot (2007). Regarding Galen's biographies, the most recent and up-to-date one is from Boudon-Millot (2012). For an excellent survey of Galen's life and work, see Hankinson (2008b). The most recent works on Galen's life, where we can find detailed critical notes on dates and events, are Nutton (2004), and Boudon-Millot (2012, 2007). For a brief sketch of Galen's life and tenets, see Lloyd (1973). For an intellectual biography and Galen's appropriation and interpretation of Hippocrates' writings, see Wesley D. Smith (1979; Electronic edition, revised, 2002).

<sup>2</sup> *Pecc. Dig.*, V K. 41; De Boer, CMG V 4, 1, 1.1, p. 28

<sup>3</sup> Nutton (2004), p. 217.



reputation and a job for four years. After this period of gladiators and surgical affairs, Galen traveled to Rome.<sup>4</sup> He arrived at the capital of the Empire in 162 A.D.

At Rome, he began an impressive medical career, making some accurate diagnoses and prescribing therapies. He also made public anatomical performances and engaged in medical and theoretical disputes with the most outstanding physicians working in Rome. At the same time, Roman senators and consuls began to sponsor his work, and it seems that he was appointed as one of the Emperor's physicians. This remarkable success provoked jealousy and hostility among some of his fellow practitioners. It seems that this unfriendly environment led him to decide to return to Pergamum in 166 A. D.<sup>5</sup>

It is plausible that while in Pergamum he worked and travelled across the Mediterranean Sea in search of drugs for his therapies. What is known is that in 168 A. D. he received a letter from Marcus Aurelius and Lucius Verus summoning him to meet them as they prepared to fight German tribes in central Europe. Meanwhile, Lucius Verus passed away due to the plague, and Marcus Aurelius returned to Rome, where Galen later joined him, around October 169 A.D. The Emperor Marcus Aurelius wished Galen as one of the imperial physicians to accompany his troops on the campaign against the Germans. However, Galen was disinclined to do so, and asked M. Aurelius to allow him to stay in Rome, making reference to a dream sent to him by the God Asclepius warning him not to go to the battleground. Marcus, a very pious man, accepted and gave him the task of looking after his young son Commodus. Although Commodus' character was less than pleasant, this task gave Galen time to write and work extensively. Traveling between Rome and the countryside, Galen more than ever applied his ethos principle of *philoponia* – working hard. He finished works that he had begun years before, e.g. *On The Therapeutic Method (MM)*, *On the Doctrines of Hippocrates and Plato (PHP)* and *On the Utility of the Parts (UP)*, to mention the most well-known among his works. He wrote intensely at his home in Rome, where he built up an impressive library that included drugs, and surgical instruments - that he unfortunately, lost in a fire in 192 A. D. During this long period (169 A. D. – 216 A. D.), he returned once to Pergamum in 190 A. D. for a short period and remained in Rome for the rest of his life. He survived Marcus Aurelius, who died in 180, and Commodus, murdered in 192 A. D. His life ended around 216 A. D.

Galen's extent works in Kühn's edition (Leipzig, 1821-1833), has more than 20,000 pages including the Latin translation (and about 10,000 full Greek text). Of all the remaining literature from Homer (VII century B. C.) to Galen (II century A. C.), ten percent is his. From philosophy to grammar,

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<sup>4</sup> The reason for this journey is not completely clear. Nutton (2004), p. 224, says that a man like Galen, with his ambition and personal good relations, should go to Rome, and says also that he, during a *stasis* (political turmoil) in his homeland, had took the wrong political side of dispute, which led him to fasten his traveling to Rome.

<sup>5</sup> Nutton (2004), p. 224, writes that later in his life Galen said that what motivates him to return to his homeland was a plague active in Rome in those days.

pathology to anatomy, and physiology to pharmacology, Galen wrote on almost every topic. It is an exhibition of his wide range of interests and knowledge, and it is not without reason that his legacy has endured for centuries.<sup>6</sup>

As a finishing remark, it is worth mentioning that in recent years unknown Galenic texts have been discovered, including a Greek manuscript with a full version of *On His Own Opinions*, and *On the Avoidance of Grief*, a completely unknown text where Galen gives an account of his life in Rome putting the ancient genre of the consolation into practice. In this work, he relates both the disaster of the plague among his slaves, and the significant loss of his library in the fire of 192. Both treatises were edited by Boudon-Millot. In 2011, Vivian Nutton edited and rendered for the first time into English a forgotten work, preserved mostly in Arabic and Latin, entitled *On Problematic Movements*.<sup>7</sup>

The following is a study on Galen's conception of mental disorders. Concerns regarding this topic are present from the beginning of a work of this nature. If one wants to make a full investigation of mental problems in ancient Greek and Roman civilizations, one's research cannot be confined to the medical field. From poets, tragedians and historians, to philosophers and physicians, mental derangements are well pictured in ancient times.<sup>8</sup> However, studying such a topic in such a broad sense surpasses my competences. Therefore, in order to not dilute this study through different disciplines, it will focus on medical-cum-philosophical knowledge. As a matter of fact, both ancient philosophy and medicine are intimately related in a subject matter like this one. For instance, the definition of soul, its capacities and mortality, is a philosopher's business; all the issues concerning the body, its constitution, health and diseases, are a physician's. However, this separation of fields of expertise is not as clear as nowadays. Either in Hippocratic times or Galen's, six hundred years later, both Philosophy and Medicine shared quite a lot of topics of research in common.

On the other hand, the blurred boundary between religious, moral beliefs and 'scientific' explanation makes approaching a subject matter like madness hard to set. The authors' attitude in the fifth and fourth centuries B. C. regarding madness is ambiguous. For example, Plato, in the *Phaedrus* considers that only through the blessings of madness, can humans activate capacities that will give them the power to access types of knowledge otherwise concealed to humans, especially the power of prophecy and poetry (*Phaedrus*. 244a ff.), but also the power of purifications and love. In the *Phaedrus*, Plato argues that these kinds of madness are beneficial provided that they are given as a divine gift. On the

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<sup>6</sup> For an impressive synthesis of Galen legacy in Western medical history, see Nutton (2008).

<sup>7</sup> *On the avoidance of grief* was published in 2010 in the Budé collection of Belles Lettres, and *On My Own Opinions* in 2005 *Revue des Etudes Grecques* 118, both with a French translation. *On Problematic Movements* was published by Cambridge at the end of 2011.

<sup>8</sup> For a first approach on the general topic of disease, but with some remarks on mental derangements, see Lloyd (2003). Specifically on mental diseases, see Simon (1978). Lloyd (1987) makes some observations on mental disorders in the framework of natural explanations of diseases.

other hand, in the *Timaeus* after a classification of diseases of the body, Plato defines mental illness as folly without understanding (ἄνοια), dividing it in two species: mania and ignorance. Furthermore, we can say that Plato considers diseases of the soul (86b-90d) consequences of derangements in the body, arguing that the mental faculties are affected, in some way, by an excess or deficiency of one of the primary elements that constitute the human body – earth, fire, water and air (86a-b). Plato also argues that the worst evils that the *psychê* can suffer are caused by an excess of pleasure and pain in the body, or by bad institutions or an inadequate education (86b-87b). From this very short picture of madness in Plato, we can insinuate that he holds an ambiguous position regarding madness: from a necessary condition to grasp distinct kinds of knowledge, to a contemptuous view in which the unity and health of individuals suffering from madness are destroyed, impeding them from performing their best as humans.

From the medical point of view, the Hippocratic treatise *On Sacred Disease* is the first text in ancient Greek literature where an explanation of a particular disease grounded on natural causes clearly appears. Moreover, this is the first writing that regards the brain as the locus of a disease affecting cognitive functions.<sup>9</sup> Disturbance of these cognitive functions was usually ascribed to divine intervention. Regarding this popular belief, one of the main purposes of the Hippocratic author was to differentiate the magical-religious approach to epilepsy (the sacred disease) from the ‘scientific’ one held by the physicians of his school.<sup>10</sup> What we find here is a shift in the meaning of the concept of disease, which evolved from an ontological and magical-religious, into a functional and dynamic meaning. Henceforth, diseases are understood as imbalances of the interrelations of fluids/humors inside the body and, at the same time, the interactions between individuals and their environment. These fluids, which are the basic stuff from which the human body is made of, are the four basic humors – blood, phlegm, yellow bile and bile<sup>11</sup>— and the corresponding qualities, hot, dry, cold and wet. This framework explains all kinds of diseases, both bodily and mental. In respect to the latter class of illness, the author differentiates between two causes of mania: phlegm and bile; that bring about two forms of madness, and two different forms of deviant behavior:

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<sup>9</sup> *De Morbo Sacro (Morb. Sacr.)*, 14

<sup>10</sup> *Morb. Sacr.* 2. It is important to notice that, in this treatise, the concept of divine and nature are not entirely opposed to each other, rather the meaning of both is different from the popular belief of the fifth century B.C. for this Hippocratic author nature and divine are identical, in the sense that all diseases are at the same time divine and natural. Regarding this topic, see Hankinson (1995a) and van der Eijk (2005), ch. I.

<sup>11</sup> Yet, this it’s not clear that *Morb.Sacr.* has a four humour theory – there are different versions available in the Hippocratic texts.

Those whose madness results from phlegm are quiet and neither shout nor make a disturbance; those whose madness results from bile shout, play tricks and will not keep still but are always up to some mischief<sup>12</sup>

We find here a critique of traditional religion and traditional medicine, as well as a critique of any mythological explanation of diseases, which the author tries to surpass.<sup>13</sup>

Moreover, signs of mental derangements are well documented in the Hippocratic corpus. For instance, the Hippocratic authors collected clinical cases of convulsions, random talk, situations in which patients were out of their minds, foul language, much talking, laughter, singing, loss of memory, and silence as symptoms of mental derangements.<sup>14</sup> What are found in the Hippocratic authors are minutiae observations and notes of abnormal behavior manifestations, rather than an explicit classification mental of diseases.

During the Hellenistic period, medical knowledge achieved new grounds with authors like Herophilus and Erasistratus. Both physicians led dissection and vivisection to new levels, grounding their theories of pathology and physiology mostly on careful empirical observation. Although not directly concerned with mental disturbances, they opened new paths in brain anatomy –the discovery of nerves, tendons, ligaments and arteries – that influenced Galen’s future investigations. Significant steps regarding melancholy were made by Rufus of Ephesus, with his influential treatise *On Melancholy*<sup>15</sup>. Themison, the founder of the Methodist sect, was also a talented doctor. He classified *phrenitis* as a mental disease accompanied with acute fever, and mania as a chronic disease without fever. Rufus, additionally, established a tripartite division of melancholy and divided black bile into different types.<sup>16</sup> By the time Galen wrote his immense oeuvre, he had before him a vast and long tradition that established a vocabulary, terminology and nosography of mental diseases, a tradition that he knew very well and used and improved in his peculiar way. This peculiarity is mostly due to his methodology, anatomy, and reinterpretation of the function of the psychic pneuma as well as his understanding of psychosomatic interaction and causality.

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<sup>12</sup> *Morb. Sacr.* XV (c. 18 Jones) οἱ μὲν ὑπὸ φλέγματος μαινόμενοι ἤσυχοί τε εἰσι καὶ οὐ βοηται οὐδὲ θορυβώδεις, οἱ δὲ ὑπὸ χολῆς κεκρακταί τε καὶ κακοῦργοι οὐκ ἀτρεμαῖοι, ἀλλ’ αἰεὶ τι ἄκαιρον δρῶντες.

<sup>13</sup> However, we have to keep in mind, as Lloyd writes (1987), p. 27, that although “the framework of explanation is naturalistic, not religious or supernaturalistic ... the operations of phlegm and bile to which he appeals, while in principle verifiable, remain at the level of pure speculation. Those operations are invisible entities too, of if of a different kind”.

<sup>14</sup> See, for example, *Epidemics (Epid.)* I.9 and I case 2.

<sup>15</sup> Rufus of Ephesus (2008) *On Melancholy*. Ed. by Peter E. Pormann. (Tübingen)

<sup>16</sup> It is possible that Galen’s *On The Affected Parts (Loc. Aff.* VIII. 182K) is a summary of Rufus work. In another treatise, Galen says that of recent (νεωτέροι) doctors the best one writing on the topic of melancholy is Rufus (*De atra bile* 1.3).

Galen's wrote on the topic of madness in different treatises, from commentaries to Hippocratic works to original works of his. Often, we find that his point of view is not always grounded in a strict medical approach. We can find him writing as a moralist, for instance in *Aff. Dig.* and as a physician, in *Loc. Aff.*, which can be seen as a feature of the ambiguity of the subject matter. The problem, I think, is related, on the one hand, with the semantic and conceptual understanding of terms as *pathos* and *nosos*, and, on the other hand, with psychosomatic interaction, as well as with medical and philosophical methods and fields of expertise regarding the mental derangements.

Works on Ancient Greece, and specifically on Galen's conception of madness, are not very abundant. Some of the first works dedicated to Madness in Ancient Greece are from Bennet Simon (1978), and Pigeaud (1981). The former does not develop any systematic approach to Galen's conception of madness. The latter is more accurate and illuminating, yet does not delve into an extensive investigation of Galen's oeuvre, dedicating only a sub-chapter to Galen's physiology as an inheritance of Plato's *Timaeus*. In addition, we have a paper written by Stanley W. Jackson (1969), in which he produced a useful summary of Galen's physiological understanding of mental derangements. Ballester (1972) also wrote a monograph on Galen as a commentary accompanying his Spanish translation of Galen's *That the Faculties of Soul follow the Temperaments of the Body (QAM)*. More recently we have the works of Hankinson (1993, 2006), in which he develops Galen's body/soul interaction and opens new lines of reasoning regarding Galen's psychology and mental functions and dysfunctions. However, I will focus my attention primarily on two papers dedicated to Galen's conception of mental illnesses: one from Ballester and another from Pigeaud, both of which are products of a symposium on Galen's psychology (Manuli, P. and Vegetti, M. (eds.) (1988)). I will present some notes on these two papers in order to frame my investigation regarding their views.

According to Ballester (1988), the body/soul relationship is an ancient concern for philosophers and physicians. From the medical point of view, that relationship raises essential questions about etiology, diagnosis and therapeutics. It is from the point of view of the physician, which the final goal is finding therapeutics for human diseases, which Ballester posits himself in this illuminating paper. His position - grounded on a rigid division between diseases of soul (passions) and diseases of the mind (*phrenitis*,

mania and all the cognitive activities located in the ruling part of the soul)<sup>17</sup> – led him to hold that Galen did not produce a psychotherapeutic technique.<sup>18</sup>

According to Ballester ‘psychotherapy’ technique was born in the nineteenth century with the theory of psychological associationism, which was grounded in theories of unconscious psychic activity, physiology, and new medicine of the nervous system. All these three fields of knowledge found a conceptual unity in the theory of reflex functioning of the organisms that, with the aid of the empirical data, opened new understandings of the soul/body relationship. Ballester is advocating that only with a reductionist or more precisely a materialist theory of mind, could a technique as psychotherapy develop. Thus, the Spanish scholar holds that, because Galen did not have a strict materialist point of view of the mind/body relationship he did not develop a psychotherapeutic technique (Ballester, 1988, p. 119). In his views, a psychotherapeutic technique was a philosopher’s method and technique, not a physician’s.<sup>19</sup>

On the other hand, Ballester holds that Galen was not concerned with developing a systematic doctrine of mental diseases, and, in that sense, did not accomplish a classification of mental illnesses. This was largely due to Galen’s agnostic view with respect to the essence of the soul and its relation to the body, but also, according to Ballester, because of his strict medical approach to mental phenomena.

A central tenet of Galen’s overall psychology is his division of the soul into three parts, each of them located in a different part of the body and with different powers –an inheritance of Plato’s psychology. In this tripartite division, the rational faculty is located in the brain, the spirited in the heart, and the desiderative in the liver. As with the body and its organs, the healthy state of the soul follows the well-balanced and harmonious relation between these three parts. Therefore, sickness takes place when the harmony between them is broken. With this picture in mind, Ballester asks if the soul’s restoration could be made having the parts that could not be working well, that is, parts that are sick, as the starting point. Is it possible that the rational part, by means of dialectic, and the desiderative and spirited part, by way of persuasion, could recover by themselves? This is a central question, for what Ballester seems to have in mind, but never say it explicitly, is that a soul, which is an immaterial substance in Plato’s view, doesn’t have the capacity to influence the body. In other words, mental contents are utterly causeless in regards to body/physical events, which leads to the impossibility of a psychotherapy grounded in dialogue

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<sup>17</sup> Ballester (1988) “In Galen’s *De cognoscendis curandisque animi morbis* we have not found any active relationship, from medical viewpoint, between the word of the doctor and the healing of the sick body; neither we have found any operational relationship, either of the causal order or the therapeutic order, between the two planes of ‘diseases of the soul’ (passions) and ‘mental diseases’. The former have their origin in something dependent on us: erroneous opinions. The latter are produced by alterations of the bodily state.” p. 145-146.

<sup>18</sup> “Thought this paper we shall be using the concept of psychotherapy and *we shall try to show that Galen not only did not use this therapeutic technique but was not interested in formulating a doctrine on the soul-body relationship on which he might have based a strictly psychotherapy action.*” Italics are my own. Ballester, op. cit., p. 119.

<sup>19</sup> “The investigations of Lain Entralgo have demonstrated that the Hippocratic physician did not draw on the psychotherapeutic doctrine of Plato and was etiologically and psychotherapeutically indifferent to psychic alterations and methods of verbal psychotherapy aimed at restoring the altered psychic order”. Op. cit., p. 140.

and rational persuasion. Or in other words, a disease cannot be cured having as a starting point the same diseased part or other sick parts, which will perform the therapy.<sup>20</sup>

Regarding diseases, Galen understands that one can only appropriately state that the body is the subject of disease, that is, only a thing with a *physis* can become diseased. If this is Galen's position, what can we say about the soul? Is it of the same nature as the body, does it have a *physis* in the same way as the body, i.e., as elements, qualities, humors, spirits, faculties, etc.? Ballester asks: are the diseases of the soul of the same ontological category of bodily diseases or are they of a different sort? As a consequence of this concern, he asks if the body/mind relationship is a mere "metaphoric parallelism" or "extrinsic analogy" or if it is grounded in a "continuum or genetic relationship" (Ballester, 1988, p. 122). Ballester's approach relies on a strong distinction between medical and philosophical expertise—which is not so clear in Galen's oeuvre—and he focuses his analysis mostly on restoration of health, which is one of the central goals of a physician.

In the same collection of essays, Jackie Pigeaud presented a paper which is a synthesis of his views on Galen's understanding of mental dysfunctions that he did not develop in his major book on mental illnesses in Ancient philosophy and medicine, *La Maladie de L'Âme*. Pigeaud's asserts as his central thesis that Galen is in direct relation with the philosophical and medical tradition that precedes him but is at the same time working within a different categorical framework. On the one hand, Galen has inherited the vocabulary of Hippocratic medicine about diseases and mental problems, like *phrenitis*, *mania*, *paraphrosyne*, and also the use that physicians like Aretaeus and Caelius have made of the theory of representation (*phantasia*), developed, mostly, by Stoic philosophers. On the other hand, he has inherited Plato's tripartite theory of the soul, and the cosmological and pathological considerations developed mainly in the *Timaeus*. These major points are central, according to Pigeaud, in order to understand Galen's innovative position in the history of madness in Western medicine.

In contrast to Ballester's *modus operandi*, Pigeaud's attention focuses more on philosophical questions raised by madness, mostly on perceptual issues, than in medical approaches. He devotes much thought to the causes of deficiencies on perceptual activities, namely the theory of representation (*φαντασία*). Following the problems of representation, Pigeaud relies heavily on the concepts of

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<sup>20</sup> "We wonder whether an alteration in any of these three souls, that is to say a situation in which the soul has ceased to be in harmony with its nature (*kata physin*) and has become discordant with it (*para physin*), is susceptible to restoration by procedures derived from its own condition: reason, in the case of the rational soul, by means of dialectics; persuasion, in the case of the other two souls, by means of education." Italics are my own. *Op. cit.*, p. 120. "He saw in his clinical practice [...] that there is a continuum between body and soul, both in the case of mental illnesses (e.g. dementia, frenzy, melancholia) or in disorders of a moral nature, but he left in the dark the answer to the question of exactly 'what' continuum. Still more, I guess that indirectly he excluded the possibility of a real psychotherapy in later Galenism". Italics are my own. *Op. cit.*, p. 139.

hallucination and delusion as consequences of mental derangement, holding them as the best examples of accessing cognitive activities.

