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Galen on the Anatomy of Memory

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ABSTRACT

Galen on the Anatomy of Memory

Memory is a well-researched topic in classical philosophy and literature, but it has often not been addressed in Greco-Roman medical texts. In this text, I aim to survey some aspects of the concept of memory in Galen's oeuvre (129 - c.216). Albeit Galen did not write any text devoted to the topic of memory, we do find in his oeuvre quite a few considerations about the role of memory in the 'economy' of human life. As a doctor with genuine interests in philosophy, Galen's observations on memory are at the crossroad of philosophical and clinical ideas about remembering and forgetting. Therefore, I will look at Galen's conception of memory in its ordinary and pathological aspects, e.g., its role in learning, epistemology, and memory disorders. This research emerges as a central aspect of Galen's thought that the psycho-physiological condition of the organism impacts memory's performance.

Key Words: Memory - Knowledge - Learning - Memory Disorders

Introduction

Galen (129 – c. 216 AD) was a prolific author. His voluminous oeuvre covers various topics, from anatomy to logic, not forgetting foodstuff, ethics, therapeutics, physiology, and psychology, just to mention a few¹. But he did not write any single work devoted to memory. From Homer till Galen's time to my best knowledge, there is one single and short tract dedicated to memory. It is Aristotle's *On memory and recollection*, which belongs to a group of texts commonly known as *Parva Naturalia*².

Nonetheless, Galen refers in several passages of his work to memory. In these passages, Galen's approach is a blend of medical, psychological, epistemological, and pedagogical considerations on memory. Memory is displayed there chiefly either as an individual capacity with specific properties for working correctly or damaged under particular conditions or as a faculty with a critical role in the constitution of a scientific community. Looking at these different contexts helps us unearth the different levels at which this faculty might be understood. Therefore, in what follows, I will try to summarise a few relevant aspects of how Galen addresses the concept of memory in some of his texts.

Firstly, the imagery for memory we find in Galen's tracts follows the primary metaphors for mind and memory in circulation since Plato and the Stoics: the wax-tablet, aviary, and thesaurus³. Secondly, in some of Galen's texts, we find a significant digression on memory and imagination that gives essential clues for understanding how he conceives the process of memories formation and its shortcomings. Thirdly, Galen recognises memory as a critical faculty for a flourishing human life: to be a good doctor, one needs to have a good memory, be diligent and have a sharp mind. He also thinks that memory plays a central role in reasoning, knowledge, concept formation and education. Lastly, the most substantial part of observations on memory are found in Galen's tracts in which memory fails to work, that is, in his clinical books. We have from Galen's considerations about memory across many different works, some more theoretical than others, but almost always in the context of memory dysfunctions. Thus, what distinguishes Galen's work in the conceptualisation of memory is his combination of anatomical cum physiological approaches. An approach that places him within a physicalist conception of memory. In other words, for Galen, individual memory is a faculty that is entirely dependent on the physiological condition of the organism. In that sense, his approach is the culmination of a trend of 'secularisation' and naturalisation of the cognitive and intellectual faculties.

The idea of memory

There is no definition of memory in Galen's extant works, but he ranks memory as one of the finest faculties of the human's soul.

It was shown in my book On Common Reason that there is in all of us three capacities, which we need for the systematisation of the arts and life, namely, perception, intellect, and

memory; but memory, even though not discovering the nature of each thing, stores and keeps safe the things known through perception and reason, being a kind of treasury of those things found. And we have by nature perception and reason to discover what is sought and assess it⁴.

In this excerpt, Galen puts memory alongside - according to his epistemological criteria - the two classical sources of knowledge: intellect (νοῦς) and sense-perception (αἴσθησις)⁵. From the practical side, memory is qualified as a crucial faculty for the constitution and organisation of skills and life. Memory retains information gathered from sense-perception and reason. Still, memory is not itself a source of knowledge, as it cannot discover the very nature of things and cannot give an account of why such event follows from another; that is, memory cannot provide a causal understanding of causes and effects. Memory can neither infer a conclusion from visible signs to invisible ones. A different intellectual faculty is needed to attain such an epistemic state: reason. Without reason, our memories would be useless. Thus, from this excerpt, we might say that memory is conceived, primarily, as a passive capacity: it retains and preserves what is grasped by the senses, but actual knowledge is only attained through rational and abstract reasoning. This knowledge is critical for organising one's life and acquiring and transferring practical and intellectual abilities.

In one of his most significant works on philosophical psychology, *On the Doctrines of Hippocrates and Plato (PHP)*, Galen tries to show that Plato is in complete agreement with Hippocrates regarding the understanding of the human soul and its faculties. Thus, from the anatomical and physiological perspective, a central tenet of Galen's view on the soul and its faculties is his firm belief that the soul is lodged in different bodily organs - the brain, the heart, and the liver. Each of these organs oversees the critical activities of the human organism. Galen says:

I have proved that an animal after birth is governed by three sources, one located in the head, whose work is in itself to provide imagination and memory and recollection, knowledge and thought and ratiocination, and in its relation to the other parts of the animal to guide the sensation of the sensory parts and the motion of the parts that move voluntarily⁶.