According to Pigeaud, the first distinction that is important to retain is the differentiation between hallucination and illusion. He says that even if these words and concepts were not a product of Greek medicine, they describe the same phenomena that they will be pick up in the nineteenth-century work of Pinel. He argues that Areteus, Caelius Aurelianus, and Galen too used this distinction. After that he takes some time exploring the vocabulary of madness that Galen inherited from medical traditions, as παραφροσύνη (delirium, wandering of mind, derangement), with its cognate expression<sup>21</sup>, picking up examples in Galen's oeuvre – mostly of On the Affected Parts (*Loc. Aff.*) – of individuals affected by their cognitive activities. He considers this methodology useful because the abnormal function of the mind 1) reveals the normal function of the faculties of the *hēgemonikon* (soul's ruling part) and 2) gives a principle for classification of mental diseases. He extends his interpretation of Galen by looking at his considerations on the location of mental faculties, arguing that such localization is not useful regarding the etiology of madness: the causes of mental diseases have nothing to do with the localization of its functions, as they are grounded in humoral imbalances, which is equivalent to say that all mental disorders are bodily diseases.<sup>22</sup> Pigeaud finishes his exposé declaring that Galen's absence of a transcendent unitary principle that supports the foundation of mind, and its activities—in other words, Galen's agnosticism regarding the essence of the soul—impeded him from establishing psychiatry as an autonomous research field.<sup>23</sup>

Regarding the works of Ballester and Pigeaud, this one develops a topic that both authors did not develop: Galen's theory of causation and its pertinence to the explanation of mental disorders. Briefly, this work is divided into a chapter on Galen's pathology and physiology, where is cast some light on the central concepts of his theory, in order to define his conception of disease. The next chapter is devoted to Galen's notion of *hēgemonikon* and its location within the human body. In order to understand his point of view on this topic, we will briefly sketch out the developments made in Hellenistic medicine in the works of Herophilus and Erasistratus regarding the localization of mental activities within the human body. The third chapter is dedicated to Galen's methodology, diagnosis, and etiology, in which is given

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<sup>21</sup> Such as ληρῆσαι, παραληρῆσαι, παραφρονῆσαι, παρενεχθῆναι (move in a wrong direction, mislead, lead astray), παρακόψαι (strike the mind away, drive mad, derange), ἐκστῆναι (drive one out of his senses, to be out of one's wits, be distraught, lose consciousness, depart from, degenerate from one's own nature), μανῆναι (driven mad by), ἐκμανῆναι (drive mad).

<sup>22</sup> “Les raisons de cette aporie [of the localization of mental activities] dépassent les limites de l'atonomie d'une époque, et l'impossibilité de construire une neurologie cohérente. Elles tiennent à l'étiologie des maladies qui n'a rien à voir avec le fonctionnement spécifique de l'encéphale. Ces n'est pas dans la structure des ventricules ni du corps de l'encéphale qu'est l'origine du dysfonctionnement de la *psyche*, mais dans les humeurs.” *Op. Cit.*, pp. 178-179.

<sup>23</sup> *Op. cit.*, pp. 181-183.



an account of Galen's view of the scientific demonstration. The last chapter provides an outlook of his understanding of mental diseases according to his methodology. It is also displayed the three main disorders of the *hêgemonikon*, namely *phrenitis*, mania, and melancholy, illustrated with Galen's clinical cases. Lastly, it is provided some observations on Galen's body-mind interaction and his peculiar position regarding this critical philosophical topic.

## Galen's Pathology and Physiology

In *De Symptomatum Differentiis* and *De Methodo Medendi* Galen states that:

A disease is a disposition of the body which is such as primarily to impede one of its activities; those dispositions which precede it are not indeed diseases. . . . So, on our account, not just anything which occurs in a body contrary to nature should immediately be labelled a disease, but rather only that which primarily harms an activity [should be called] a disease, while what precedes it <should be called> a cause of the disease, but not indeed a disease.<sup>24</sup>

Disease is the opposite of health. What is called *pathos* or *pathêma* differs from both...<sup>25</sup>

We can infer from this first approach to the nature of disease that one who is under such a condition is prevented from fully realizing his own capacities, as a disease is that which damages an activity (ἐνέργεια). Moreover, Galen differentiates the disease from its cause, reinforcing the position that the cause (αἴτια) of a disease is not itself a disease. In this sense, the questions that follow are: what is a disease? What is the difference between disease (νόσος) and affection (πάθος)? Furthermore, what is a disposition (διάθεσις) and what is an activity (ἐνέργεια)?

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<sup>24</sup> *Symp.Diff.* VII 50K. νόσημα ἐστὶ διάθεσις σώματος ἐνεργείας τινὸς ἐμποδιστικῆ πρώτως. ὅσαι τοίνυν αὐτῆς προηγούνται διαθέσεις, οὕτω νοσήματα. ... καὶ ἡμῖν οὕτως οὐ πᾶν ὅ τι περ ἂν ἢ παρὰ φύσιν ἐν τῷ σώματι, νόσημα εὐθὺς ἔσται χλιτέον, ἀλλὰ τὸ πρώτως μὲν βλάπτων τὴν ἐνέργειαν, νόσημα, τὸ δὲ τούτου προηγούμενον, αἴτιον μὲν νοσήματος, οὕτω δὲ νόσημα. Hankinson translation in: *Cambridge Companion to Galen*, p. 230. cf. *MM* X 40–2, 78–81K.

<sup>25</sup> *Symp.Diff.* VII. 44K. ἡ νόσος δὲ τὸ ἐναντίον τῆς ὑγείας. διαφέρει δ' ἀμφοῖν τὸ πάθος τε καὶ πάθημα προσαγορευόμενον... Ian Johnston translation in: *Galen: On Diseases and Symptoms*, Cambridge, 2006.

## νόσος/νόσημα (*nosos/nosêma*)

Since Hippocrates, the central role of the Physician has been to preserve health and cure their patient's diseases. In order to achieve this goal, the doctor needs to know what health and disease are. Therefore, we need to know the conceptual framework available in Galen's time in order to give intelligibility to this, and explain these central issues. We can say it in one word: Humoralism. As Vivian Nutton writes, Humoralism is the system of medicine that considers "illness as a result of some disturbance in the natural balance of the humors, within the body as a whole or within one particular part. It stresses the unity of the body, and the strong interaction between mental and physical processes. It is at one and same time highly individualistic, for each person, and each bodily part has their natural humoral composition (κρᾶσις), and universal, for the range of variation is limited and the same patterns of illness (diseases/ νόσηματα) can be seen to occur in many individuals"<sup>26</sup>.

The Medical tradition established that the humors in question were four<sup>27</sup>. The first treatise to explore and explain their role in human health and disease was the Hippocratic work, *The Nature of Man*. The humors in question were 'phlegm', 'yellow bile', 'black bile' and 'blood'. Galen himself worked with this general scheme, improving it to nine possible mixtures of the qualities that gave him the ability to diagnose in the individual's different predispositions to certain types of illness.<sup>28</sup> From this point of view, a disease is the consequence of disturbances in the organism of the precarious natural balance of Hot, Cold, Wet and Dry, the qualities associated with the four humors. When these elements and humors are in a proportional order, the organism is functioning well, and the individuals are sound. On the contrary, when some imbalance occurs, the body becomes sick. Nonetheless, the overall drive of the organism is to maintain its natural disposition that is akin to their multiple activities, i.e., their *energeiai*. More accurately, there are dispositions corresponding to each of the activities

Therefore, good or bad balance is primarily related to the human fluids, or humors: 'phlegm', 'yellow bile', 'black bile' and 'blood'. Of these substances, two of them attracted attention as the causes of illness: 'yellow bile' and 'phlegm'.<sup>29</sup> These humors are naturally present in the human body and are

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<sup>26</sup> Nutton (1993).

<sup>27</sup> Aristotle *On Generation and Corruption*, 314a 16-20, wrote that Empedocles argued that the corporeal elements are four in number, and states that the homeomerous – bones, flesh, medulla and all the other bodies, structures, parts in which the part is synonym of the all – are elements: Ἐμπεδοκλῆς μὲν γὰρ τὰ μὲν σωματικὰ τέτταρα ... Ὁ μὲν γὰρ τὰ ὁμοιομερῆ στοιχεῖα τίθησιν, οἷον ὅστων σάρκα μυελὸν καὶ τῶν ἄλλων ὧν ἐκάστῳ συνώνυμον τὸ μέρος ἐστίν.

<sup>28</sup> Nutton, p. 234 (2005). Hankinson, in a personal note, reminded me that Galen wrote a commentary on *Nature of Man* and that *On Elements according to Hippocrates* is mainly concerned with this work; in MM (X 632, 458-9 and elsewhere) Galen says that the method was discovered by Hippocrates and the ancients, but not fully worked out or entirely explained by them.

<sup>29</sup> This goes back to Sacred Disease, in some sense.

related to particular seasons of the year. ‘Yellow bile’ appears with more frequency in the summer and ‘phlegm’ in the winter. To these two humors, the authors of the Hippocratic Corpus added two more: blood and black bile or melancholy.<sup>30</sup>

As we have said, Galen inherited this scheme and put it into practice in order to reach a true and reliable knowledge of the nature of diseases, following the Hippocratic percept that the medical practice requires physical knowledge:

He (Hippocrates) thought that one should have a precise understanding of the nature of the body, saying that this was the source of the whole theory of medicine.<sup>31</sup>

But, what is the nature of the body? The answer to this question, and more often of to what is a disease, relies on physiological and biological knowledge. This kind of knowledge rests upon the fundamental physics of elements and qualities (ultimately for Galen it is the qualities that are the most important). Again, the Hippocratic treatise *On The Nature of Man* is the source for all that the Physician needs to know concerning the primordial constituents of the human body. In a broad sense, that can be summarized in the following way: the primordial stuff of Nature, from which everything else is made of, are the four natural elements: ‘fire’, ‘earth’, ‘water’ and ‘air’. Connected to them, are the four elementary qualities: ‘hot’, ‘dry’, ‘wet’ and ‘cold’. Closely related to these four qualities are the four humors: ‘yellow bile’, ‘black bile’, ‘phlegm’ and ‘blood’ which, in addition, are linked with the four seasons: summer, autumn, winter and spring:

The human body contains blood, phlegm, yellow bile and black bile. These are the things that make up its constitution and cause its pains and health.<sup>32</sup>

To sum up, ‘yellow bile’ is related to the summer, because it is hot and dry, having as its principal element fire; ‘black bile’ is associated with the autumn because it is dry and cold, having as the main

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<sup>30</sup> This scheme of the four humors appears only in *Nature of Man*, which is why Galen thinks this text is so important. Other Hippocratic treatises use different arrangement – e.g. blood, water, bile and phlegm as, for example, in *Nature of the Child*.

<sup>31</sup> *Opt. Med.* I 54 K. = Boudon-Millot 284.13-285.2 καὶ μὲν δὴ καὶ φύσιν σώματος ὁ μὲν ἀκριβῶς ἀξιοῖ γινώσκειν ἀρχὴν εἶναι φάσκων αὐτὴν τοῦ κατ’ ἰατρικὴν λόγου παντός. (Hankinson’s translation in *CCG*, p. 210). Boudon-Millot, in a footnote to the Budé edition of this treatise, says that Galen could have in mind different passages of the Hippocratic Corpus, like *Regimen I* = Littré VI, 468; *On Ancient Medicine*, 20 = Littré I, 622.

<sup>32</sup> Hippocrates *De natura hominis*, IV, 13-15 Τὸ δὲ σῶμα τοῦ ἀνθρώπου ἔχει ἐν ἑωυτῷ αἷμα καὶ φλέγμα καὶ χολήν ξανθὴν καὶ μέλαιναν, καὶ ταῦτά ἐστιν αὐτῷ ἢ φύσις τοῦ σώματος, καὶ διὰ ταῦτα ἀλγεῖ καὶ ὑγιαίνει.

element earth; ‘phlegm’ is associated with winter because it is cold and wet, having as the ruling element water, and ‘blood’ is related to the spring because it is wet and hot, having at its basis the element ‘air’.<sup>33</sup>

It is necessary to say that in his physiology, Galen divides the human body into two different structures: the homogeneous (homoeomerous) and the organic. The former are those parts that are uniform or homogeneous in their composition, i.e., their composition is the result of the mixture of the four fundamental elements and qualities. In other words a homoeomerous substance is one in which every part is like every other – it is uniform, or it exhibits no structure. Thus, Galen states “a part is homoeomerous, as its name clearly indicates, if it is divisible in any way into similar parts, as are vitreous and crystalline humors, and the particular substance of the membranes in the case of the eyes. (MM X, 48K), also adding “that the nature of the simple and primary parts, which Aristotle calls homoeomerous, arises from the mixing of hot, cold, moist and dry...” (MM X 530K). As an example of homoeomerous parts, Galen mentions bones, cartilage, veins, arteries, nerves, ligaments, membranes and flesh. As an example of organic ones, he mentions the heart, the liver, the lungs, the brain, the stomach, the spleen, the eyes and the kidneys.<sup>34</sup> It is important to state that organic structures (or instrumental, from ὄργανον) are functional wholes, that when divided the remaining parts are not of the same kind of the whole, viz. are heterogeneous. For example, when the brain is divided, the resultant part is not identical to the brain of which it was a part.

It is important to state that organic structures (or instrumental, from ὄργανον) are functional wholes, that when divided the remaining parts are not of the same kind of the whole, viz. are heterogeneous. For example, when the brain is divided, the resultant part is not identical to the brain of which it was a part.

When the mixture/temperament (*krâsis*/κρᾶσις) is in proper proportion, the structures are sound; on the other hand, when some imbalance (*dyscrasia*/δυσκρᾶσία) occurs in their mixture, their condition becomes unsound. This overall scheme could be applied to the organic parts as well. Although they are also subject to different types of illness having to do with structural flaws, which are the diseases common both to the homoeomerous and organic parts, namely the general ‘loss of continuity’ or “breakdown of cohesion” (λύσις συνεχείας) category, that includes fractures in bones, avulsions in sinewy or ligament structures and ulcers in flesh. In Galen’s words:

Thus, where a ligament or artery is avulsed, the affection (πάθημα) is common to both the whole organ and the avulsed part itself. Each has had dissolution of

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<sup>33</sup> It is noteworthy that Galen conceives spring as the well-tempered season – see the relevant passages in *Temp.* The Hippocratic work *On the Nature of Man* is the first textual evidence of the ‘black bile’ as a humor *per se*. Until this text, the melancholic humor was a depraved form of the ‘yellow bile’.

<sup>34</sup> *Morb. Diff.* VI 841K.

continuity (λέλυται γὰρ ἐκάτερον τῆς συνεχείας), the whole in that its parts are no longer joined together and united, and the avulsed part itself in that it no longer remains one but has become two.<sup>35</sup>

But what is the meaning of *krâsis* (κράσις), and its cognates terms *dyscrasia* (δυσκρασία), and *eukrasia* (εὐκρασία)? Galen wrote a treatise entitled *On Mixtures* (περὶ κράσεων) in three books that, in his words, must be read after *On the Elements According to Hippocrates* (Περὶ τῶν καθ' Ἱπποκράτην στοιχείων).<sup>36</sup> He also tells us that in the first two books of *On Mixtures* are developed the temperaments of living beings with the distinctive features of each one, and in the third book, the temperaments/mixtures of drugs. These remarks allow us to put the treatise *On Mixtures* in the category of works about *physis*, e.g., about the fundamental constituents of the natural world. Moreover, we can find in the remaining Galenic Corpus several treatises where the term *krâsis* appear in the title<sup>37</sup>, which allow us to say that the term, and concept is a central one in Galen's medical knowledge and practice, as well as in his physiology and pharmacology. The primary meaning of *krâsis* is mixture, blending or temperament.<sup>38</sup> What is mixed are the four primary qualities that are the basic stuff that constitutes the human body (hot, cold, wet and dry), and in a broader sense, the four elements that are the basic stuff of the Universe (earth, water, air and fire). As a matter of fact, the qualities and elements are never found simpliciter in nature, which implies that all the perceptible items that we can grasp are always mixed:

all have been adulterated by other kinds of things and mixed with them, and they have all received a larger or smaller share of each other.<sup>39</sup>

Therefore any natural item, from a bone to a disposition, can be in a eucratic or dyscratic mixture, e.g., a proper and correct one, or a bad and incorrect one. When the elements or qualities are well disposed, when the quantity of each of them is in the right proportion, equidistant from all extremes, the

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<sup>35</sup> *On the Differentiae of Diseases* [*De Morborum Differentiis (Morb.Diff.)*] V 871 K. ὅπου γὰρ διασπᾶται σύνδεσμος ἢ ἀρτηρία, κοινὸν τὸ πάθημά ἐστι καὶ τοῦ παντὸς ὀργάνου καὶ αὐτοῦ τοῦ διασπασθέντος μορίου. λέλυται γὰρ ἐκάτερον τῆς συνεχείας, τὸ μὲν ὅλον, μηκέτι συναπτομένων αὐτοῦ μηδ' ἐνούμενων τῶν μορίων, αὐτὸ δὲ τὸ διασπασθὲν οὐκ ἔτι μένον ἐν, ἀλλὰ δύο γενόμενον. (Johnston's translation, 2006). See also *MM* X 125-126 K.

<sup>36</sup> *Ord. Lib. Prop.* XIX 56K. The latter work is a Galen central treatise on philosophy of nature. It is the work where he develops his views on the basic stuff of Nature relying mostly on Hippocratic tenets.

<sup>37</sup> As an example we can mention *The Faculties of the Soul Follow the Mixtures of the Body (QAM)* and *On the Powers [and Mixtures] of Simple Drugs (SMT)*.

<sup>38</sup> For further developments on this important concept of Galen's thought, see Hankinson (2009) and van der Eijk (2009).

<sup>39</sup> Galen *On the Elements according to Hippocrates (Hipp Elem.)* 5.21 (98.9-11 De Lacy = I 454.4-5 K.) γενόθενται γὰρ ἅπαντα τοῖς ἑτερογενέσι καὶ ἀναμέμικται καὶ μετέληφεν ἢ μᾶλλον ἀλλήλων ἢ ἕπτων. (De Lacy's translation) See also Hankinson (2008d).

organism, organ or entity is in good balance, e.g., is in accordance with nature (κατὰ φύσιν), in a *eukrasia*<sup>40</sup>, which is the normative concept of what is in a good and well-balanced condition. Hence, when the contrary is the case, a disorder will emerge and produce an imbalance in the organism, e.g., a *dyskrasia*. This is a metaphysical tenet that Galen tries over and over again to fill out with empirical data. However, most of empirical confirmation for his general proposition is acquired when he sees *dyskrasiai*, organs, organisms or natural entities that are not working as they ought to do.

After the essential physiological and biological classification has been stated, how can we know that an organ is impaired or damaged? Galen claims that such organ or faculty manifests, in the human body or behavior, some perceptible signs of dysfunction:

... we shall say small deviations from perfect balance in each direction are not diseases if they should not yet bring about perceptible damage of any activity.<sup>41</sup>

This dysfunctional sign is an essential feature in the Galenic symptomatology, pathology, physiology, and diagnosis. This implies that the doctor has a logical expertise, for it is necessary that he can correctly interpret the signs available to the senses, i.e., he needs to make inferences based on the signs. Those interpretations are based on inferences that go from visible signs and symptoms to invisible internal conditions of the patient's body. This is the crucial point – other doctors use signs; only rationalists infer to theoretical conditions. As a matter of fact, this was an issue of major importance in Hellenistic philosophy and medicine, involving Sceptics, Epicureans, Stoics and the Hellenistic Schools of medicine: Empiricists, Methodists and Rationalists, mostly because it is related with the foundations of medical knowledge and with central topics of epistemology, and logic, namely the status of entities not observable to the sense organs, and the nature of logical inference and its importance for medical knowledge. Or, as Galen says in *On the Sect for Beginners*, whether experience alone suffices to build up a medical *technê* or whether the reason is also necessary. We cannot develop here in full the questions related to this topic, but only to give some fundamental information regarding the medical schools. This will be presented in a very rough way. Regarding the Empiricists, the central tenets of their methodology

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<sup>40</sup> *MM X* 174K. We can also mention *On Mixtures (Temp.)* 1.8 (34.20-35.16 Helmreich = 1.563-65K): “Human skin is an object of this sort [i.e. well-balanced], being exactly midway between all extremes – hot, cold, hard and soft...” and he continues writing specifically on hands’ skin: “It therefore had to be equidistant from all extremes, whether of hot, cold, dry, or wet...” (trad. Singer).

<sup>41</sup> *Morb.Diff.* VI. 842K. τὰ δὲ ἐφ’ ἐκάτερα τῆς ἀκριβοῦς συμμετρίας βραχείας ἐκτροπᾶς οὐδέπω μὲν εἶναι νόσους, ἔστ’ ἂν μηδέπω βλάβην αισθητὴν ἐνεργείας τινὸς ἀπεργάζονται. (Johnston’s translation). In *MM X* 50K. Galen says that “At all events, you will either say that the disease itself it is (the cause) or, if the disease is the damage of function, then the condition damaging it will be the cause of the disease.” πάντως δ’ ὄν ἦτοι τὸ νόσημά αὐτὸ φήσεις ὑπάρχειν αὐτήν, ἢ εἴπερ τὸ νόσημά ἐστιν ἢ βλάβη τῆς ἐνεργείας, ἢ βλάβη τῆς διάθεσις αὐτὴν αἰτία τοῦ νοσήματος ὑπάρξει.

are a rejection of formal inferences, either deductive or inductive, because all that a doctor needs in his practice is to link the actual data with previously collected data. So the signs, allied with observation and memory, were sufficient conditions for an accurate diagnosis and subsequent prescriptions. Adding to this, it is necessary to say that a doctor, as his individual knowledge is insufficient to know all the previous cases, needs to investigate and inquire previous observations from other doctors, and when that information doesn't exist, he should proceed by transition to the similar, viz. using remedies similar to those typically used in similar cases. In one phrase, for the Empiricists diseases are observational entities. The rationalists, on the other hand – although there is no general view shared by all doctors of this sect – held that experience alone is not sufficient to explain or ground medical *technê*, they say that it is necessary to use the cognitive powers of reason which will provide the doctor with knowledge beyond what is given to the senses. Moreover, they believe that is possible and reasonable to make inferences and statements about entities which cannot be observed by the senses, but that are only accessible to reason, for they believe that diseases are dispositions underlying the phenomena available to the senses, i.e. they believe that, with a correct logical reasoning it is possible to find the real cause of diseases. Regarding the Methodists, they claimed a short cut to acquiring medical *technê*, six month is sufficient for that, reversing the Hippocratic aphorism 'ars longa, vita brevis'. Therefore, good medicine is effective practice, and there is no need for nosological niceties, and still less for research into hidden causes of diseases. However, they did not deny empirical observation, what they held was an epistemological position where medical therapy is grounded on the notion of manifest 'commonalities', i.e., the understanding that all diseases share some general and plainly observable characteristics, the 'commonalities'. Galen has something in common with Empiricists and Rationalists, vehemently rejecting the Methodists. This dysfunctional sign is an essential feature in the Galenic symptomatology, pathology, physiology, and diagnosis. This implies that the doctor has a logical expertise, for it is necessary that he can correctly interpret the signs available to the senses, i.e., he needs to make inferences based on the signs. Those interpretations are based on inferences that go from visible signs and symptoms, to invisible internal conditions of the patient's body. This is the crucial point – other doctors use signs; only rationalists infer to theoretical conditions. As a matter of fact, this was an issue of major importance in Hellenistic philosophy and medicine, involving Sceptics, Epicureans, Stoics and the Hellenistic Schools of Medicine: Empiricists, Methodists and Rationalists, mostly because it is related with the foundations of medical knowledge and with central topics of epistemology, and logic, namely the status of entities not observable to the sense organs, and the nature of logical inference and its importance for medical knowledge. Or, as Galen says in *On the Sect for Beginners*, whether experience alone suffices to build up a medical *technê* or whether the reason is also necessary. We cannot develop here in full the questions related to this topic, but only to give some necessary information regarding the medical schools.



This will be presented in a very rude way. Regarding the Empiricists, the central tenets of their methodology are a rejection of formal inferences, either deductive or inductive, because all that a doctor needs in his practice is to link the actual data with previously collected data. So the signs, allied with observation and memory, were sufficient conditions for an accurate diagnosis and subsequent prescriptions. Adding to this, it is necessary to say that a doctor, as his individual knowledge is insufficient to know all the previous cases, needs to investigate and inquire previous observations from other doctors, and when that information doesn't exist, he should proceed by transition to the similar, viz. using remedies similar to those normally used in similar cases. In one phrase, for the Empiricists diseases are observational entities. The rationalists, on the other hand – although there is no general view shared by all doctors of this sect – held that experience alone is not sufficient to explain or ground medical *technê*, they say that it is necessary to use the cognitive powers of reason which will provide the doctor with knowledge beyond what is given to the senses. Moreover, they believe that is possible and reasonable to make inferences and statements about entities which cannot be observed by the senses, but that are only accessible to reason, for they believe that diseases are dispositions underlying the phenomena available to the senses, i.e. they believe that with a correct logical reasoning it is possible to find the real cause of diseases. Regarding the Methodists, they claimed a short cut to acquiring medical *technê*, six month is sufficient for that, reversing the Hippocratic aphorism ‘ars longa, vita brevis’. Therefore, good medicine is effective practice, and there is no need for nosological niceties, and still less for research into hidden causes of diseases. However, they did not deny empirical observation, what they held was an epistemological position where medical therapy is grounded on the notion of manifest ‘communalities’ (koinotêtai/κοινότητες), i.e., the understanding that all diseases share some general and plainly observable characteristics, the ‘commonalities’. Galen has something in common with Empiricists and Rationalists, rejecting vehemently the Methodists<sup>42</sup>.

Another central feature of Galen's medicine is his commitment to the overall teleological character of Nature, something that he inherited from Aristotle's philosophy. When an organ or activity is not working well or is sick, what would be ‘visible’ – to the different sense organs (sight, scent, touch or ears) jointly with reason – is that it is not doing the work to which it has been appointed by Nature.<sup>43</sup>

Nature (φύσις) is another central notion in Galen's medical-philosophical theory and practice. In his oeuvre, Nature can be approached from a cosmological and a medical-philosophical point of view.

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<sup>42</sup> Throughout Galen's oeuvre we find observations and criticism regarding these sects. However, his treatises collected in Frede and Walzer (1985) are directly related to these issues. Regarding the Empiric sect, see Hankinson (1987b), (1995b) and Frede (1987) ch. 13. Regarding Methodists, see Frede (1987) ch. 14 and Nutton (2004) ch. 13. For Rationalists and their relation to the two other sects and Galen, see Frede introduction to his translation of Galen's texts mentioned before (1985).

<sup>43</sup> The importance of Logic for medical practice, more precisely, to diagnosis, is a well noticed topic in Galen medicine. Barnes (1991), Morrison (2008a).

From a cosmological perspective, Nature is identical to the Demiurge, the divine entity that created, organized and drives the universe, and all beings inhabiting it. Thus, in Galen's perspective, Nature is a providential entity that works in the best possible way, even if she, at the first sight, may seem to do things without any purpose. However, as Aristotle wrote – and Galen follows him in this metaphysical tenet – Nature does nothing in vain.<sup>44</sup> For example, regarding the jejunum, Galen writes the following in his treatise *On the Usefulness of the Parts*:

From a study of the jejunum you may learn that some parts have not been formed for any [specific] usefulness but are made necessary by other parts and that the former are not really parts at all, but only accidents (συμπτώματα); for in the preceding discussion I have shown that the jejunum is useful only because it is the beginning of the thin intestine, seeing that a structure containing no nutriment would be of no [direct] use to the animal. But it is a necessary consequence of certain other, more important parts which do exist for a purpose. (May's translation)<sup>45</sup>

Or in a more theoretical way:

I think you will admire her providence here even more. For we very heedlessly choose a thing because it is advantageous, even though it sometimes happens to be more harmful in other respects than it is helpful in gaining what we need. But never in any one of her works does Nature heedlessly or indifferently choose a great disadvantage for the sake of a smaller gain; on the contrary, she judges the proper mean in every case with perfect accuracy and always produces the good far in excess of the evil. (May's translation)<sup>46</sup>

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<sup>44</sup> Aristotle, *On The Parts of Animals* [*De partibus animalum (PA)*], 661b 23-24. διὰ τὸ μηδὲν μάτην ποιεῖν τὴν φύσιν.

<sup>45</sup> *UP*, I 255.6-14 H. ὅτι δὲ δι' οὐδεμίαν ἕνια χρεῖαν γέγονεν, ἀλλ' ἑτέροις ἐξ ἀνάγκης ἔπεται, καὶ ὡς οὐδὲ μόρια ταῦτ' ἐστίν, ἀλλὰ τινα συμπτώματα, μάθοις ἂν ἐπὶ τῆς νήστεως, ἧς ὡς ἐντέρου μὲν λεπτοῦ τὴν γένεσιν εἰς ὅσον ἐστὶ χρήσιμος, ὁ πρὸ τούτου λόγος ἐπέδειξεν, ὡς μέντοι κενοῦ τροφῆς οὐδεμία χρεῖα τοῖς ζώοις. ἀλλ' ἐξ ἀνάγκης τοῦτ' ἠκολούθησε προηγουμένοις τισὶν ἑτέροις ἕνεκά του γεγονόσιν, ἔστι δ' οἷς ἀκολουθεῖ τάδε.

<sup>46</sup> *UP*, I 259-260 H. ταύτη καὶ μᾶλλον αὐτῆς οἴμαι σε θαυμάσειν τὴν πρόνοιαν. ἡμεῖς μὲν γὰρ ἀπερὶσκεπτότερον αἰρούμεθα τὸ λυσιτελοῦν, εἰ καὶ τύχοι ποτὲ μειζόνως εἰς ἕτερα βλάπτειν πεφυκὸς ἢ ὠφελεῖν εἰς ἃ χρῆζομεν. ἡ φύσις δ' οὐδὲ καθ' ἓν τῶν ἐαυτῆς ἔργων ἢ ἀπερὶσκεπτόως οὐδ' ὑπὸ ῥαθυμίας ἐνίοτε μέγα κακὸν αἰρουμένη δι' ἕλαττον ἀγαθόν, ἀλλ' ἀκριβεῖ μέτρῳ τὸ ποσὸν ἐν ἐκάστῳ κρίνουσα πολλαπλάσιον αἰεὶ τὸ χρηστὸν ἀποτελεῖ τοῦ μοχθηροῦ.

However, Nature works within some limitations, not intrinsic to “herself”, but to the material with which “she” is working on. Contrasting Greek with Judaic cosmology Galen says

And this is the point at which my teaching and that of Plato and the other Greeks who have treated correctly of natural principles differs from that of Moses. For him it suffices for God to have willed material to be arranged and straightway it was arranged, because Moses believed everything to be possible to God, even if he should wish to make a horse or beef out of ashes. We, however, do not feel this to be true, saying rather that some things are naturally impossible and that God does not attempt these at all chooses from among the possible what is best to be done. (May’s translation).

[...] We say, then, that God is the cause of two things, namely, the choice of the better in what is being made and selection of material. (May’s translation)<sup>47</sup>

The work of the Demiurge is made to make use of the best possibilities available with the existing material, the telos is to subordinate matter to function, and it is this that he have done. An economical criterion is at work in his choices: make the best with the material that is available.

On the other hand, we can look at Galen’s conception of Nature from the point of view of its elements, principles, and bodies. Following Aristotle (*Gen. Corr.* 2.1, 329a27–33), Galen considers necessary to distinguish elements from principles, being an element “the least part of the whole”, and a principle “that into which this least is conceptually changeable”.<sup>48</sup> But these elements, being the primary stuff of Nature, are always “generated by the predominance of the four qualities of the underlying material”<sup>49</sup>, and these qualities are always paired with elements though one of the qualities predominates. “Thus water is cold and moist, the air moist and hot, fire hot and dry, earth dry and cold, although more the first than the second in each case”. Both parts of human (*homeomerous* and organic parts) body and humors (bile, black bile, phlegm and blood) are derived from these fundamental elements and qualities:

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<sup>47</sup> *UP*, II 158.19-159.3 H. καὶ τοῦτ' ἔστι, καθ' ὃ τῆς Μωσοῦ δόξης ἢ θ' ἡμετέρα καὶ ἡ Πλάτωνος καὶ ἡ τῶν ἄλλων τῶν παρ' Ἑλλήσιν ὀρθῶς μεταχειρισμένων τοὺς περὶ φύσεως λόγους διαφέρει. τῷ μὲν γὰρ ἀρκεῖ τὸ βουλευθῆναι τὸν θεὸν κοσμησάμεν τὴν ὕλην, ἢ δ' εὐθὺς κεκόσμηται· πάντα γὰρ εἶναι νομίζει τῷ θεῷ δυνατά, κἂν εἰ τὴν τέφραν ἵππον ἢ βοῦν ἐθέλοι ποιεῖν. ἡμεῖς δ' οὐχ οὕτω γινώσκουμεν, ἀλλ' εἶναι γὰρ τινα λέγομεν ἀδύνατα φύσει καὶ τοῦτοις μὴδ' ἐπιχειρεῖν ὅλως τὸν θεόν, ἀλλ' ἐκ τῶν δυνατῶν γενέσθαι τὸ βέλτιστον αἰρεῖσθαι.

*UP*, II 159.10-13 H. [...] ἀμφοτέρων οὖν τὸν θεὸν αἴτιον εἶναι φαμεν, τῆς τε τοῦ βελτίονος ἐν αὐτοῖς τοῖς δημιουργουμένοις αἰρέσεως καὶ τῆς περὶ τὴν ὕλην ἐκλέξεως.

<sup>48</sup> *HNH* XV 30–1, = 17, 28–18,15 Mewaldt; cf. *Hipp.Elem.* I 480 = 126, 7–12 De Lacy. Hankinson’s translation in (2008d), p. 214. Regarding Galen’s conception of Nature, see Hankinson (2008d).

<sup>49</sup> Hankinson (2008d), p. 214.

Animal bodies are a mixture of hot, cold, moist, and dry and these qualities are not mixed equally in each case.<sup>50</sup>

Though all these items have a particular mixture/temperament (*krâsis*) of the four fundamental qualities, their *krâsis* can vary from part to part, and from individual to individual. It establishes in a state and acquires a stable structure or organization. Its natural state is qualified as diathesis (διάθεσις), a disposition, which from Hippocrates onward is identical with the *physis* of an individual, being it human or not. It is a cluster of stable characteristics specifying how a person or an entity has the shape it has, and the form and internal organization it has. But what is the meaning of diathesis?

### διάθεσις (*diathesis*)

A disposition or condition (διάθεσις) is a term with a long medical and philosophical history. At a rapid glance in Liddell and Scott's Greek-English Lexicon (LSJ), we find the following meanings: a disposition, arrangement, Plato. 2. the composition of a work of art, as well as, also in Plato, a man's disposition.

Erwin Ackerknecht<sup>51</sup>, in a well-known paper about the medical history of *diathesis*, said that the term appears for the first time in the Hippocratic writings (*Diseases III*, *The Eight Month Child* and *Ancient Medicine*) but without a specific meaning. As he claims, the term could be replaced by *physis*. Nonetheless, in *The Coan Prognosis*, *Epidemics I*, *Airs, Waters, Places* and *Aphorisms III*, the term become more specific, denoting some *constitution*.<sup>52</sup>

Aristotle uses the word more frequently than the Hippocratic writers<sup>53</sup>. To him, the word is not a technical term; it has neither a precise meaning nor a specific biological designation. Aristotle used it in *Metaphysics*, *Categories*, *Rhetoric*, *On the part of the animals* and *Politics*, always with different meanings, which go from arrangement, and bodily state, to something belonging to the matter of animals, only to mention a few.

Galen, as Ackerknecht said, used the word more frequently than Aristotle or Hippocrates (e.g. in *On Prognosis* more than ten times) but not always in the same sense. Nevertheless, he has offered a

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<sup>50</sup> *On Mixtures*, (*De temperamentis*), I 509K = 1. 1-3 Helmreich Ὅτι μὲν ἐκ θερμοῦ καὶ ψυχροῦ καὶ ξηροῦ καὶ ὑγροῦ τὰ τῶν ζῴων σώματα κέκρται καὶ ὡς οὐκ ἴση πάντων ἐστὶν ἐν τῇ κράσει μοῖρα

<sup>51</sup> Ackerknecht, Erwin H., (1982) pp.317-325.

<sup>52</sup> As an example we can mention, *Epidemics*, I, 2; *Aphorisms*, III, 11.

<sup>53</sup> At *Metaphysics* 1022b, Aristotle gives a short definition of διάθεσις.

definition in *De symptomatum differentis*, which opposes diathesis – something existing in the healthy, the sick and the neutral<sup>54</sup> – to *pathos* and *nosos*. In a broader sense, for Galen, a disposition, as Hankinson writes<sup>55</sup>, is a non-permanent, but equally non-ephemeral, temperament of the body, that is, an arrangement, organization, state or condition that is responsible for the well-being or illness of a person<sup>56</sup>. So, regarding human beings, they are always in a disposition, as Galen says:

For each thing that exists is in some sense in a disposition (διάθεσις), whether it be healthy, diseased or neither. Now the term “disposition” is derived in some way from “to be in a certain disposition” (διακεῖσθαι).<sup>57</sup>

Thus, an individual disposition is can be changed, modified, affected in some way or another, i.e., something happens to that person or individual. In other words, he or she is under the influence of a *pathos*. However, how does Galen understand the meaning of *pathos*?

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<sup>54</sup> *Symp. Diff.* VII. 43K.

<sup>55</sup> Hankinson (2008), p. 230-231.

<sup>56</sup> Galen wrote extensively on the meaning of diathesis. In MM 7.8 ff, for instance, discussing the nature of health and disease with the Methodists, the Roman physician explains the meaning of *diathesis* in some detail. Hankinson’s commentary, p. 146-149, is useful on the logical implications of Galen’s criticism against the Methodists definition of the concept. Roughly speaking, the central issue is to know if *diathesis* has as a referent the activities of the body or the body itself. In order to understand the importance of the concept in Galen’s works we can consult the *Dictionary of Medical Terms in Galen*, by Richard J. Durling, Brill (1993), pp. 115-120, where we find a useful inventory of the works where the term was used. Another useful paper is one of R. Maria Moreno Rodríguez, ‘El concepto de diathesis parà phýsin (estado preternatural) en la patología de Galeno’, *Dynamis*, 3 (1983), pp.7-28, where the author summarizes the importance of Aristotle’s biology and metaphysics, more precisely, his overall reading scheme of reality that is supported by ‘hylemorphism’, and the teleological orientation of Nature, so important for the stabilization, appropriation, and Galen’s use of the concept.

<sup>57</sup> *De symptomatum differentiis* VII.43K. (Johnston’s translation).

## πάθος (*pathos*)

*Pathos* (πάθος) is a noun broadly meaning *that which happens to* a person or thing. For example, the noun has the meaning of what one has experienced, whether good or bad, or, applied to the soul, of emotion, passion, affection, i.e., something that modifies the normal way of being of an individual. In extreme situations, it is a force that pushes an individual out of himself, or herself, where he or she loses the control over what is happening. The term also denotes a sense of passivity, the opposite of *energeia*. Ancient literature is particularly rich in examples of characters that were under the control of pathological states (*pathê*). From the Tragedians to Plato and Aristotle, not forgetting the Stoics, *pathos* is a literary and philosophical topos that have been in recent years a subject matter of a variety of academic works.<sup>58</sup>

Galen, in his works<sup>59</sup>, tried to distinguish *pathos* from *nosos*, although he was not too concerned with the meaning and origin of words. Time and again, he mocks other schools of medicine and philosophy because of their excessive concern about these issues. In his opinion, the most important thing is to be coherent in the use of language. Since the moment interlocutors agreed upon the meaning of the term and knew of which reality the physician is talking, the issues of etymology, philology and others topics related to the history of a word how it was used by Plato, Aristotle or whoever, became unimportant. Most of the time, excessive concern about terminology does not improve knowledge, and, perhaps worse, does not help in finding adequate therapies for treatment; indeed it can be positively misleading. In one word, the time spent quibbling about terminology and etymology does not lead anywhere, and is completely sterile in all the possible senses.<sup>60</sup>

However, although he has a strong aversion toward etymology, and philology, in *Symp. Diff.* Galen thinks it is useful, and necessary, to distinguish *pathos* from disease and health. In this treatise, he claims “disease is the opposite of health.” He goes further, arguing that *pathos* or *pathêma* is what is arranged in a certain way by a certain movement, i.e., to be disposed in a certain way is the same as to be affected. Therefore, affection is differentiated from diathesis by movement. *Diathesis* is a condition that

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<sup>58</sup> In a personal observation, Hankinson reminded me that Galen follows the Aristotelian procedure quoted at the beginning of *De Anima* (I 1, 402b10-403a2), which says that we must start with the *erga kai pathê* of the soul, “with the works and affections of the soul”, in other words, with the *manifestations* of its activity. See note 89 below.

<sup>59</sup> He wrote a treatise entitled *Passions of the Soul (Aff. Dig.)* where he criticized Chrysippus’ point of view about the nature of emotions. *PHP* is another central work where Galen developed a strong attack on Chrysippus’ views on this central theme with repercussions in ethics, psychology and epistemology, only to mention some of the philosophical disciplines. In both works Galen did not show himself concerned with questions of language, however the topic was an important one in his works. For an account of the definition of *pathos* in ancient philosophical literature and Galen, see Hankinson (1993) pp. 187-197.