The interest in placing humans' intellectual activities under the jurisdiction of a ruling principle (ἡγεμονικόν) was common among ancient philosophers and physicians. In this respect, Galen is not an exception regarding the type of issues surrounding the topic or how he approaches it. For that matter, Galen uses a well-established pattern, or checklist, for approaching the problems concerning the soul, that is, its powers, how many they are, what their nature is, and where they are located within the body. Interestingly, Galen leaves aside two questions that usually are in the checklist: the issues about the existence and the substance of the soul. The former is quite likely because it is evident, as he states several times, through the activities of the body that we have a soul. The latter, after all, falls under speculative questions that do not fit Galen's epistemological criterion of empirical evidence. However, it is clear to Galen

that we have a soul because the soul oversees perception and movement, that is, activities that would not exist without the existence of an entity that animates bodies. Besides, according to Galen, the body, its parts, and organs are instruments of the soul. Now Galen novelty is that the brain has two main operating modalities: the activities that it can execute by itself, and the activities related to something else. The latter depends on the nerves to be performed - as a voluntary movement - whereas the former depends on the condition of the brain - as reasoning and remembering, for instance. In addition to the state of the brain, psychic pneuma is another critical element for the overall functioning of the cognitive and sensory faculties⁷.

Now, as memory is the capacity to retain and recover ‘information’ one had perceived and given that memory is dependent on the physiological conditions of the brain, these are critical for memory performance – as well as for the other intellectual activities. In this sense, Galen enumerates some speculative physiological conditions and attributes regarding the brain that are an indication of both the brain and of the faculties under its jurisdiction:

The goodness or badness of the hegemonic activities is an indication of the principle alone and in itself. I shall call the hegemonic activities those arising from the principle alone. Quick-wittedness is an indication of a fine substance in the brain, while slowness of intellect is an indication of a thick one; aptitude to learn an indication of a substance which takes impressions easily; and memory of stable one. Similarly, inability to learn indicates a substance which takes impressions with difficulty, and forgetfulness one which is fluid. Changeability of opinion indicates a hot one, while stability indicates a cold one⁸.

As Galen says here, the condition of the ruling activities of the soul is a sign of the ruling principle of those activities in itself, that is to say, of the brain and of its proper activities. From this, Galen ascribes to the qualities of the brain a positive value to thinness and a negative one to thickness. Thus sagacity (ἀγχίνοια) is a sign of a thin and delicate substance, whereas slowness, dullness (βραδυτής) is a sign of a heavy and thick one. Likewise, the capacity to easy learning (εὐμάθεια) is a sign of an easily impressible substance, and slowness at learning (δυσμάθεια) a sign of a hardly impressible (δυστύπωτος) one. On the other hand, stability (μόνιμος) is an attribute of memory and fluidity of forgetfulness (ἐπιλησμοσύνη). Furthermore, Galen ascribes stability (μόνιμος) of opinion to coldness (ψυχρός) and changeability of opinion (εὐμετάβολος) to hotness (θερμόν). Also worth noticing in this passage is that Galen mentions neither perception nor voluntary movement, which also are activities under the jurisdiction of the ruling part of the soul (ἡγεμονικόν). He might have chosen not to do so because these are relative (πρός τι). In other words, they are activities requiring the use of the nerves to be accomplished.

Now according to Galen, memories are dependent on perception (αἴσθησις) and made up from appearances (φαντασία). Indeed, appearances leave traces, imprints, images (τύποι) in one’s brain of the objects and situations with which we are in contact in

everyday life. For this process of imprinting to take place correctly, three conditions must be fulfilled: (i) the appearance must be clear (ἐναργής); (ii) the individual must pay attention (προσοχή) to what she/he is doing; and (iii) the individuals' physiological make-up must be in an appropriate condition. Galen says that people, after finishing an action forget what they have done. This happens

because these people did not pay attention with the entire mind to the activities they have done. Indeed, the soul aspect that brings appearances before the mind, whatever it might be, seems to be the same as the one that remembers. If then, it clearly grasps the imprints of the objects in the appearances it preserves them forever, and this is remembering; if it receives them dimly and in an entirely shallow way, it does not preserve them, and this is having forgotten. Because of this, in states of drunkenness, anxiety, fear, and in general, in strong affections of the soul, they do not remember, later, any of the actions they have done⁹.

This excerpt shows that for Galen, the faculties of representation (τὸ φαντασιούμενον) and of remembering are not entirely distinguishable. And it also shows that memories are imprints (τύποι) that became stabilised in the brain through appearances (φαντασία). Furthermore, this imprinting process is better done when we pay attention to our appearances. What is not so clear is the intriguing statement that imprints are grasped *in* or *within* appearances. It seems that what is left in one's brain when we perceive something might be just a part of what appears to us. Thus, a further effort of attention is necessary to grasp, as much as possible, all that is *in* the appearance. And this effort brings clarity and perspicuity to what is perceived. According to Galen's words, when this happens, it is laid down a memory that lasts forever.