<sup>60</sup> As an example, *MM X*. 385-386K. “...we must give little thought to names so that we may hasten to discover the knowledge of the matters themselves. Let us press on toward this, paying scant attention to names because patients are benefited not by the precise application of names, but by the appropriate remedies.” Loeb. Galen seems to express a strong commitment to metaphysical realism in a variety of different passages of his works. However, things are a bit more complicated – Galen sometimes thinks a piece of terminology is misleading, even if used consistently. On the issue of language see Morison (2008b).

has same duration in time, some stability and durability; whereas affection is related to change, movement, and alteration, and diathesis is what underlies that movement or modification of the organ or organism in question. Hence, pathos is a punctual movement or change in time, and diathesis an underlying organized structure that remains in time. As said above, it is an arrangement of the body that is not constant but has some duration in time that is responsible for the rise of diseases.<sup>61</sup>

Galen's inquiry into the meaning of *pathos* continues in the PHP, mostly in the IV and V books, where he attacks Chrysippus's conception of the nature of pathos. It is useful to explore some of the issues that this debate has engendered.

Broadly speaking, in the books IV and V of PHP Galen continues and goes further into the discussion of the location of the ruling part (*hêgemonikon*) of the vital functions of human beings. In those books, the central theme is the nature and meaning of soul's passions (*παθή*). Galen's concern is on the causal explanation of affection, i.e. on how the soul is affected; a question intrinsically related to the issue of the origin of those states. First of all, what is an emotion/passion? We have visited the broad meaning of pathos. Nevertheless, Galen is very concerned with the right explanation of where and how emotions arise, and in which part of the body is seated its responsible power/faculty. The Stoic philosopher Chrysippus argues that human emotions/passions are the same as the evaluative judgments

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<sup>61</sup> Hankinson (1993), in footnote 32 p. 193, holds "a pathos is still in a state of development", it is a *kinesis*, whereas a disease is an established state. It is true that Galen developed his views about the affections of the soul in the treatise with the same title; we have to return to that work later. Nevertheless, and this is a line of reasoning that have been used by some scholars, we might say that pathos is identical to illness and nosos to disease, whereas illness should be understood as the subjective experience of the patient and disease as the objective classification made by expert practitioners and where an underlying bio-physiological damage is producing such a state. As Roy Porter (2006, pp. 75-76) wrote, both disease and illness "are often used interchangeably: 'he's got a disease' or 'he's suffering from an illness'". However, they may also be differentiated. For instance, we "may say of somebody with a tumour: 'he's got cancer, but he's not feeling ill'". In modern English "disease is normally an objective thing, often triggered by a pathogen [...] and marked by telltale symptoms..." On the other hand, "illness denotes something subjective, feelings of malaise or pain". In the same line of thought, G. E. R. Lloyd (2003, pp. 1-2) claims "We should distinguish between disease and illness. The first is what biomedicine will define as a pathological condition. The second relates to how you feel. The first is objective and verifiable by certain tests... The second is subjective." Lloyd is aware that biomedicine is a phenomenon of the twentieth and twenty-first centuries, which could raise some problems of anachronism when applied to ancient texts and societies. However, I think that the broad distinction between disease (*nosos*) and illness (*pathos*) can be maintained if we understand nosos as the rational account of what is at stake in a specific case, a scientific account produced by an expert that picked up a real and stabilized entity that exists independently of the values and opinions of individuals whom makes the assertion, and pathos as a belief of what is happening to an individual, the feelings that a person experiences about his own situation. In this sense, we can assimilate *nosos* with logos and pathos with *doxa*, whereas we consider pathos the result of beliefs or the result of irrational forces. And I believe that this differentiation is in tune with Hankinson's citation presented above. In other words, we can assume for the present purpose, *nosos* as an epistemological account and pathos as a psychological one. I'm not assuming an ontological differentiation between subject and object in a Cartesian way. My claim is that different individuals have different experiences, feelings, emotions, reactions (*pathê*) to a same disease (*nosos*), and in this sense pathos can be understood as illness and *nosos* as disease. I am aware of the philological and philosophical difficulties of this interpretation, which I cannot develop here. For further developments on the topic of subjectivism in ancient philosophy, see Burnyeat (1982), and Gill (2006), pp. 391-407. For an accurate account of *pathos* in Galen, see Hankinson (1993).

humans make about situations in which they are immersed. In other words, passions are a cognitive phenomenon grounded in an erroneous judgment about the state of affairs that surrounds an individual and where reason turns against itself, i.e., turns against his best judgment.<sup>62</sup> Galen advocates a completely different position. His investigations have led him to argue that a *passion* is an irrational element that has its source in the spirited (θυμοειδής) and desiderative (ἐπιθυμητικόν) parts of the soul.<sup>63</sup> His central critique of Chrysippus's position is that the latter states a monistic thesis about the human soul, a strict and strong position where the soul is a rational power that dismisses any irrational force in it. However, according to Galen, Chrysippus argues that emotions are irrational judgments of the rational soul, a position that has put Chrysippus in self-contradiction.<sup>64</sup>

Another interesting point is that Chrysippus advocates an analogy between pathos and *nosos*. In the hands of the Stoic philosopher pathos shifts from the field of ethics to the field of medicine, and it turns out to be identical to disease. To be pathologically affected, in terms of emotional deregulation, is the same as to be not in tune with the laws of reason, which is the same as of being ill. This position is the

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<sup>62</sup> The meaning of pathos in ancient stoicism has seen an increased interest in the academic world since, at least, the last decade of XX century. Today the bibliography on the topic is enormous, and the debates have different adherents with different arguments. This resurgence of interest in Stoic psychology is, I think, not accidental, but that is another story. Nevertheless, we can say that for Chrysippus, who is the main Stoic philosopher under attack by Galen, a passion is a wrong judgment about what is better for the individual in a specific situation. In this sense, the pathological moment is a rational one, and not an irrational one that should have its origin in a different *dynamis* than reason. It is precisely because of this excessive attachment of Chrysippus to an explanation of what passion is, i.e., as an erroneously rational judgment, that Galen criticizes him throughout the book IV of PHP. On the other hand, Galen shows a sympathetic interpretation to Posidonius because this stoic philosopher understands that the passions have their source in an irrational *dynamis* of the human constitution. A statement which is in tune with Plato's view of human nature, and Galen's view on human psychology. For a full understanding of the passions in Stoic philosophy, see: Inwood (1985), Michael Frede (1986), Anna Maria Ioppolo (1995), Pierluigi Donini (1995), Cooper (1999), Sorabji (2002).

<sup>63</sup> Galen, *PHP*, V, 4, 2-3. "My purpose is to show that it is not in a single part of the soul nor by virtue of a single power of it that both judgments and affections occur, as Chrysippus claimed, but that the soul has both a plurality of powers of different kinds, and a plurality of parts. Posidonius and Aristotle grant that the powers of the soul are three in number, and that by them we desire, feel anger, and reason; but that they are also spatially separate from each other, and that our soul not only contains many powers but is composed of parts that differ in kind and in substance, this is the doctrine of Hippocrates and Plato."

πρόκειται δὲ δεικνύειν ὡς οὔτε καθ' ἓν μόριον τῆς ψυχῆς οὔτε κατὰ μίαν αὐτῆς δύναμιν αἱ τε κρίσεις γίνονται καὶ τὰ πάθη συνίσταται, καθάπερ ὁ Χρυσίππος ἔφασκεν, ἀλλὰ καὶ δυνάμεις πλείους αὐτῆς εἰσὶν ἕτερογενεῖς καὶ μόρια πλείω. τὸ μὲν δὴ τὰς δυνάμεις τῆς ψυχῆς τρεῖς εἶναι τὸν ἀριθμὸν, αἷς ἐπιθυμοῦμέν τε καὶ θυμούμεθα καὶ λογίζόμεθα, καὶ Ποσειδώνιος ὁμολογεῖ καὶ Ἀριστοτέλης. τὸ δὲ καὶ τοῖς τόποις αὐτὰς ἀλλήλων κεχωρίσθαι καὶ τὴν ψυχὴν ἡμῶν μὴ μόνον ἔχειν ἐν ἑαυτῇ δυνάμεις πολλὰς, ἀλλὰ καὶ σύνθετον ἐκ μορίων ἢ ὑπάρχειν ἕτερογενῶν τε καὶ διαφερόντων ταῖς οὐσίαις Ἱπποκράτους ἐστὶ καὶ Πλάτωνος δόγμα.

<sup>64</sup> Galen, *PHP*, IV, 240.11 ff. "These are not the only definitions in which he clearly contradicts himself. He does so also in his account of the definitions of affection, when he says that affection is an irrational and unnatural movement of the soul and an excessive conation, then he says, in explaining 'irrational', that it means 'without reason and judgment'... [...] For this irrationality must be understood as disobedient to reason and rejecting it..."

Καὶ γὰρ οὐ κατὰ ταῦτα μόνον αὐτὸς ἑαυτῷ διαφέρεται φανερώς, ἀλλὰ κάπειδὰν ὑπὲρ τῶν κατὰ τὸ πάθος ὀρισμῶν γράφων ἄλογόν τε καὶ παρὰ φύσιν κινήσιν ψυχῆς αὐτὸ φάσκει καὶ πλεονάζουσαν ὀρμὴν, εἶτα τὸ μὲν ἄλογον ἐξηγούμενος τὸ χωρὶς λόγου τε καὶ κρίσεως εἰρησθαι φάσκει [...] τὸ γὰρ ἄλογον τουτὶ ληπτέον ἀπειθὲς λόγῳ καὶ ἀπεστραμμένον τὸν λόγον.



consequence of Chrysippus's monism that sees human life as a continuum, from a lower level of organization and complexity to a higher one fully embedded and governed by reason or Nature.

Besides, at the beginning of book VI of *PHP* Galen gives us more explanations on the meaning of *pathos* differentiating it from *energeia*. In a broader sense, we can summarize Galen's position by saying that both *pathos* and *energeia* have two different meanings: the first meaning of *pathos* is "a motion in one thing that comes from some other thing", and the first meaning of *energeia* is "an active motion ... that comes from the moving object itself". The second meaning of *pathos* is a motion contrary to nature, and the second sense of *energeia* is a motion according to nature (*PHP* VI, I 5-10). However, what is the meaning that Galen gives to a term as laden historically and philosophically as *energeia*?

### ἐνέργεια (*energeia*)

*Energeia* (ἐνέργεια) is a term with a long and tortuous history in ancient philosophy. It seems that the word was an Aristotelian coinage, having as its counterpart the term *dynamis* (δύναμις). Nevertheless, the meaning in Aristotle has been an object of controversy for centuries, and Galen is not one of the contenders<sup>65</sup>.

In Galen's thought, *energeia* is always related with *dynamis*, presupposing that we can access the former by the effects that it produces. However, *energeia* is also closely related with *chreia* (χρεία), a term also used by Aristotle, but much more by Galen; as a matter of fact, one of his major works, *Περὶ χρείας μορίων* (*De usu partium / On the Utility of the Parts*), has the term in the title.

Regarding *energeia* and its translation, some authors render it as function, others as activity. Jim Hankinson (1991) in his translation of the first two books of the *On the Therapeutic Method* translates it as activity and has offered some reasons for his choice on p. 132. Ian Johnston in his recent translation of the same work, as well as in his previous translations of *On the Difference of Diseases*, *On the Difference of Symptoms*, etc, has chosen *function*. I have chosen to use *activity* because it is much more related to the idea of something actually performing some activity, and it is, I think, one of the central meanings of the word *energeia*. If we take a look at LSJ, the first meaning of the term is, precisely, activity and the second, operation – although in the context of Aristotelian works. On the other hand, citing as an example one of Galen's texts, LSJ proposes physiological function as a translation, but in a Galen passage about the power of drugs, it translates *energeia* as activity. LSJ also offers the meaning *performance*.<sup>66</sup> In a fundamental passage of *De usu partium* Galen mentions that the *energeia* (ἐνέργεια) of a part is different

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<sup>65</sup> Menn (1994)

<sup>66</sup> Schiefsky (2007) in a recent paper about Galen's teleology writes that "The scope of *ergon* is wider than *energeia*, since all activities (e.g. digestion or blood production) can be considered products, but not all products (e.g. flesh, blood, bone) are activities."

from its use (χρεία), because an activity is an active motion (κίνησις δραστική), whereas the use is the same as what is commonly called ‘utility’ (εὐχρηστία).<sup>67</sup>

However, as we have mentioned already, if an *energeia* has been impeded, it is a sign that we are in the presence of some disease. The activity (*energeia*) is of major importance both to diagnosis and therapeutics; because a damaged activity is a crucial sign that gives the doctor an opportunity to access to the part that is causing the lesion in the activity.<sup>68</sup>

Regarding the concept of *chreia* (χρεία) Margaret Tallmadge May writes in the introduction to her translation of Galen’s *De usu partium*, that “χρεία means for him [Galen] rather the suitability or fitness of a part for performing its action, the special characteristics of its structure that enable it to function as it does. Sometimes χρεία is best rendered ‘reason’ (why a part has a certain feature) or ‘advantage’ (to be gain from a certain feature)”.<sup>69</sup> Hence, as Hankinson writes<sup>70</sup>, “χρεία (variously translated as ‘need’, ‘purpose’, ‘use’, ‘usefulness’, ‘utility’ and ‘function’, none of which gets it quite right) is what the part is for, in the sense of what it contributes to the animal’s overall economy”. According to Furley and Wilkie<sup>71</sup> this notion is closely related to what Aristotle wrote in *On The Parts of Animals*, where the word has the meaning of “need”, referring mostly to Aristotle expression “for the sake of such and such” (ἔνεκα τοῦ...).

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<sup>67</sup> *Us. Part.* XVII 1; IV 346K. This passage is mentioned in Furley and Wilkie (1984), p. 58.

<sup>68</sup> As an example we can mention *Loc. Aff.* K VIII, 20. It is true that it is possible to have only one activity damaged, but various parts of the body affected. *Loc. Aff.* K. VIII 250.

<sup>69</sup> May, M. T. (1968) *Galen: On the Usefulness of the Parts of the Body*. Ithaca. p. 9 *U.P.* in Latin abbreviation, as usually his works are cited.

<sup>70</sup> Hankinson (2008d) p. 228.

<sup>71</sup> Furley and Wilkie (1984) p. 59.

## The location of the ruling part (ἡγεμονικόν/*hêgemonikon*) of the soul

One of the hot topics that Galen inherited from the medical and philosophical tradition was the problem of the identification, location, and definition of the ruling part (*hêgemonikon*/ἡγεμονικόν) of the soul (*psychê*/ψυχή). This was a theme of central importance, not only for philosophy, but also for medical practice. It is a central question because of its consequences, mostly, but not only, in the field of ethics. Hence, it is essential to accurately know the rationality or irrationality of emotions, as well as the most disputed topic of the weakness of the will (ἀκρασία), for where the ruling part is, is where is located the responsibility of the agent. As a matter of fact, the principle of an action, or movement, is a synonym of responsibility: it is this principle that should respond with respect to the agent's behavior. In this sense, it is essential to determine where the principle of voluntary actions, as well as of the activities of perception, reasoning, judgment, imagination, etc., is seated.

On the one hand, this topic raises central metaphysical problems related to issues regarding the nature, essence and substance of the *psychê*, as well as regarding soul-body interaction, and the causal relations between them. On the other hand, it is a core issue to be worked, in order to give the doctors a stable guide to solving problems and restoring health to patients suffering from any disease.

Soul (ψυχή) / body (σῶμα) relationship is an issue that was at the root of the controversies about the nature and location of the ruling part of human soul. From movement to reasoning, passing through perception memory, and imagination, the debate surrounding the nature of the soul's existence, substance, definition, immortality or mortality; its powers, and physical location within the body, was the hub of these discussions. Also, the controversy surrounding the *hêgemonikon* that, as Julius Rocca puts it, was about whether to identify this entity with the soul or to understand it as an intermediary between the soul and the body.<sup>72</sup> In this hot debate, body's candidates to receive the *hêgemonikon* were the heart (cardiocentrists) and the brain (encephalocentrists). Followers of the former positions were Aristotle and the Stoics. Followers of the second were Hippocrates, Plato and Galen.

It is important to make some brief considerations on the notion of *psychê* (ψυχή). The usual translation of this word is soul, however, as different scholars have advised, this translation is misleading because of its proximity to religious allusions and meanings.<sup>73</sup> It is true, however, that the meaning of the word shifted from Homer to Galen's times in II AD. Nevertheless, the basic understanding, during this period, was of something that all living beings have, i.e., an internal principle of organization that is responsible for life. At the same time, psyche is usually understood as a set of powers, faculties or capabilities (δυνάμεις), which are responsible for the performance of a variety of activities (ἐνέργειαι).

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<sup>72</sup> Rocca (2003), p. 19.

<sup>73</sup> Everson (1991), Hankinson (1991d)

The most significant difference between animals and other forms of life is the power of movement, being this difference one of the essential attributes that characterize 'things' having a *psychê*: they can move by themselves, i.e., they have some degree of autonomy.<sup>74</sup> In addition to this power, which both humans and non-humans animals share in common, the humans differentiate themselves from non-human animals by the power of reasoning, a faculty that also falls under the jurisdiction of *psychê*. But a question remains: of which *psychê*? Is it the same *psychê* as the one that makes the newborn grow and breed? Aristotle raises this question in *De Anima*, and, in a broader sense, it is the same as that to which Galen is trying to answer when he attacks the topic of the location of the *hêgemonikon* (ἡγεμονικόν). However, this problem does not belong only to philosophy; as a matter of fact physicians had something to say about it, mostly Herophilus and Erasistratus, doctors of the Hellenist period.

### Herophilus and Erasistratus<sup>75</sup>

Galen's position regarding the subject matter of the *hêgemonikon*/ἡγεμονικόν is intimately related to the developments of the Hellenistic Schools of philosophy and medicine, mostly the medical works of Herophilus (c. 330-250 B.C.) and Erasistratus (c. 320-240 B.C.). Nevertheless, time and again Galen uses the authority of Plato and Hippocrates to justify his belief that the commanding center of the soul is seated in the brain<sup>76</sup>.

The work of these two doctors can be contextualized in the overall shift performed by the Hellenistic schools of philosophy, like the Stoics and the Epicureans. In a very broad sense, we can summarize the shift operated by those schools by paraphrasing the Stoic ontological position: what is, is something that is able to affect or be affected; only those things that have some matter (resistance) could affect or be affected; therefore, only what is composed of matter exists because only what has matter can affect or be affected. This is a very crude summary of the central thesis of the Hellenistic philosophy. However, what is worthy of consideration is that the understanding of Nature from the Hellenistic period

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<sup>74</sup> Everson (1991) mentions that Aristotle, in *De Anima* 411a24-b3, after having discussed the theories of “his predecessors draw a picture of what are the central features of having a ψυχή. ‘...since knowing, perceiving, believing, and further desiring, wishing, and generally all other modes of appetite belong to ψυχή, and the local movements of animals, and growth, maturity, and decay are produced by the ψυχή as a whole...or whether each requires a different part of the ψυχή?’”

<sup>75</sup> About Herophilus, see Heinrich von Staden (1989) which edited, translated into English with a running commentary, all the extant fragments. For Erasistratus, see Garofalo (1986), who edited and commented in Italian, the extant fragments of the Alexandrian physician. About the “stunning moment in the history of science” that was this one, where Herophilus and Erasistratus were central characters, see van Staden (1992).

<sup>76</sup> but he does much more – he tries to prove that the brain is the command centre of the soul, and he generally rejects mere appeals to authority (although of course he does use them). However, most of the tenets from which he has derived his research were developed during the Hellenistic Period by those two doctors mentioned above.

onwards was based more and more on an ontological commitment of the following type: what exists is made of some kind of material stuff and that material stuff is what things really are.<sup>77</sup>

In medicine, as well as in philosophy, this overall commitment to the ultimate constituents of Nature, with more or less accuracy and intensity, was reinforced by the anatomical researches carried out on animals and humans. These investigations started with the Alexandrian physicians Herophilus and Erasistratus and led them to defend singular positions about Physiology and Anatomy.

Herophilus, like Epicurus and the Stoics, believes that *psychê* is a corporeal entity and that it has capacities distinct from the body. Moreover, he differentiates psychic from natural powers or capacities (*δυνάμεις*), claiming that *psychê* regulates the psychic activities, and the natural powers regulate the functions of the body, and that the substance of the soul is air, *pneuma* (*πνεῦμα*).<sup>78</sup> All these tenets were obtained mostly from his anatomical researches. That led him to the discovery of the nerves and their function in the human body, as well as to the location of the ruling part (*ἡγεμονικόν*) of the soul in the brain.

The first outcome of his experiments was the postulation of the existence of two different kinds of nerves: the sensitive and the motor nerves. The former are those that allow the existence of sensation and the latter those that enable movements. Their origin is the brain, more specifically, in the ventricle of the cerebellum. These discoveries led him to locate the *hêgemonikon* in the fourth ventricle of the brain. Nevertheless, this postulation raises some problems, like those of the interaction of the brain with the body. According to von Staden<sup>79</sup>, it seems that this relation is similar to that used by Chrysippus when he explained the link between the *hêgemonikon* (*ἡγεμονικόν*) and the rest of the body. Chrysippus used the metaphor of the octopus or the spider web, to illustrate a command center (the spider) spreading out its powers throughout the body (the net). But according to Herophilus the nerves are the medium between the *hêgemonikon* and the rest of the body. Moreover, for the Alexandrian physician the nerves are offshoots of the cerebellum, and there is some evidence that he distinguished sensory nerves from motor nerves. However, the main difference between Herophilus and Chrysippus is that the former is an encephalocentrist while Chrysippus a cardiocentrist.

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<sup>77</sup> LS 45B, Sextus Empiricus, *Against the Professors* 8.263 (SVF 2.363) “According to them [the Stoics] the incorporeal is not of a nature either to act or to be acted upon.” τὸ γὰρ ἀσώματον κατ’αὐτοῦς οὔτε ποιεῖν τι πέφυκεν οὔτε πάσχειν. LS 5A, Epicurus, *Letter to Herodotus* 39-40. “(I) Moreover, the totality of things is bodies and void.” (I) ἀλλὰ μὴν καὶ τὸ πᾶν ἐστὶ <σώματα καὶ κενόν>. Hankinson (1991b), p. 215-216, says, “Galen is a materialist, in the sense of requiring, ..., that the functions be realized in some material arrangement...” I am not sure if Hankinson is saying the same thing, but I think that Galen is committed to a sort of materialism, close to that vindicated by the Stoics and Epicurus. I am not saying that Galen shares the same ontology as the Epicureans, he neither believes that atoms are the basic ontological elements – or if they exist at all – nor that void exists; as Hankinson says (2008) Galen is a continuum-theorist, and in that sense is much closer to the Stoics.

<sup>78</sup> Regarding the subject matter of *pneuma* both in philosophy and medicine, see the useful summary made by Annas (1992).

<sup>79</sup> von Staden, pp. 88-89. (2000)

Another central figure in the history of the localization of the *hêgemonikon* within the human body is Erasistratus. Erasistratus was a contemporary of Herophilus and, like him, made dissections and vivisections in different animals, and perhaps humans too<sup>80</sup>. His theories were innovative. Claiming that a corporeal *psychê* is a necessary condition for the living animal, he has also claimed that the principles (ἀρχαί/archai) and elements (στοιχεῖα/stoicheia) of body are the *triplekeiai* (τριπλέκειαι), i.e., an interweaving of arteries, veins, and nerves<sup>81</sup>, which were for him the three fundamental types of tissue. Hence, Erasistratus thought that the human body has two vascular systems: the veins and the arteries. The former is the vehicle of the products of digestion of food, and carries it out to the whole body. The latter is the vehicle of *pneuma* to the whole body - which is the result of the air in the lungs.<sup>82</sup> Hence, he has located the *hêgemonikon* not in the fourth ventricle of the brain, like his contemporary Herophilus, but in the meninges, mostly because he thought that it was there that the nerves have their origin.<sup>83</sup>

These questions were a central problem in ancient philosophy and medicine. On the one hand, Galen position regarding the nature, corporality or incorporeality, and afterlife of the soul sometimes suggests a skeptical flavor. On the other hand, he shares the view of Herophilus and Erasistratus regarding the location of the *hêgemonikon*, but presents different arguments in its defense, disagreeing however with Erasistratus in the identification of the *hêgemonikon* with the psychic *pneuma*.<sup>84</sup>

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<sup>80</sup> von Staden, (1996)

<sup>81</sup> Pseudo-Galen, *Int.* 20.22-21.1 Petit = XIV 697K. Καὶ Ἐρασίστρατος δὲ ὡς ἀρχὰς καὶ στοιχεῖα τοῦ ὅλου σώματος ὑποτιθέμενος τὴν τριπλέκειαν τῶν ἀγγείων, νεύρα καὶ φλέβας καὶ ἀρτηρίας... According to Peitit, p. 130 footnote 7 of her edition of the pseudo-Galen *Introductio sive medicus*, τριπλέκειαι is a *hapax*. This concept, attributed to Erasistratus, is not mentioned elsewhere apart from this text. There are, however, some other references to it in Galen's *Nat. Fac.* 171.1-3 Helmreich and *De usu partium*, VII, 8, 391.2-4 Helmreich. Petit have chosen the form -πλέκειαι instead of -πλοκ- as Garofalo did for his edition of the fragments of Erasistratus.

<sup>82</sup> David J. Furley and J. S. Wilkie, p. 41 of their Introduction to *Galen. On Respiration and the Arteries*.

<sup>83</sup> For all these issues about the discovery of the nerves and the location of the *hêgemonikon* in the Hellenistic period, see: Solmsen (1961); Rocca (2003); and von Staden (1989, 2000).

<sup>84</sup> The works of Hankinson deal with the metaphysical positions of Galen's thought concerning the body-mind interaction. As Hankinson argues, Galen adopts an agnostic position about the existence, nature and substance of the soul, mostly because this is a question that is to be 'solved' by philosophers, and also because for medical purposes it is not necessary to know what the nature of the soul is or if it is immortal or not, as the main horizon of physicians' practice is therapeutics. On the other hand, Hankinson has shown that Galen's methodological precepts make impossible for him to adhere to a steady position about this issue. Those precepts are Galen's strong commitment to *πειρα*, to the trial of experience. As speculations about the nature and immortality of the soul falls under the scope of metaphysics, they are, by definition, immune to any empirical verification. Having said that, how can we inquire into issues related to the soul? As a way of work out the issue, Hankinson argues that Galen follows the Aristotelian procedure quoted at the beginning of *De Anima* (I 1, 402b10-403a2), which says that we must start with the *erga kai pathê of the soul*, "with the works and affections of the soul", in other words, with the manifestations of its activity.

## Galen

Galen has built up a dynamic understanding of the human body. The main point is the interrelations between *dynamis* (δύναμις), *energeia* (ἐνέργεια), *ergon* (ἔργον) and *chreia* (χρεία). According to Galen, every *dynamis* (δύναμις) is the cause of an *energeia* (ἐνέργεια) that brings on some outcomes (ἔργα), which are oriented to, or for the sake of, a *chreia* (χρεία). Furthermore, Galen divided the human body into three discrete systems, each of them with different capacities (δυνάμεις) performing distinct activities essential to the overall stability of the organism. Galen located these systems in distinct parts of the body: the brain, the heart, and the liver. For instance, the brain is the center and origin of the nerves; the heart is the center and source of the arteries, and the liver is the center and origin of the veins. The system located in the brain has under its jurisdiction all the cognitive and sensory-motor activities; the system located in the heart is responsible for blood circulation and the regulation of pulse; and the system seated in the liver is responsible for the process of digestion and the production of blood. However, both the systems located in the liver and the heart are qualified as being regulated by natural capacities, while the system placed in the brain by ruling the psychic capacities.<sup>85</sup>

How has Galen understood this differentiation? The first lines of *On The Natural Faculties* are illuminating:

Since perception and voluntary motion are peculiar to animals, whilst growth and nutrition are common to plants as well, we may look on the former as activities of the soul and the latter as activities of the nature. (trans. Brock, slightly modified)<sup>86</sup>

If we want to know what the capacities (δυνάμεις) are, we have look at the result of their activities (ἔργα), as feeling and movement.<sup>87</sup> Elsewhere, Galen claims time and again, mostly in the wake of Plato (*PHP* VI 2.1-3), that the human soul has three forms (εἶδη) and parts (μέρη) claiming that, “it would be correct to term the rational (λογιστικόν), the spirited (θυμικόν) and the desiderative

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<sup>85</sup> Galen developed his physiological thought in different parts of his oeuvre, however the books IV and V of *U.P.* are elucidative of the organs/instruments of nutrition; books VI and VII are important for the explanation of the instruments of pneuma; books VIII and IX are devoted to the head and its parts, and book XVII is about the nerves, arteries and veins.

<sup>86</sup> *Nat. Fac.* II. 1-5K = Scripta min. III 101.1-5 Helmreich. Ἐπειδὴ τὸ μὲν αἰσθάνεσθαι τε καὶ κινεῖσθαι κατὰ προαίρεσιν ἴδια τῶν ζώων ἐστί, τὸ δ' ἀξάνεσθαι τε καὶ τρέφεσθαι κοινὰ καὶ τοῖς φυτοῖς, εἴη ἂν τὰ μὲν πρότερα τῆς ψυχῆς, τὰ δὲ δεύτερα τῆς φύσεως ἔργα.

<sup>87</sup> Galen distinguishes four different types of natural capacities: of attraction, of assimilation, of excretion and growth. *Lib. Prop.*; *Nat. Fac.*; *PHP*.

(ἐπιθυμητικόν) both ‘forms’ and ‘parts’ of the soul, just as one might say that vein, artery, nerve, bone, cartilage, flesh and the like are forms of body, and then speak of them as parts.”<sup>88</sup>

Yet, in his work *On The Natural Faculties*, Galen claims that, “all faculties fall within the category of relative concepts; primarily because the faculty is the cause of the activity, but also accidentally, because it is the cause of the effect.”<sup>89</sup> For instance, a capacity is what it is only in relation to an activity. On the one hand, the activity is prior to the capacity: it seems that it is for the sake of the activity that the capacity does what it does. On the other hand, a *dynamis* might be the capacity for different activities. For instance, the rational part of the *psychê*, the *logistikon*, has a variety of capacities, such as “perception, memory, conscience/intelligence/understanding (σύνεσις) and each of the others.”<sup>90</sup> The concepts of activity and capacity are, in this sense, co-related; the function gives us access to the capacity that it presupposes. When an organ, substance, or faculty performs an activity, it necessarily has a capacity that is the cause of that activity working the way it does, whether well or not. This seems to be the meaning of the excerpt of *Nat. Fac.* cited above, and that Hankinson summarized in the following way: “faculties are conceptualized as causes...and faculties/capacities/powers are relational items, powers to generate *energeiai*, the proper activities of an organ or system, which in turn produce some outcome, in terms of which we may understand the item’s overall utility (*chreia*).”<sup>91</sup>

Nevertheless, how did Galen demonstrate that the rational part of the *psychê* is located in the brain, the spirited in the heart and the desiderative in the liver? To answer this question we have to turn our inquiry to the methodology adopted by Galen, which is based on logical reasoning, dissection and anatomical experiments.

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<sup>88</sup> However, we have to be cautious in arguing that Galen has adopted a strict Platonic point of view concerning the soul and its parts. See von Staden (2000). We also have to mention the metaphysical problem of parts and wholes, a topic called mereology. How, and in what way, is a part a part of a whole? However, for our purpose, this is not a relevant issue. For further developments see Jonathan Barnes (1988).

<sup>89</sup> *Nat. Fac.* I 9-10K = Scripta min. III 107.8-12 Helmreich.

<sup>90</sup> *QAM* 11.1-9 Bazu = IV. 770-71 K. «ἡ ἐν ἐγκεφάλῳ καθιδρυμένη λογιστικὴ ψυχὴ δύναται μὲν αἰσθάνεσθαι διὰ τῶν αἰσθητηρίων, δύναται δὲ καὶ μεμνησθαι [διὰ] τῶν αἰσθητῶν αὐτὴ καθ’ ἑαυτήν, ἀκολουθίαν τε καὶ μάχην ἐν τοῖς πράγμασιν ὄραν, ἀνάλυσιν τε καὶ σύνθεσιν», οὐκ ἄλλο τι δηλοῦμεν ἢ εἰ περιλαβόντες εἴπομεν. «ἡ λογιστικὴ ψυχὴ δυνάμεις ἔχει πλείους, αἰσθησιν καὶ μνήμη καὶ σύνεσιν ἐκάστην τε τῶν ἄλλων».

<sup>91</sup> Hankinson, (2008d). As a matter of fact, we can argue that the fact that we can see an activity working doesn’t entail necessarily a correct access to a faculty that has a causal power. However, following Galen’s methodological principles, every effect has a cause or nothing occurs without a cause. This axiom is an indemonstrable one, and one which is “agreed by all because it is plain to the intellect.”

(*MM* X 50K): ἐξ ἀναποδείκτου μὲν ἀξιώματος, ὁμολογουμένου δὲ πᾶσιν, ὅτι πρὸς τὴν νόησιν ἐναργὲς ὑπάρχει. τί δὲ τοῦτ’ ἔστι; τὸ μηδὲν χωρὶς αἰτίας γίνεσθαι.



## Galen's Methodology

At the very beginning of the second book *On The Doctrines of Hippocrates and Plato*<sup>92</sup> Galen summarizes what he wrote in the first book:

Having proposed to investigate the teachings of Hippocrates and Plato, I began with the doctrine that is first in importance, from which I showed that very nearly all particulars details follow; this is their teaching about the powers that govern us (περὶ τῶν διοικουσῶν ἡμᾶς δυνάμεων), their number (τὸν ἀριθμὸν), the nature of each (ὅποια τέ τις ἐκάστη), and the place that each occupies in the body (καὶ τόπον ὄντιν' ἐν τῷ ζῴῳ).<sup>93</sup>

The question that should be asked is: how should this investigation be carried out? Which methodology should be adopted? Galen wrote a significant treatise in which he tries to demonstrate that a good doctor must also be a good philosopher.<sup>94</sup> A doctor will be a good philosopher in so far as he knows the correct rules of logic. These are indispensable to understand fallacies of other doctors' arguments as well as for finding the appropriate method of proof and definition of diseases. Hence, doctors who lack logical expertise will become "intellectual despots, giving commands to their patients like tyrants", not arguing about their decisions. Furthermore, lack of logic will lead to "professional misconduct and moral depravity", as doctors will become slaves to their patients. And worst of all, doctors who do not know logic will produce "vacuous, confused and contradictory" theories and will apply the wrong therapeutics.<sup>95</sup> To sum up, Galen's methodology can be divided into two main branches: proof or demonstration (ἀπόδειξις), and division (διαίρεσις). Barnes summarizes both methods as follows: "in proof or demonstration, the first items will be the appropriate *archai* – first principles or axioms; the successive steps will be the intermediate deductions; and the final step will be taken when the desired theorem has been proved." On the other hand, in division (διαίρεσις), "the first item will be 'what is common and universal'. The successive steps will be 'cuts', dividing the common genus into species and subspecies. The final step will be the cut that produces infimae species, species that themselves have no subspecies."<sup>96</sup>

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<sup>92</sup> De Lacy, P. H. (1978–84) *Galen: On the Doctrines of Hippocrates and Plato* (PHP) (3 vols., ed., trans. and comm.): CMG V 4,1,2 (Berlin).

<sup>93</sup> PHP, II 1. 1-2

<sup>94</sup> *Quod Optimus Medicus sit quoque Philosophus Opt. Med.* ed. Boudon-Millot (2007).

<sup>95</sup> Barnes (1991), pp. 56-60.

<sup>96</sup> Barnes (1991), p. 67.

With respect to the method of proof or demonstration, the first step is to find the premises (τὰ λήμματα) to be used in any discussion. Galen divides those premises into four types: i) scientific and demonstrative (ἐπιστημονικόν τε καὶ ἀποδεικτόν); ii) useful for training (γυμναστικόν) – as Aristotle says, the dialectical propositions (διαλεκτικόν); iii) persuasive and rhetorical (πιθανόν καὶ ῥητορικόν); and iv) sophistical (σοφιστικόν). In order to produce a scientific demonstration, the premises from which we need to begin ought to be of the first type: scientific and demonstrative (ἐπιστημονικόν τε καὶ ἀποδεικτόν). In his overall methodology, Galen establishes two broad categories of premises that must be avoided, and from which all unsound reasoning begins: i) premises that are patently false and ii) those that are not appropriate to the matter under investigation.<sup>97</sup> As a result, we need to find premises that are relevant (προσήκοντα) and appropriate (οἰκεῖα) to the matter under investigation.<sup>98</sup>

On the one hand, the appropriate premises, as we saw, are those that are related to the subject-matter itself, i.e., to its essence (οὐσία), and are derived from the properties (ὑπάρχοντα<sup>99</sup>) of the subject matter under investigation. So far so good, but what are the sources of those premises? Galen states that appropriate premises have four different sources: i) simple sense-perception (αἴσθησις ἀπλή); ii) everyday experience (ἐμπειρία... ἢ κατὰ τὸν βίον); iii) skills based on arts or technical expertise (ἐμπειρία τῆς κατὰ τὰς τέχνας); and iv) premises clear to the mind (ἢ πρὸς νόησιν ἐναργῆς).<sup>100</sup> In *On the Therapeutic Method*, Galen states, almost word for word, the same methodological principles:

In that work [*On Demonstration*] it was shown that the origins (ἀρχαί) of all demonstration are those things, which are plainly apparent to the senses and to the intellect, and how in every inquiry into something it is necessary to replace its name with a definition. [...] First of all the common conception must be agreed upon: without it it is impossible to discover the substance of the matter at issue. We said that it is essential to adopt a common conception that is agreed by all, or else it is not fit to be called a starting-point.<sup>101</sup>

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<sup>97</sup> Galen, *PHP*, II 2.3

<sup>98</sup> Galen, *PHP*, II 3.1.

<sup>99</sup> ὑπάρχοντα is the present participle of the verb ὑπάρχω. Between the plurality of meanings, all of them related to actual existing things, LSJ mentions: to be in, existence, to be there, to be ready, to belong to, fall to one, accrue, existing circumstances. It is close to positivity, something happening and present in an individual. The current meaning is to belong to, to be the propriety of something.

<sup>100</sup> Galen, *PHP* III 8.35-36.

<sup>101</sup> The work *On Demonstration*, time and again referred by Galen, was lost.

*MM* X 39-42K: ὅτι τε γὰρ ἀρχαὶ πάσης ἀποδείξεώς εἰσι τὰ πρὸς αἴσθησίν τε καὶ νόησιν ἐναργῶς φαινόμενα καὶ ὡς ἐπὶ πάντων τῶν ζητουμένων εἰς λόγον χρῆ μεταλαμβάνεσθαι τοῦνομα, δι' ἐκείνων ἀποδέδεικται. [...] τῆς ἐννοίας πρότερον ὁμολογηθείσης, ἧς χωρὶς οὐχ οἷόν τε ἔστιν εὑρεθῆναι τὴν οὐσίαν τοῦ προκειμένου πράγματος. αὐτὴν δὲ τὴν ἐννοίαν ὁμολογουμένην ἅπασιν ἐλέγομεν χρῆναι λαμβάνειν, ἢ οὐδ' ἂν ἀρχὴν δεόντως ὀνομάζεσθαι.

In order to produce a scientific demonstration, scientific proof, it is necessary to have these conditions fulfilled. On the other hand, Galen states that we cannot entirely dismiss the dialectical premises, which also are derived from properties (ὕπαρχοντα) of the object under investigation. In fact, these propositions are different from the former because they do not pick out the essence (οὐσία) of the object. Nevertheless, the fact that these premises are not scientific does not entail that they are not worthy of consideration in scientific research. At least, as Galen says, these kinds of premises are helpful for training and improve the logical skills of the researcher. In the philosophical tradition, these premises are subsumed under the category of endoxai (ἔνδοξαι). Endoxai propositions are reputable opinions of distinguished people (sophoi/σοφοί) about a particular subject-matter.<sup>102</sup>

The other two kinds of premises are rhetorical and sophistical. These two types of propositions fall neither under the category of non-scientific nor dialectical premises. Instead, they are the types of premises that are not appropriate for any demonstrative proof. Their aim is mostly to persuade the audience at any cost, not to provide a reason things are this way and not another. These premises are the same type as those that Galen accuses Chrysippus of using when he picks out examples from the works of poets to justify his arguments for placing the hêgemonikon in the heart instead of the brain.

The second branch of Galen's methodology is the method of division (diairesis/διαίρεσις).<sup>103</sup> The fundamental feature of this method is to produce a division between genera differentia in order to find the essential feature of a disease, organizing diseases in a genera/species scheme. It is a fundamental method for an accurate classification of diseases.<sup>104</sup> The utilization of the division by genera and species presupposes that the doctor can grasp the essential difference between types of diseases, i.e. that he can produce an accurate differentiation between them, and subsume particular examples under the correct types. The essence of a disease, its definition, is not the result of the application of the method, rather it is precisely from where inquiry must begin.<sup>105</sup> As we have seen, if the doctor's aim is to find a specific difference, and not an incidental one, he needs to begin his inquiry from the essence of the disease and what is proper to the division itself.<sup>106</sup> However, two questions still remain: what is the essence (οὐσία) of a disease? What concept concerning disease do all men agree? (τίς οὖν ὑπὸ πάντων ἐστὶν ἀνθρώπων ὁμολογουμέν περὶ τοῦ νοσεῖν ἔννοια;) The concept in question is the belief that which impairs an activity (ἐνέργεια) is a disease. However, this agreement is only a necessary condition to grasp the essence of a disease; it is only a concept, and not a definition of what a disease is. The next step is to find the cause of

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<sup>102</sup> Aristotle, *Topics*, 100a3; 100b 21-23; and 104a 8-37. Jacques Brunschwig, in his footnote 3 p. 115 of the edition that he has published of Aristotle's work into Budé, remarks that ἔνδοξαι propositions are not propositions de jure but propositions de facto, of the subject-matter.

<sup>103</sup> For the critical analysis of Galen's method of division, see Barnes (1991), pp. 95-97.

<sup>104</sup> *Opt. Med.* I 4; *MM.* X 26.

<sup>105</sup> *MM K.* X 41.

<sup>106</sup> *MM K.* X 25.

a disease. This is a required demarche because the axiom “nothing happens without a cause” – an indemonstrable axiom (ἀναπόδεικτον ἄξιωμα) – is a principle evident to all people. According to Barnes, Galen is assuming an Aristotelian position that is: “the essence of a thing is ‘what it is’, i.e. its (formal) cause.”<sup>107</sup> Finding the essence of a thing is finding its cause; the cause of a disease is the damage of a disposition (diathesis/διάθεσις): “it is agreed by all that what needs curing is the disposition which impedes the activity...”<sup>108</sup> At the same time, Galen identifies all possible things contrary to nature (παρὰ φύσιν) in bodies that are not working well, and which are four in number: 1) impaired activity, 2) the disposition that brings it about, 3) its causes, and 4) the symptoms that follow it. Of these four candidates that could be the cause of disease, only one can be properly, which is 2) the disposition that brings about the disease. But which disposition? The one which is the efficient cause (αἰτία δραστική) of the disease. The first result of the diairesis is a differentiation of three broad classes of diseases: diseases of the homoeomerous parts, diseases of the organic parts and diseases caused by breakdown of cohesion (λύσις συνεχείας).<sup>109</sup>

How were these principles applied to the demonstration of the seat of the hêgemonikon?

First of all, some words about the adjective hêgemonikon (ἡγεμονικόν). It derives from the noun hêgemon (ἡγεμών), which means leader, and the verb hêgeomai (ἡγέομαι), which means to lead, to command. Hêgemonikon (ἡγεμονικόν) is a term with very many important conceptual ramifications, most of them in the field of politics, ethics, and medicine. From a brief look at LSJ we find references, for example, in Xenophon, where the essential meaning is of, or, for a leader, ready to lead or guide (Mem.2.3.14), as well as vital spot. Plato uses it in the sense of capable of command, authoritative (Phdr.252e; Phlb.55d). Aristotle too uses the same word to qualify wisdom as the most sovereign and authoritative kind of knowledge (Metaph. 996b10). The Stoics, first with Zeno and then with Chrysippus, used the term referring it to the ruling part of the soul.

Nevertheless, the tendency to place the actions of the body under the control of a ruling principle was common in Ancient medicine and philosophy. The central question was to determine the location of the principle: i) in the psyche, ii) as an intermediary between the psychê and the body or iii) in some part of the physical body.

In *On The Doctrines of Hippocrates and Plato (PHP)*, Galen’s chief adversaries are Chrysippus and Aristotle, for both were arguing for a cardiocentric model of psychic functions. Almost all of *PHP II* is devoted to Galen’s extensive use and criticism of Chrysippus’ arguments, showing at the same time

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<sup>107</sup> Barnes (1991), p. 95.

<sup>108</sup> *MM X. 80K* (Hankinson translation). εἴπερ γὰρ ὠμολόγηται πρὸς ἀπάντων ἡ θεραπεία τῆς ἐμποδιζούσης τὴν ἐνέργειαν εἶναι διαθέσεως.

<sup>109</sup> We have mentioned above the difference between the two first classes. The breakdown of cohesion is a class of diseases common to the *homeomerous* and organic parts. See Hankinson (1991) pp. 200-201.

that the Stoic philosopher does not scientifically support the cardiocentric view, and that his methodology is not appropriate for that task. Another outstanding peculiarity is Galen's information from dissection experiments, from which he shows that the brain is the functional center of the nervous system, i.e., the seat of perception, volition, memory and reason. In addition, Galen demonstrates, through experimental means, that the heart is the seat of the arterial system, which is associated with specific passions, most notably anger. In order to understand his applied methodology, it is useful to look briefly at the arguments he presented in book II of *PHP*.

As a result of a long and tortuous chain of arguments against Chrysippus views, we can summarize Galen's arguments about the location of the commanding part of the *psychê* with the following syllogism: where the center of the nerves is, is where the ruling part of the *psychê* is seated. The center of the nerves is the brain; therefore the brain is the seat of the ruling part of the *psychê*.<sup>110</sup> As a matter of fact, Galen believes that the thesis of the center of the nerves being in the brain is one shared by Hippocrates, Erasistratus, Herophilus, Eudemus, and Marinus among others.<sup>111</sup> All the arguments given by Galen concerning the location of the *hêgemonikon* are central to his physiological framework; namely, he is trying to locate the origin and 'behavior' of the *psychic pneuma* in the organism. However, where is the psychic *pneuma* produced?

The psychic pneuma is produced in, both, the *rete mirabile* (δικτυοειδὲς πλέγμα) and the choroid plexus (χοροειδῆ πλέγμα).<sup>112</sup> The production process of the psychic pneuma can be summarized as follows: the organism receives outside air that is a) first treated in the lungs, then b) transformed into a substance like pneuma, and later c) concocted in the heart into vital pneuma. This process is analogous to the transformation of food into blood by the liver. After the first transformation into vital pneuma – a pneuma that is shared by all living things – it can circulate in the blood and feed the organism with life. Having reached the base of the brain, the blood, which carries the vital pneuma, must be refined, because, if fused with vital pneuma, it is too thick to reach the brain. It is here that, according to Galen, both the *rete mirabile* and the choroid plexus have to do their job: transform the vital pneuma into psychic pneuma, which will be the first instrument of the *hêgemonikon*, with the nerves as medium of communication with the sense organs. As we will see, all these processes of transformation are essential for Galen's explanation of certain mental dysfunctions.

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<sup>110</sup> Hankinson (1991) and Tieleman (1996), (2008), are two of the authors who have developed in minutia all the logical implications of Galen's syllogisms. To my knowledge, the most recent analysis of Galen's arguments on the location of the *hêgemonikon* is Morison (2008).

<sup>111</sup> *PHP* 480.21 (CMG 5.4.1.2)

<sup>112</sup> For a detailed study of Galen's neuroanatomy see Rocca (1998). Galen's belief that the human brain has a *rete mirabile* is mistaken.

## Galen's Diagnosis

The next step for an accurate evaluation of an individual situation is to localize the affected or damaged part in the patient's body. This activity requires specific skills and a very well trained eye and mind. The doctor should be proficient in analysis because not all of the signs available to the senses are sufficient for identifying the location of the affected part. This is a required procedure, as the damaged part is sometimes not directly grasped by the sense organs.

At the beginning of his major work on differential diagnosis and pathology, *On The Affected Parts* [*De Locis Affectis (Loc. Aff.)*], Galen claims that the expertise of the physician must be complemented with a mind trained in logic that can identify the damaged organ and its essence (οὐσία). Galen is committed to the belief that, in order for a physician to grasp the nature of a disease correctly, it is essential that he would be versed in anatomy so that he may recognize the structure, function and organs of the body. However, the practice of diagnosis is not an isolated activity of the doctor. One of the main concerns of a physician is related to the future development of the patient's condition and, in that sense, the practice of diagnosis is always inseparable from that of prognosis.<sup>113</sup>

Besides, Galen believes that the medical diagnostic must be scientifically justified, and should never be grounded in mere opinion or authority. Correctly localizing, and giving an accurate account of the parts where the damaged organ is located is an essential procedure to physicians. These considerations take us to another feature of Galen's methodology in differential diagnosis, namely the distinction between proper affection (ιδιοπάθεια) and co-affection (συμπάθεια).

At *Loc. Aff.* VIII K. 30 ff Galen establishes the difference between these two kinds of affections. The main difference lies in the cause that produces them, i.e., what damages the activity of an organ. When an activity is damaged by ιδιοπάθεια (idiopathea) what is causing the damage is the organ where that activity is placed, that is, the proper organ (οικεῖον ὄργανον) of the activity (ἐνεργεῖα). On the other hand, the affections produced by συμπάθεια (sympatheia) are those in which the cause of the damaged function is not in the organ responsible for the activity but in an organ that is located in a different part of the body, which, however, by a process of co-affection, interferes with the activity of another organ located in a different part of the organism. As Galen says, in a co-affection an organ is suffering in

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<sup>113</sup> García-Ballester (1994, ANRW37/reprinted in Galen and Galenism, 2002), in *Galen as a Clinician: His Methods in Diagnosis*, claims that for Galen, "to understand a clinical case technically, to 'diagnose', was to know with greater or lesser certainty the outcome for the patient, 'to prognosticate'. Prognosis is one of the essential problems and most important objectives of Galenic diagnosis". It is well known that Galen wrote, at least, one important treatise entitled *On Prognosis* where he had tried to show that the medical practice is a reliable activity completely different from charlatanism and divination. One of the goals of this treatise was to establish the medical practice as a socially accepted activity in a world where the boundaries between magical divination and scientifically justified knowledge were very thin.

*accordance with* (ὁμολογεῖται) another one that is damaged.<sup>114</sup> This type of affection is possible because some activities receive their matter – the stuff with which they can accomplish proper activities – previously prepared by other parts of the body.<sup>115</sup>

Galen gives aphonia as an example of a dysfunction by co-affection. The voice has as matter (ὕλη/hylê), the air that is expelled by the intercostal muscles when the thorax contracts. However, when these muscles are damaged the voice is affected without its proper organ, the larynx, being directly affected. In situations like these, animal aphonia is due to the larynx suffering in accordance with the intercostal muscles. He continues his demonstration of lesions by co-affection with another example of a man that became aphonic due to a fall. Nevertheless, the question we must ask is: what is the correct method of detecting which part of the body is primarily affected?

In the last chapter of the second book of *On The Affected Parts*, Galen decides to put in practice the methodology that he has been explaining, synthesizing his view as follows<sup>116</sup>:

- i) it is necessary to investigate, whether it is possible to find distinct signs, or marks (ἴδια σημεῖα) of the affected parts, and whether those signs are different from affection to affection.
- ii) it is necessary to know if an affection has distinct signs or marks, or if the signs are different according to the parts (μόριον ὑπαλλάττεται).
- iii) after identifying the parts and their affections, to see if the signs continue.

In another passage<sup>117</sup> Galen says that with one indication (ἔνδειξις) the doctor can grasp that by which a thing is made known (γνώρισμα), i.e.: 1) the localization of the affected part (τόπος) and its disposition (διάθεσις), and 2) the affected part (τόπος) and its cause (αἰτία).

In addition, he says that the localization of the affected part and its disposition is possible by indication from: 1a) the damage to the activity (ἐνέργεια βέβλαπται); 1b) the position (ἢ θέσις); 1c) the things evacuated (τῆς τῶν ἐκκρινόμενων ιδέας); 1d) the peculiarity of the pain (τῆς κατὰ τὴν ὀδύνην ιδιότητος) and 1e) the proper symptoms (οἰκεῖα συμπτώματα), which are an indication (ἔνδειξις) of the affected part. Moreover, we have an indication from 2) the affections (τά πάθη) and their causes by: 2a) the peculiarity of the things expelled (τῆς τῶν ἐκκρινόμενων ιδέας); 2b) the nature of the part (τῆς τοῦ

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<sup>114</sup> *Loc. Aff. K. VIII 49. 3-4.*

<sup>115</sup> *Loc. Aff. K. VIII 49. 11-13.* ἔναι τῶν ἐνεργειῶν ἐξ ὕλης ἐπιτηδείου γενόμεναι προπαρασκευαζομένην αὐτὴν ὑφ' ἐτέρων μορίων λαμβάνουσιν.

<sup>116</sup> *Loc. Aff. K. VIII. 120. 11-18.* About Galen's diagnostic method in *On The Affected Parts*, see Stefania Fortuna (2001), *Il Metodo della Diagnosi in Galeno (De Locis Affectis, VIII 1-452 K.)*, where the author tries to illuminate Galen's methodology for the detection of internal diseases.

<sup>117</sup> *Loc. Aff. K. VIII. 44. 6-15.*

τόπου φύσεως); 2c) the distinctiveness of the pain (τῆς κατὰ τὴν ὀδύνην ιδιότητος) and 2d) the proper symptoms (οἰκειὰ συμπτώματα).<sup>118</sup>

As is evident from this excerpt, in the process of localization of the affected parts, the accuracy of logic reasoning and observation, as well as, anatomical knowledge<sup>119</sup>, are central aspects of the diagnosis. However, the peculiarity of pain [1d and 2c] might suggest another important feature of Galen's differential diagnosis: the dialogue with the patient as well as the importance of knowledge of his past and present symptoms. In this case, the doctor will know the current symptoms by observing the patient firsthand, and the past by conversation with him.<sup>120</sup> Another important aspect that the doctor must have in mind is the peculiarity of the expelled materials [1c and 2a]. An accurate observation of this stuff is essential for the right diagnosis to be made.

Another important feature of Galen's practice as a doctor is the role of the pulse in the process of diagnosis, which he developed his constant concern with the practice of observation. Herophilus in Alexandria initiated the use of pulse analysis for diagnostic purposes, and Galen continued the development of Herophilus' discoveries but went further in theoretical and practical terms. He wrote many books about the pulse<sup>121</sup>, leading Ballester to assert, "we owe to Galen the most original and successful semiology, based on observation of the pulse in Greek medicine."<sup>122</sup> In Galen's perspective, the pulse is essential "for the sake of the natural heat that is all over the whole animal..." The feeling of the pulse gives central information to the doctors about the vascular system and its normality or abnormality. This information is necessary because the heart is the seat, the origin of the pulse and the faculty that regulates the body's tonos/tension. The functioning of the pulse also has various similarities with breathing: their motions are identical, and both are useful for the psychic power. However, while the

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<sup>118</sup> *Loc. Aff.* K. VIII. 44. 6-15. Πολλάκις δ' ἅμα τόπου τε καὶ διαθέσεως ἐξ ἑνὸς γνωρίσματός ἐστιν ἡ ἔνδειξις, ἢ τόπου τε ἅμα καὶ αἰτίου· οἷον ἐπὶ μὲν τῶν τόπων ἀπὸ τε τῆς βεβλαμμένης ἐνεργείας καὶ τῶν ἐκκρινόμενων καὶ τῆς θέσεως καὶ τῆς κατὰ τὴν ὀδύνην ιδιότητος καὶ τῶν οἰκειῶν συμπτωμάτων ἢ ἔνδειξις, ἐπὶ δὲ τῶν παθῶν ἀπὸ τε τῆς τῶν ἐκκρινόμενων ἰδέας καὶ τῆς τοῦ τόπου φύσεως καὶ τῆς κατὰ τὴν ὀδύνην ιδιότητος καὶ τῶν οἰκειῶν συμπτωμάτων. ἀπὸ μὲν οὖν τῆς βεβλαμμένης ἐνεργείας ἔνδειξις τοῦ πεπονθότος μορίου γίνεται κατὰ τόνδε τὸν τρόπον At 122. 18 - 123.8 Galen reinforces his methodological position repeating almost word for word the same criteria for getting to know the affected parts, adding as well the importance of the nose, the mouth and the tongue to the diagnosis of dysfunctions based on the brain, because those organs are channels that can make visible the things evacuated by the brain.

<sup>119</sup> In his treatise *On Anatomical Procedures* (AA) 2.2 K, Galen states his position about the importance of anatomical studies: "Anatomical study has one use for the natural scientist who loves knowledge for its own sake, another for him who values it not for its own sake but, rather, to demonstrate that nature does nothing without aim, a third for one who provides himself with anatomy with data for investigating a function, physical or mental, and yet another for the practitioner who has to remove splinters and missiles efficiently, to excise parts properly, or to treat ulcers, fistulae, and abscesses." For Galen's Anatomical procedures, see Hankinson (1994e).

<sup>120</sup> *Loc. Aff.* K. VIII. 8. 2-7. To a detailed analysis of the methodology of Galen's differential analysis, see García-Ballester (1994) ANRW37/\* Reprinted in Galen and Galenism (2002).

<sup>121</sup> *On the Pulse for Beginners* (*Puls.*); *On the Function of the Pulse* (*Us. Puls.*); *Differences of Pulses* (*Diff. Puls.*); *Diagnosis by Pulses* (*Dig. Puls.*); *Causes of Pulses* (*Caus. Puls.*); *Prognosis of Pulses* (*Praes. Puls.*); *Synopsis on Pulses* (*Syn. Puls.*).

<sup>122</sup> García-Ballester, (1994, ANRW37/\*, reprinted in Galen and Galenism, 2002).



breath is moved by the psychic power (ὕπὸ τῆς ψυχικῆς δυνάμεως), the pulse is moved by the vital power (ὕπὸ τῆς ζωτικῆς γίνεσθαι).<sup>123</sup> The former is located in the brain and the latter in the heart. In his sense, attention to the pulse is essential to the process of diagnosis because the observation of an anomaly in its rhythm is a sign of a disorder in the diastole/systole activity of the heart. Moreover, the knowledge of the pulse and the correct expertise in its analysis is critical for detecting psychic disturbances. As Galen says, “the affections of the psyche, its activities, and its illnesses, all increase the outward or the inward motion of the arteries.”<sup>124</sup> This statement could be exemplified in a case narrated by Galen.<sup>125</sup> The accurate observational *téchne* which he developed, allowed him to discover, by looking attentively at the pulse, that a woman who was suffering from a cause unknown to others doctors, was indeed suffering from an emotional breakdown, from an affection of the soul – grief (λύπη)<sup>126</sup> – that gained visibility by the disruptions of the pulse, as well as by the observation of the woman’s behavior.

Another essential set of information for an accurate diagnosis must be gathered from what the ancient tradition named the six-non-natural things,<sup>127</sup> which were a mixture of physiological, psychological and environmental conditions. The most standard catalogue of the six non-natural things which could be a cause of the development of diseases was: air, exercise and rest, sleep and waking, food and drink, repletion and excretion and the affections of the soul; in one word, dietetics. In his discussion of the three different types of melancholy in *Loc. Aff.*<sup>128</sup>, he advises the doctors to have all the information related to the patient’s style of life, with his diet, with the weather and the places where he lives, the food, what he drinks, in order to make an accurate diagnosis and, much more important, to prescribe the correct therapeutics. To subsume all these data in an intelligible framework, it is necessary a theory of causation. And Galen has one.

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<sup>123</sup> *Us. Puls.* Chap. VIII. K179. 5-15. Furley/Wilkie (1984).

<sup>124</sup> *Us. Puls.* Chap. VIII. K175. 5-10.

<sup>125</sup> *Praen.* 631-633. Nutton (1979).

<sup>126</sup> In *Aff. Dig.* Galen enumerates what he consider to be the passions of the soul. In addition to λύπη we find: θυμός, φόβος, ὀργή and ἐπιθυμία classified as νοσήματα τῆς ψυχῆς. This is almost word by word the classical Stoic classification of diseases of the soul.

<sup>127</sup> The division established in medieval medicine was between naturals, non-naturals, and contra-naturals.

<sup>128</sup> *De Loc. Aff.* VIII K. 182-185. About the six-non natural, see: García Ballester, Luis. ‘On the origin of the «six non-natural things» in Galen’. In: Jutta Kollesch; Diethard Nickel (eds.), *Galen und das hellenistische Erbe*, Stuttgart, Steiner, 1993, pp. 105-115; and Bylebyl, Jerome J., *Galen on the Non-Natural Causes of Variation in the Pulse*. *BHM* 45 (1971): 482-485.

## Galen's aetiology

Galen developed an eclectic<sup>129</sup> and at the same time personal theory of causation, a theory that can explain the reason why an organ is the way it is, has the shape it has and is directed toward a specific goal. At the same time, his theory of causation gives a framework that explains why people become sick. The main goal of every theory of explanation is to find intelligibility in the phenomena under investigation, whether a human action or a natural phenomenon.<sup>130</sup> This intelligibility is grounded on an account of the position of constituents in the chain of causal relations: if they are not necessarily concatenated they must at least be in a relevant and strong relation to each other. The final result of the effort of explanation is to give reason to *why* things happen this way and not another.

The terminology used by Greek thinkers to explain cause is not entirely clear. The main terms they used were *aition* (αἴτιον), *aitia* (αἴτια) and *prophasis* (πρόφασις). *Aition* and *aitia* both share the semantic field of responsibility (what is to blame), and *prophasis* can be used as a pretext, a purpose or an excuse. Since the Hippocratic texts of V B.C. the latter is associated with an external exciting cause, a precondition for a disease – and, in this sense, it is very closely related to sign (*semeion*/σημεῖον) – but it is usually used as a synonym for cause, *aition*.<sup>131</sup> This terminology was used by many authors and in very different contexts. For example, Thucydides, in his *History of Peloponnesian War*, used both *aitia* and *prophasis*, contrasting both terms with the intention to grasp the *real cause* of the war. The bulk of the texts, however, came from the hands of philosophers and physicians. The Hippocratic writers were the first to secularize the principle of explanation of the causes of diseases: naturalizing the divine, they tried to produce an account of, for instance epilepsy – a disease usually attributed to the intervention of extra-natural powers – grounded solely in humoral theory.<sup>132</sup> On the other hand, Plato also developed a sophisticated theory of causation in different works. One of the most famous explanations of causal relations comes from the scene in *Phaedo* (98e-99b) in which Plato gives an account of Socrates' decision to remain in prison, contrary to the suggestion of his friends. In this passage, Plato states that the goal of an action – that for the sake of which, the *telos*/τέλος – is the real causal factor of Socrates' decision; it is not the material conditions of Socrates' body, e.g., his bones being in a specific arrangement and being made of a specific kind of stuff. As Hankinson writes, “Socrates makes Efficient and Material [causes]

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<sup>129</sup> On Galen's eclecticism, see Hankinson (1992b).

<sup>130</sup> For a exhaustive and illuminating analysis of causality in ancient philosophy, see Hankinson (1998b).

<sup>131</sup> Lloyd (1996), p. 96. A central paper about the concept of cause is Michael Frede (1980) *The original notion of cause*. See also Hankinson (1987a) on Galen's causal thought.

<sup>132</sup> Hippocrates, *On the Sacred Disease*. The down to earth explanation of diseases, mostly of mental derangements, is not synonym of reductionism. As a matter of fact the secularization of causes goes hand in hand with a naturalization of the gods, or, in other words, of a deification of the nature: nature and god are identical. On this issue, see Hankinson (1995a)

subsidiary to Final causation.”<sup>133</sup> However, the transfer of the final cause of human actions to the explanation of natural events is made in Plato’s *Timaeus* passage (44d-46d) in which Plato states that the end for which everything is brought about is identical to the Demiurge’s will.<sup>134</sup>

Aristotle’s structure of explanation is well known<sup>135</sup>: he divided his causal scheme of explanation into four classes of causes – formal, material, efficient and final – which allowed him to envisage different situations from different points of view in order to give them intelligibility. Galen also has an Aristotelian inspiration in his aetiology, which led him to endorse substantial tenets of Aristotle’s causal scheme, although he did adapt it for his purposes. Of that appropriation, we can point out, as Hankinson showed<sup>136</sup>, that Galen adopted the differentiation between accidental and essential causes, but in addition, he has put aside the formal cause, adding the later Platonist instrumental cause, which has led him to use the efficient, material and final causes to explain the structure of Nature’s organization, as well as that of the human body with all its complexity. Lastly, Galen adopted Aristotle’s differentiation between potentiality and actuality, mostly his account of potentiality, in order to make sense of some type of conditions, which are not sufficient to bring about an effect, but are necessary in order to explain some outcomes.<sup>137</sup>

Galen’s Stoic inheritance is also important. The Stoics claim there are three different types of causes: containing, antecedent and preceding. What is the Stoic meaning of a containing cause (ἀίτιον συνεκτικόν)? According to Hankinson, “containing causes are present causes of present effects”, i.e., they are “causes of being, not of becoming”, and he gives as an illustration of this type of cause, which is also Galen’s example: “the tightening of the choroid membrane is the containing cause of the looseness of the pupil of the eye.”<sup>138</sup> Sextus Empiricus says in his *Outlines of Scepticism (PH)* that for the Stoics, “causes are containing if their presence coincides with the presence of the effect, their increase with its increase and their decrease with its decrease.” (*PH* 3.15)<sup>139</sup> In other words, containing causes are contemporaneous to their effects. Galen’s conception of what is a containing cause is in tune with the Stoics. In a pseudo-Galenic text, αἴτια συνεκτικά is a cause such as, “when present the effect is present, when absent, the effect is absent, when increased the effect is increased”.<sup>140</sup> As Hankinson writes, “not only must αἴτια

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<sup>133</sup> Hankinson (1998b).

<sup>134</sup> For a detailed analysis of Plato’s theory of causation and his influence on Galen’s thought, see Hankinson (1998a) pp. 10-16.

<sup>135</sup> This is an over simplification of Aristotle’s causal thought.

<sup>136</sup> Hankinson (1998a), p. 18.

<sup>137</sup> For the relation between Galen and Aristotle in matters of causation and explanation, see Hankinson (1998a) pp. 16-29.

<sup>138</sup> Hankinson (1998) p. 377.

<sup>139</sup> Hankinson in (1998a), p. 24.

<sup>140</sup> Ps.-Gal. *Def. Med.* XIX 393. Hankinson translation in (1987a), p. 85.

συνεκτικά be co-temporal with their effects, they must be strongly functionally correlated with them, such that cause and effect exhibit concomitant variations in intensity.”<sup>141</sup>

The second type of causes is the antecedent causes (αἴτια προκαταρκτικά). These causes were not recognized by some doctors as causes *per se* – Erasistratus is one of those that Galen mentions. However, Galen believes that antecedent causes have an important role in his scheme of explanation. Even if they are not sufficient to produce an outcome, they are necessary to explain specific effects that occur in Nature, as well as some diseases. He gives the example of a group of people exposed to the sun of which some becomes ill and others not.<sup>142</sup> Erasistratus claims that the sun cannot be the cause of the illness, for if that were the case, all the people that were in the same locality exposed to the same circumstances would have also become sick. Galen recognizes Erasistratus’ criticism. However, the issue in this example is that the sun’s heat is not the containing cause, but the antecedent cause, a position that Erasistratus does not admit. In a situation like this, the other relevant elements are related to the constitution of the individual: the antecedent cause is an external influence that, when in contact with a specific individual that is made of specific matter, could develop a disease. At the same time, the role of the individual constitution in the development of a disease gives room to understand why an individual exposed to the same condition, has not become sick. We can see the relevant insight: “antecedent causes make manifest pre-existing weaknesses in the bodies upon which they operate.”<sup>143</sup> We also need to mention that the duration of the exposure to an antecedent cause is of major importance: for even the most resistant bodily constitutions sooner or later will succumb.

The third types of causes are the precedent causes (αἴτια προηγούμενα). It seems, after Hankinson’s investigations, that these causes are not a Stoic coinage, but rather a medical one, from the hand of Athenaeus of Attaleia.<sup>144</sup> These items are a sort of causes lying between the antecedent and the containing causes; they are an intermediate between both. According to Hankinson, they could be “any causal factor that precedes the effect in question, whether internal or external.”<sup>145</sup>

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<sup>141</sup> Hankinson translation in (1987a), p. 85.

<sup>142</sup> Galen, *On Antecedent Causes (CP)*, X 126-128.

<sup>143</sup> Hankinson (1998b) p. 375.

<sup>144</sup> For αἴτια προηγούμενα, see Hankinson (1987a), pp. 87-91.

<sup>145</sup> Hankinson (1998b) p. 378.

## Mental disorders

How does one match Galen's methodological principles presented above with Galen's conceptions of mental diseases? For our purpose, we will analyze the material from his treatises on differential diagnosis, *On the Affected Parts (Loc. Aff.)* and *The Powers of the Soul Follow the Mixtures of the Body (QAM)*. The former is a major work of pathology and differential diagnosis (mixed with clinical cases), controversies with the major schools of medicine, mostly the Empiricists, and theoretical reflexion about his writings. The latter is a work in which he is concerned with the soul-body relation, and how the former is dependent on the latter. We will focus on three diseases of the ruling part of the psyche: phrenitis (φρενίτις), mania (μανία), and melancholy (μελαγχολία).

The first place in the *De Locis Affectis* where Galen presents his views about dysfunctions of the *hēgemonikon*/ἡγεμονικόν is at the end of Book II (VIII K. 126-128) in which he differentiates diseases by *idiopathia* from diseases by *sympathia*. He writes that in some occasions, when some of the activities of the *hēgemonikon* are affected or impaired, it is natural to suspect that the person suffering this kind of affection is suffering some lesion. He gives the example of someone under the influence of delirium (παραφροσύνη). The first observation that might be made is that something has been damaged in the ruling faculty (ἡγεμονικόν); for it is there that scientific knowledge (ἐπιστήμη), opinion (δόξα) and thought (διανοία) are seated, and when a person is in delirium, those capacities and related activities are also affected. But things are not always as clear and simple. Galen's advice is to observe the indications carefully, although a person suffering of pleurisies or peripneumonia could be delirious, the cause of his delirium might not be an affection of the ruling part, but of the lung, which signifies that the ruling part is affected by co-affection and not primarily. The accurate diagnosis is essential because, in situations of lethargy or *phrenitis*, it is the *hēgemonikon* (ἡγεμονικόν) that is affected, i.e., in situations like these, the *hegemonikon* is affected by *idiopathia* (ιδιοπάθεια).<sup>146</sup> Like delirium (παραφροσύνη), coma (κῶμα) and *carus* (κάρως) are symptoms of a dysfunction of the *hēgemonikon*. However, these two symptoms (coma and *carus*) have causes contrary to those that are responsible for states of delirium. Delirium is caused by a hot humor, and *coma* and *carus* are caused by a cold humor.<sup>147</sup>

After the differentiation between causes of delirium (παραφροσύνη), lethargos (λήθαργος) and *carus* (κάρως), Galen develops his analysis of the *hegemonikon* diseases more deeply. At this point, his methodology seems to find some resistance to application to the subject matter under investigation. In the fifth chapter of the book, in which he develops his treatment for a case of loss of memory, while simultaneously criticizing the method of the Empiricist doctors, he confesses that in situations like loss of memory (ἀπόλωλεν ἡ μνήμη), melancholy (μελαγχολία), phrenitis (φρενίτις), mania (μανία), epilepsy

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<sup>146</sup> *Loc. Aff.* K. VIII. 126. 17-18 – 127.1-8.

<sup>147</sup> *De Loc. Aff.* VIII K. 131

(ἐπιληψία), lethargy (λήθαργος), carus (κάρος) and catalepsies (κατάληψις), the doctor cannot find any kind of sign (σημείον) in the affected place (τόπου πεπονθότος), neither of bulks contrary to nature (ὄγκος παρὰ φύσιν), nor of any kind of pain (ὀδύνη), or of things expelled (ἔκκρισις)<sup>148</sup> that, as we saw above, are indications from which the doctor can make a correct inference on the affected part.

In the sixth chapter of book III, Galen deepens his investigation of the disposition (*diathesis*)<sup>149</sup> of affections of reasoning (τὰ τοῦ λογιστικοῦ πάθη). The entire chapter is concerned with the origin of lesions of the *hēgemonikon*. The central disease under investigation is loss of memory that usually appears with affections of reason. On one hand, when reason is affected, memory usually is too. He says that the causal order can occur in both directions, i.e., we could lose memory because Reason is damaged, or the latter could be affected because our memory is damaged.<sup>150</sup> It is the same lesion in both cases, but the consequences are much more profound when an individual loses memory and reason in a disease that Galen calls *mōrosis* (μώρωσις), and which is characterized as a state of stupidity. He adds that loss of memory and reason also appears in *lethargy* and *karos*, which are both diseases of the same genre (γένος); **1)** because they are a *dyscrasia* (δυσκρασία), and they belong to the genre of *homoiomerous* (ὁμοιομερῶν), i.e. the uniform parts; and **2)** because they are always a *cold dyscrasia* (ψυχρά δυσκρασία). As justification, he offers the reason that we often see that the cold numbs the psychic activities (ὀρᾶται ναρκοῦσα τὰς ψυχικὰς ἐνεργείας). In addition, Galen defines μώρωσις also as loss of understanding (σύνεσις), and gives two different examples of persons affected with this disease: one, a man who, due to intense study, has lost his memory and ability to reason; the other, a vineyard worker who, from excessive work, has suffered the same lesions in the *hegemonikon*.<sup>151</sup>

In the second chapter of the book IV, which is about diseases of the eyes, Galen presents two interesting cases concerning phrenitis (φρενίτις): one about a man who has lost his capacity to discern (διαγνώσεις), the other from Galen's personal experience. Let us begin with the former case. It is a recite

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<sup>148</sup> *De Loc. Aff.* VIII K. 156. This seems not to be completely true. At least, in cases of epilepsy and melancholy, if a patient expels something from his organism, a trained doctor can identify what kind of disease the individual is suffering, they will indicate the patient internal *diathesis*.

<sup>149</sup> Galen is using the terminology and methodology which he has established in *MM*, when he was searching for the essence of a disease.

<sup>150</sup> This example seems to show that Galen opens the possibility of mental capacities being able to produce changes in other mental capacities (memory in reasoning and vice-versa), which leaves open some sort of non-physical causality, unless these functions are completely materially based. On the other hand this example allows us to say that Galen advocates a dynamic functioning of mental faculties. They are interrelated; viz. the performance of one of them interferes with the other ones. What is left open is if there is a hierarchy among them. At first sight, it seems so.

<sup>151</sup> *De Loc. Aff.* VIII K. 165-166. This is an interesting example for two reasons. On the one hand, Galen presents two completely different activities as causes that will produce the same effect: in one case the excess of study, on the other excessive work. On the other hand, he states that the activities at issue are from two different fields of the social division of labor: intellectual and physical activity. Is Galen trying to show that mental dysfunctions occur independently of types of labor? As he does not develop this suggestion, we do not have sufficient evidence to advance to a final conclusion.

regarding a man living in Rome with a slave. He, without reason, begins to throw all sorts of objects out the window, asking passers-by if they want more. The crowd rejoices and says yes; he then shows his slave to the crowd and asks if they want him to throw him out also. The crowd, laughing, says yes, and he does it.

Someone, who had been left at the house in Rome with a boy woolworker, got out of bed and went to the window, through which he could both see and be seen by the passers by. Then he showed them pieces of glassware one by one, and asked if they would like him to throw them out. Laughing and applauding, they told him to throw, and he proceeded to throw all of them out one after the other, while they roared with laughter. Finally he inquired of them if they would like him to throw out the woolworker too, and when they urged him to do so, he threw him out as well, whereupon, on seeing him falling from a height, they stopped laughing and ran up to help the fallen boy. (Hankinson's translation)<sup>152</sup>

The other is Galen's personal case. Galen mentions that when he was under an acute fever he began to see things off the bed:

I have known it to occur not only in other people but also in myself, when I was a lad. I was suffering one summer from an ardent fever, when I thought that some small dark-coloured twigs were sticking out of the bed, while similar bits of fluff were emerging from the covers. When I tried to pick them out, they slipped through my fingers, and so I tried all the harder and in a more concentrated fashion to do it. But then I heard two of my friends talking among themselves, saying 'he's already started fluff-pulling and twig-collecting (*krokudizei kai karphologeí*)', I realised at once what I was suffering from, since my reasoning faculty was not affected in any way, and I said 'tell me precisely [what is going on], and help me, so I do not become phrenetic'. (Hankinson's translation)<sup>153</sup>

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<sup>152</sup> *Loc. Aff.* VIII K. 225-6. καταλειφθείς τις ἐπὶ τῆς οἰκίας ἐν Ῥώμῃ μεθ' ἑνὸς ἐριουργοῦ παιδὸς, ἀναστὰς ἀπὸ τῆς κλίνης ἤκεν ἐπὶ τῆς θυρίδος, δι' ἧς οἶόν τ' ἦν ὀρᾶσθαι τε αὐτὸν καὶ ὄρᾶν τοὺς παριόντας. εἶτα τῶν ὑαλίνων σκευῶν ἕκαστον ἐπιδεικνὺς αὐτοῖς, εἰ κελεύοιεν αὐτὸ βάλλειν, ἐπυθᾶνετο. τῶν δὲ μετὰ γέλωτος ἀξιούντων τε βαλεῖν καὶ κροτούντων ταῖς χερσίν, ὁ μὲν ἔβαλεν ἐφεξῆς ἅπαντα προχειρίζομενος, οἱ δὲ γελῶντες ἐκεκράγεισαν.

<sup>153</sup> *De Loc. Aff.* VIII K. 226. τὸ δ' ἐναντίον οὐ μόνον ἐπ' ἄλλων, ἀλλὰ καὶ ἐμαντῶ συμβᾶν οἶδα μειρακίῳ τὴν ἡλικίαν ὄντι. πυρέττων γὰρ ἐν θέρει πυρετῶν διακαεῖ, τῆς τε κλίνης ἐξέχειν τινα κάρφη, κατὰ τὴν χροῶν ὀρφνώδη, καὶ τῶν ἱματίων ὁμοίας κροκύδας ἐνόμιζον· εἴτ' ἀφαιρεῖν μὲν αὐτὰς ἐπεχείρουν, οὐδενὸς δὲ ὑπὸ τῶν δακτύλων ἀναφερομένου, συνεχέστερόν τε καὶ σφοδρότερον ἐπεχείρουν οὕτω πράττων. ἐταίρων δὲ δυοῖν παρόντων ἀκούσας ἀλλήλοισιν λεγόντων, ὡς οὗτος ἤδη κροκυδίξει τε καὶ καρφολογεῖ, συνῆκα μὲν ὡς αὐτὸ τοῦτο πεπόνθοιμι τὸ

Galen presented these two cases as two different types of *phrenitis*. The man in Rome is not deceived by his perceptions. He can discern (διαγνώσεις) his sense perceptions, but his judgment (διανοητικαῖς κρίσεις) of what he has perceived is not right. In Galen's case, the opposite happens: his reasoning and memory are working well, but the capacity of his sense organs to receive correctly the impressions is fuzzy (παρατυπωτικῶς δὲ κινδύνεται κατὰ τὰς αἰσθήσεις). Galen adds that in some cases individuals suffer from both conditions:

Some phrenitics are not at all prone to making mistakes of perceptual discrimination of things seen, but rather have their intellectual judgements disordered; while others, contrariwise, make no mistakes in their judgements but suffer from distorted perceptions; while others suffer from both conditions....<sup>154</sup>

It is noteworthy that Galen mentions he was under an acute fever. This is vital information because *phrenitis* is classified as a psychic disorder accompanied by an acute fever – a definition established in the Hippocratic writings that would continue for thousands of years in the Western medical tradition. The Hippocratic author of the treatise *Regimen in Acute Diseases* wrote: “By acute diseases are meant the conditions that earlier doctors have named pleurisy, pneumonia, brain-fever (*phrenitis*), and causus...”<sup>155</sup> Although the disease was thought to be located in the diaphragm, for the name refers the *phrenes* (φρένες) – the seat of the intelligence, thought and all psychic faculties for ancient authors as Homer<sup>156</sup> - Galen has changed the understanding of *phrenitis*: he redefines the location, causal relation and definition of this affection of the *hégemonikon* claiming there are two different types of it, one affecting the brain primarily, and another affecting the brain via the diaphragm.

The distinctive mark of *phrenitis* is that even when the fever is past its acme the delirium remains. If other parts are affected, or the body succumbs to burning fever, the delirium abates when the fever passes its height. It is not so with *phrenitis*; the brain does not suffer in sympathy, but through a peculiar

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λεγόμενον ὑπ' αὐτῶν, ἀκριβῶς δὲ παρακολουθῶν ἑμαυτῷ μὴ παραπαίοντι κατὰ τὴν λογιστικὴν δύναμιν, ὀρθῶς, ἔφην, λέγετε, καὶ βοηθεῖτέ μοι, μὴ φρενιτίσω.

Pigeaud (1988) gives much attention to Galen's use of Stoic vocabulary. He mentions the fuzziness (παρατυπωτικῶς) of the sense impression as a Stoic influence in Galen's thought. Galen develops the same case in *On the Differences of Symptoms* VII K. 60-62. Jim Hankinson in a paper not yet published, mentions that “the picking of non-existent small objects, κροκυδίξει καὶ καρφολογεῖ (*krokudizein kai karphologeîn*), is mentioned elsewhere as a classical symptom” of *phrenitis*. (*MM* X 928-932; *Hipp. Prog.* XVIII B 71-5).

<sup>154</sup> *Loc. Aff.* VIII K. 225. Hankinson's translation.

<sup>155</sup> *Hippocratic Writings*, Edited with an introduction by G. E. R. Lloyd, and Translated by J. Chadwick and W. N. Mann, I. M. Lonie and E. T. Withington. Penguin Books, 1986. p. 187

<sup>156</sup> *Loc. Aff.* VIII K. 327-332.



and original affection of its own. Hence, it is that this illness makes slow progress and does not affect the patient all at once or every part, as is the case with other regions of the body.<sup>157</sup>

As Galen states, a particular feature of *phrenitis* is that the delirium persists after the fever loses intensity. Moreover, the symptoms are variegated: from *crocydismus* and *carphologia* – both are considered essential symptoms of *phrenitis*,<sup>158</sup> expressing obsessive movement of the hands<sup>159</sup> – to insomnia and sleep accompanied by disturbing visions (φαντάσματα). Other symptoms are: minimal drinking, deep and spaced breathing, weak pulse, and when close to being attacked by *phrenitis*, drying of the eyes.<sup>160</sup> The cause of this disease is a dyscrasia where the yellow bile gains preponderance regarding the other humours.<sup>161</sup>

*Mania* (μανία) is another classical disease of *hêgemonikon* that doctors from the Hippocratic writers onward have examined and tried to explain. Galen does not give the same attention to this disease as to *phrenitis*. In *Loc. Aff.* he mentions it three times: one when he talks about the difficulties of correctly diagnosing the location affected by mania;<sup>162</sup> another when he writes about epilepsy and apoplexy – which he differentiates both from *lethargy*, *phrenitis*, *mania*, *melancholy*, *loss of memory* and *morosis*, which are affections that obstruct the cavities of the brain, something that does not happen in *apoplexy*,<sup>163</sup> and finally, when Galen differentiates *mania* and *melancholia* from *phrenitis* and *letargo*, mentioning the presence or absence of fever as a *differentia specifica* between the two pairs of diseases: *phrenitis* and *letargo* are accompanied by fever, and *mania* and *melancholia* are not.<sup>164</sup>

Finally, melancholy (μελαγχολία). Galen's looks at melancholy in *De Locis Affectis* VIII 176-193. He begins his digression on this disease differentiating the melancholic humour (μελαγχολικὸς χυμὸς) into two different kinds of composition (σύστασις): one thick, another thin, establishing at the same time that the production of the melancholic humour in human body can be the result of a person's initial/original temperament/mixture (ἢ διὰ τὴν ἐξ ἀρχῆς κρᾶσιν) or by one's eating habits (ἢ διὰ ἔθος

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<sup>157</sup> *Loc. Aff.* VIII K. 329. ταῖς φρνίτισι δ'ἴδιον ἐξαίρετον ὑπάρχει τὸ μηδ' ἐν ταῖς παρακμαῖς τῶν πυρετῶν παύεσθαι τὴν παραφροσύνην. οὐ γὰρ ἐπὶ συμπαθείᾳ κατ' ἐκείνην τὴν νόσον ὁ ἐγκέφαλος πάσχει, ἀλλὰ κατ' ἰδιοπάθειάν τε καὶ πρωτοπάθειαν κάμνει, καὶ διὰ τοῦτο κατὰ βραχὺ τε συνίσταται τοῦτο τὸ πάθος καὶ οὐκ ἐξαίφνης παρακόπτουσιν ἢ ἀθρόως, ὡς ἐπὶ τοῖς ἄλλοις μορίοις, ὅσα προεῖπον ἀρτίως. Translated by Michael W. Dols (1988).

<sup>158</sup> Pseudo-Galen, *Introductio seu Medicus*, (*Int.*). XIV K. 732-733.

<sup>159</sup> Hankinson claims, in a paper about mental diseases in Galen mentioned in footnote 157, “that the term derives directly from Galen's Greek; it is also sometimes known by its Latinate equivalent ‘flocillation’; the term ‘crocydismus’, cognate with the other verb Galen uses in these contexts, *krokudizein*, is recorded in older medical dictionaries as a synonym for *carphologia*.” About the concept of *phrenitis* in ancient medicine, see Pigeaud (1981), pp. 71-100.

<sup>160</sup> *Loc. Aff.* VIII K. 330.

<sup>161</sup> There are three different types of yellow bile that cause different types of diseases: pale yellow bile, which is the cause of a mild *phrenitis*; dark yellow bile, which causes a more violent attack of *phrenitis*; and a third which is the outcome of the concoction of the yellow bile and causes melancholy. *De Loc. Aff.* VIII K. 178.

<sup>162</sup> *De Loc. Aff.* VIII K. 156.

<sup>163</sup> *De Loc. Aff.* VIII K. 200.

<sup>164</sup> *De Loc. Aff.* VIII K. 166. On the concept of mania see Pigeaud (1981, 1987).

ἐδεσμάτων) and life style. He also states that the thick melancholic humour can be the cause of epilepsy – which is a disease caused mostly by the thick phlegmatic humour – “because it is contained in the places where the cavities of the brain ... have their exit channels.” However, when it is “present in excess in the very body of the brain, it causes (ἐργάζεται) melancholy.” He also states that “the other kind of humour of black bile (the thin), the one that has arisen as a result of the burning of the yellow bile (ὁ κατωπτημένης τῆς ξανθῆς χολῆς γενόμενος), results in bestial hallucinations (τὰς θηριώδεις παραφροσύνας ἀποτελεῖ), both with and without fever, when it fills the brain excessively (πλεονάζων ἐν τῷ σώματι τοῦ ἐγκεφάλου).”<sup>165</sup> Galen also adds that, as a result of the burning of the yellow bile, bestial and melancholic delirium also arises (καί τις ἄλλη θεριώδης τε καὶ μελαγχολικὴ παραφροσύνη γίνεται), reinforcing that in cases of “delirium that arises at peak moments of fever the brain is also suffering through co-affection, not proper affection.”<sup>166</sup> Very similar to delirium (παραφροσύνη) are the symptoms of cataracts (ὕποχρόμενος), which have their origin in dispositions of the stomach, which through the medium of the nerves that come from the brain into the mouth of the stomach, transfers the affections of the liver to the brain and vice versa. On the one hand, this is an evidence of dysfunctions of the *hēgemonikon* by co-affection.<sup>167</sup> On the other hand, this statement involves a clear assumption of the centrality of the nerves in affections by *sympatheia* (συμπάθεια).

These nerves give it (the brain) a sensitivity that is greater than that of the other parts. For this reason [...] those called hypochondriac or flatulent experience instances of melancholic despondency (δυσθυμῖαι μελαγχολικαί), for this is similar to the delirium that accompanies acute fevers. [...] In this way bodily parts consisting of nerves that are affected by inflammation are more easily affected by delirium than other parts, sometimes when only the heat itself rises through the adjacent parts of the head, sometimes through a vapourlike, smoky or sooty breath.<sup>168</sup>

Galen makes a significant remark differentiating damages of organic and homoiomerous parts. He says that thick humours that are present in excessive quantity in the substance of the brain (τὴν οὐσίαν τοῦ ἐγκεφάλου) sometimes damage it as an organic part, at others as a homoiomerous part: in the form of obstruction of the blood vessels as to an organic part (ὀργανικόν μόριον), in the form of qualitative change of the mixture as to a homogeneous part (κατὰ δὲ τὰς ἀλλοιώσεις τῆς κράσεως ὡς ὁμοιομερεῖ).

<sup>165</sup> *De Loc. Aff.* VIII K. 177-78. Trad. van der Eijk (2008). van der Eijk refers to another Galen’s work – *Commentary on Hippocrates’ Prorrheticon I* (xvi. 562 K and xvi. 780 K) where a identical situation is characterized as ‘hallucinations in which the patient walks, tramples with his feet, bites and rages because he holds anyone approaching him to be an enemy.’

<sup>166</sup> *De Loc. Aff.* VIII K. 178. Once again Galen claims that fever is one of the symptoms of phrenitis and delirium (παραφροσύνη) a symptom of burning fevers, that is caused when “a large quantity of hot vapours rises the brain.”

<sup>167</sup> *De Loc. Aff.* VIII K. 179.

<sup>168</sup> *De Loc. Aff.* VIII K. 179.

For this reason, Galen states that according to Hippocrates, epilepsy can change to melancholy when caused by melancholic humor, and to a different disease when caused by the phlegmatic humour. This entails that a doctor should undertake a necessary and attentive observation of the excretions of the body in order to identify correctly if the symptoms are from a modification in an organic or homoeomerous part. Lastly, Galen adds a significant remark: Since the soul is either a mixture of active qualities or undergoes alteration as a result of the mixture of these qualities, what he [Hippocrates] means is that bile damaging the brain as an organic part tends to affect the body of the brain (ἐγκεφάλου), and this takes place in the form of obstructions, whilst bile that affects it as a homogeneous part tends to affect the mind (διάνοιαν).<sup>169</sup>

So, the *hēgemonikon* can be affected when an organic part is damaged, like the brain, or when a homoeomerous part is damaged, like the nerves, which is an example that reinforces Galen's encephalocentric position of the *hēgemonikon*, and also his point of view about causality grounded on physiological alterations in the organism:

For the best doctors and philosophers are agreed that the humours and in general the mixture of the body cause alteration to the activities of the soul.<sup>170</sup>

This leads us to another of Galen's treatises: *That the Powers of the Soul Depend upon the Temperament of the Body (QAM)*<sup>171</sup>.

This treatise, a later work in Galen's career, is very interesting for its intersections between philosophy (mostly ethics, but also philosophy of mind), psychology and medicine. The central issue of this essay is the relation between body mixtures/temperaments (κράσεις) and soul capacities (δυνάμεις), as well as the extent of the dependence of the latter on the former in their formation.

As regards this treatise, it would be useful to take a look at the title. In Greek, it runs as follows: Ὅτι ταῖς τοῦ σώματος κράσειν αἱ τῆς ψυχῆς δυνάμεις ἔπονται, which can be translated into English as *The Faculties of the Soul Follow the Mixtures of the Body*. The crucial notion here is the verb ἔπονται<sup>172</sup>

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<sup>169</sup> *De Loc. Aff.* VIII K. 181. ἐπει γὰρ ἦτοι κράσεις ἐστὶν ἡ ψυχὴ τῶν δραστηκῶν ποιότητων, ἡ ὑπο τῆς κράσεως αὐτῶν ἀλλοιοῦται, τὴν μὲν ὡς ὀργανικῶ μορίῳ τῶ ἐγκεφάλῳ λυμαιομένην χολὴν ἐπὶ τὸ σῶμα τετράφθαι φησὶ τοῦ ἐγκεφάλου, γίνεταί δὲ τοῦτο κατὰ τὰς ἐμφράξεις. τὴν δ' ὡς ὁμοιομερεῖ τὴν κράσιν ἀδικοῦσαν ἐπὶ τὴν διάνοιαν.

<sup>170</sup> *De Loc. Aff.* VIII K. 191. ὅτι γὰρ οἱ τε χυμοὶ καὶ ὅλως ἡ τοῦ σώματος κράσις ἀλλοιοῖ τὰς ἐνεργείας τῆς ψυχῆς, ὡμολόγηται τοῖς ἀρίστοις ἰατροῖς τε καὶ φιλοσόφοις. Galen also mentions the disturbances which the melancholic's are prone to, like fear, despondency, and a feeling of fault with life. *Loc. Aff.* VIII K. 190.

<sup>171</sup> The Latin title as it is known *Quod Animi Mores Corporis Temperamenta Sequuntur*, abbreviated as *Quod Animi Mores (QAM)*. The treatise appears in Kühn IV.767-822, and was later re-edited by Müller in 1891 in Galen's *Scripta Minora (SM)* 2 32-79. For some observations of the misleading Greek edition of Kühn and the improvement of Müller, see Jouanna (2008) p. 192.

<sup>172</sup> 3<sup>rd</sup> person plural of the present, indicative, middle voice of the verb ἔπομαι (*epomai*), which ἔπεσθαι is the present infinitive of middle voice. I say crucial notion regarding the topic of body-mind interaction.

(*epontai*): *to follow*, whether after or *in company with* (LSJ). What follows in Galen's text is the *psyche dynamis* (ψυχῆς δυνάμεις), the powers of the *psyche*. These powers follow the temperaments/mixtures of the body (τοῦ σώματος κράσειν). We can interpret the verb ἔπομαι in a variety of ways, but they all leave room for ambiguity, which is something Galen might wish for his positions about the nature of the *psychê* are inconclusive.

For instance, we can follow Geoffrey Lloyd who argues that this terminology can be understood in three different ways: i) a strong position, in which the *psyche dynamis* (ψυχῆς δυνάμεις) are “solely determined” by the mixtures of the body; ii) a moderate position, in which those capacities are “produced, influenced or affected” by bodily mixtures; and iii) a weak position, in which what exists is “some correlation or correspondence” between bodily mixtures and psychic capacities.<sup>173</sup>

Hankinson, on the other hand, argues that it is obvious that Galen is arguing “that some conditions which are clearly mental in nature (...), such as delirium, depression, drunkenness, and insanity, are consequent upon physical alterations in the body...”<sup>174</sup> He cites a passage in which Galen says explicitly that psychic capacities are subordinate to the mixtures of the body: so even those who postulate a distinctive substance for the soul will have that it is subordinate (*douleuein*) to the temperaments of the body...<sup>175</sup>

The verb δουλεύειν (*douleuein*) means *to be a slave, to render service*, which seems to entail a very i) strong position.<sup>176</sup> However, as Hankinson says, “it should be stressed that Galen nowhere explains the nature of the dependence”<sup>177</sup>, which implies that, it is “one thing to claim that physiological states have psychological consequences; another to suppose that every psychological disturbance is correlated with a physiological one; and another still to suppose that psychological disturbance just is physiological imbalance...”<sup>178</sup> This leaves room for ambiguity regarding the nature of the relation between *psychê* and *sôma*. However, at least one thing is clear: Galen's understanding of causality, and

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<sup>173</sup> Lloyd (1988), p. 33. Besides, this classification is closely related, yet presented with a different terminology, with what Ballester (1988) wrote regarding the body/mind interaction in Galen's oeuvre.

<sup>174</sup> Hankinson (1991c) p. 203-204.

<sup>175</sup> *QAM* IV 779 K. / 41.15-18 Müller. Hankinson's translation in Hankinson (1993). The Greek runs as follows: ἀναγκαῖον οὖν ἔσται καὶ τοῖς ἰδίαν οὐσίαν ἔχειν ὑποθεμένοις τὴν ψυχὴν ὁμολογήσαι δουλεύειν αὐτὴν ταῖς τοῦ σώματος κράσειν.

<sup>176</sup> It is worth mentioning that Galen seems to be incoherent in his position on the soul-body relation. For example, in *UP* I, 2 he claims, “the body is the instrument of the soul...” and “In every case the body is adapted to the character and faculties of the soul.” However, these statements can be understood as a teleological explanation of Nature's production/creation of animals and their organs. Thus, we can say that a particular sequence of causal explanation is directly related to the perspective from which it is viewed: from a teleological perspective we will find one kind of explanation; from a particular causal perspective we will find another. In terms of pathological explanations, teleological explanations are not the best point of view to adopt; for it is difficult to explain how something bad to a living being, which was “built” for the sake of good, can exist in an ordered world. Hankinson (1998), p. 381.

<sup>177</sup> Hankinson (1991c), p. 204.

<sup>178</sup> Hankinson, in a paper not yet published, entitled, *Galen on Mental Illness*, p. 16.

his point of view that all diseases are imbalances of physiological dispositions, does lead him to support a strict reductionism as regards the body/mind interaction.<sup>179</sup>

Applying Galen's causal scheme to dysfunctions of the soul is not an easy task. However, it seems plausible that whether a disease is of an organic, or homoeomerous part, or breakdown of cohesion the reason why a disease like *phrenitis* attacks a person can be explained using the distinction between antecedent, containing and preceding causes. Take the example of *phrenitis* presented above. We have as essential symptoms the κροκυδίξει and καρφολογεῖ (*krokudizein kai karphologein*), which are a sign that something is going wrong whether with the reasoning and memory or with the physical constitution of the sense organs. In Galen's example, it is his sensoria that are damaged in some way, not his faculty of reasoning, for he is aware of what is happening to him. Moreover, Galen's case is not strictu sensu an example of *phrenitis*. As he says to his friends "tell me precisely [what is going on], and help me, so I do not become *phrenitic*."<sup>180</sup> However, we can point out as a precedent cause of the symptoms of κροκυδίξει and καρφολογεῖ Galen's damaged sensoria. Regarding the antecedent cause, we do not have sufficient information to produce a reliable relation, however we know that given the theoretical framework of humoralism, and the definition of *phrenitis*, the containing cause is the excess of yellow bile in the organism, namely in the brain. This overall scheme can be applied to any disease. It seems, however, that it does not provide any strong explanation of the reason why the yellow bile is the efficient/containing cause of *phrenitis*. As a matter of fact Galen, at *QAM* 776-7, writing about the soul-body relation as an important problem for Platonism, but not for his conception of soul-body relationship, he asks why, if the soul is incorporeal, it leaves the body in intense bodily dyskrasias and confesses:

Much research as not provided me with the answer to this, nor to such questions as: Why does a increasing of yellow bile in the brain lead to derangement/delirium? A build-up of black bile to melancholy? Why do phlegm and cooling substances cause lethargic complaints, which in turn lead to impairment of the memory and understanding? Why, for that matter, does the drinking of hemlock cause foolishness (the name for hemlock, *koineion*, is in fact derived from the effect that we observe it have on the body)?<sup>181</sup>

On the one hand, I think his confession does not invalidate the fact that, in terms of explanation, i.e., of the intelligibility of the subject matter under investigation, the conjugation of the different types of

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<sup>179</sup> Hankinson (1991c) p. 220; (2006), pp. 251-252.

<sup>180</sup> *De Loc. Aff.* VIII K. 226.

<sup>181</sup> *QAM* 777-8. Müller, 39. 12-20. πολλά ζητήσας οὐχ εὔρον ὥσπερ γ' οὐδὲ διὰ τί χολῆς μὲν ξανθῆς ἐν ἐγκεφάλῳ πλεοναζούσης εἰς παραφροσύνην ἐλκόμεθα, διὰ τί φλέγμα καὶ ὄλωσ τὰ ψυκτικὰ παραίτια ληθάργων, ἐξ ὧν καὶ μνήμης καὶ συνέσεως βλάβαις ἀλίσκόμεθα, καὶ μέντοι καὶ διὰ τί μωρίαν [αὐτὴν] ἐργάζεται κόνειον ποθέν, ᾧ καὶ τοῦνομα [ἐνθεν παρώνυμον] <ἀπὸ τοῦ πάθους, ὃ> πάσχον ὀρώμεν ὑπ' αὐτοῦ τὸ σῶμα. The French translators of *QAM* mention that the *Etymologicum Magnum*, Oxford, 1848, relates the noun κόνειον, hemlock, with κινέω, set in motion; καίνειν, to kill, to slay; κόπτειν, to cut, to strike; and κοίμημα, to sleep. The use of hemlock is an explicit allusion to Socrates' death.

causes provides invaluable information for a doctor both produce a diagnosis and a prognosis – which are major steps towards therapeutics, the most important goal from a physician point of view. It gives conceptual distinctions, as necessary and sufficient causes, which are useful for a correct therapeutic. On the other hand, I think that this confession is a reinforcement of Galen agnostic position on the nature of the body-soul relation, and not a statement arguing that the imbalances in the body are not causally related to soul dysfunctions. In other words, this chunk of text is an of Galen's philosophical point of view: a fundamentally cautious empiricism.

## Concluding remarks

To conclude, we can hold that as far as evidence goes, all diseases of the *hégemonikon* are *dyskrasias* of humors in the body, namely in the brain. It is the body in its physiological arrangement that is the locus of diseases. However, the way one leads one's life is of no minor importance in regard to the modification of one's humors. The same holds for the environment and natural constitution. It is worth noticing that although the *hégemonikon* is the ruling part of the highest and sophisticated human activities, it is not different in nature from the physical constituents of the body. However, Galen does not know what its nature is, but he knows that the faculties of the soul follow the mixtures of the body. Moreover, Galen's diseases classification is not directly concerned with mental dysfunctions; as a matter of fact, Galen does not understand the ruling part of the psyche to be domain independent from the rest of the organism and his diseases taxonomy as *dyskrasias*, breakdowns of cohesion and disorders of morphology, does not differentiate body from mental realms. As different authors have claimed, for Galen, all diseases are bodily diseases; therefore, mental diseases are bodily diseases. This leaves us room for rumination that Galen was not creating a taxonomy of mental diseases intentionally. His main interest, as with every doctor dealing with illness, was in therapeutics. When we look at a work like *On The Affected Parts*, we find he is constantly concerned with, on the one hand, subsuming the data under his theoretical framework and, on the other hand, producing an accurate observation of the subject matter under investigation in order to prescribe the best therapeutics. His interest in *psychê*, namely the *hégemonikon*, was mostly driven by anatomical, physiological and epistemological concerns, yet also, it is true, by pathology. And his interest in mental pathologies is a medical interest oriented to the practice of the discipline, namely therapeutics. However, it is also true that Galen made substantial progress in the explanation and to some extent, the classification of mental illnesses and symptoms, making use of the available empirical knowledge about the nervous system. This study ends here with the explanation of mental derangements, leaving aside for the moment an important part of medical knowledge, namely Galen's position on the classification of diseases, which deserves an independent study in itself.

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