From the physiological side, the mechanism of perception is relatively straightforward - the case of vision is more complicated, as Galen has two different models of explanation of the process. But the other sense-organs operates, roughly speaking, in the following way: some object stimulates the sense-organs, these organs send the 'information' through the nerves via psychic pneuma to the brain and, lastly, the *hēgemonikon* becomes aware of the alteration. Also significant is Galen's statement that altered physiological conditions - drunkenness - and emotional ones - anxiety - interfere in the capacity of attention and, for that reason, on the working powers of memory too.

Memory, knowledge, and learning

Galen assigns a crucial role to memory in his medical practice. This is not surprising, given that a doctor in his daily routine needs to recall as accurately as possible previous knowledge that he had acquired for evaluating and seeing the development of a given patient's condition. In this sense, memory is also a criterion for assessing a given situation with a previous one proven true or effective. And Galen seems to be very confident about memory's capacities, or at least of his memory. For instance, in *Mixtures*, he writes:

And let us return once more to the matter in hand, and use the sense of touch to make our primary and specific identification of the different degrees of heat belonging to different ages. And the evaluation will be best [carried out] on one single body, that of an infant. For it is perfectly possible to remember what its heat was like at two years old, in relation to what it is now, after an interval of, say, two or three years. If a general change is detected, whereby the infant has become either hotter or colder, it is then no difficult matter to draw a conclusion about the further increase that will take place up to the prime of life¹⁰.

Galen is conscientious as regarding the required conditions for observing the good qualities and getting the most accurate data from observation. But having set out the right observational conditions - the body of a newborn, or infant and observing the same body over time - he believes that it is possible to get reliable information about the issue he is dealing with and recall it later for practical purposes. But it is also worth noting that memory *per se* is not enough; reasoning is necessary for achieving such an epistemic state. This latter aspect is crucial: reason allows the anticipation of the development of the condition by relying on memory of previous observations and of the regularity or irregularity over time of the mixture of that person.

In another passage of the same tract - a thought experiment in a classroom - Galen reinforces the same idea that memory can be an epistemological criterion. Thus, while explaining how one might gain expertise in the identification of the different mixtures of any kind of object, Galen states that

it is no difficult matter to distinguish such a body by both sight and touch, to consign it to the memory and to use the object as the standard and criterion for the distinguishing of objects which are deficiently or excessively wet and dry. Of course, the body that one is assessing should be hot to a well-balanced extent; for if this body, which is at the midpoint between wet and dry, is brought to an extreme of either hotness or cooling, this will sometimes create a false impression, and it will seem sometimes to be wetter than the state of good balance, sometimes drier¹¹.

These two examples give us a clue of how Galen leans on memory's capacities for epistemological and clinical purposes. Although, as we have seen, memory is not a source of knowledge, it is a reliable and indispensable resource and instrument for evaluation and orientation in clinical practice.

In addition to the epistemological considerations, Galen says a few things about the relation between memory and learning¹². He considers that the primary function of writing for medical education is to preserve in pupil's memory the entire teaching to be used by those already trained in the medical art¹³. Thus, it is a necessary condition that the medical student knows the medical terminology. And, as it is known, in Galen's time writing and orality are complimentary, but it was the ability to learn by heart that was essential in a doctor's everyday practice. And the best way to remember a given point or topic for the clinical course was to have retained it in memory in the right way. For that matter, mnemonic facilitators were essential and useful. We are

told in *Matters of Health* that to memorise the subject matter at issue, it is essential that its content would be common, universal, and concise: “Certainly, the teaching by method, taking in what is common and general, is easy to remember and concise for the many individual facts”¹⁴. Thus conciseness (σύντομος) and memorability go hand in hand, although it is not because of being brief that a proposition is easily remembered. The text says that by teaching methodically and displaying what is common and general (τὰ κοινὰ καὶ καθόλου), it would be better retained in memory and easily applied to individual cases (κατὰ μέρος). In other words, teaching what is common and general, as it is more concise, helps recall what was learned for the application, or translation, of the general into particular cases. In the same treatise, *Matters of Health*, while discussing the scope of the art of health, Galen suggests that an effective way of displaying a topic for memorisation consists in starting from precepts that apply universally:

Now, what the art of health professes is to give to all human beings instructions for health, whether specific ones for each person or ones suited to all in common, or some which are specific and some common. Now, it is not possible to give an account of all at once. One must first discuss how a person may extend his life to the greatest possible length and remain healthy throughout; [. . .] Secondly, one should work on the assumption of some specialised skill, activity, habitual practice or service, either of a political or private nature - or, in general, of some imposed lack of leisure. For our argument cannot be clear, or easy to remember, or methodically completed, without the ordering mentioned above¹⁵.

Organising the subject matter for pedagogical purposes is crucial for transmitting knowledge in the right way. And this is stated in one of the last Galen’s treatises, the *Art of Medicine*, which have a robust didactical purpose. In the opening section of this tract, Galen states that he was the first to write a programme of study starting from the notion of the end (τέλος), from which all arts are composed methodically. He named *analysis* this type of teaching, which he had already expounded in another tract, that did not survive. In this one, *Art of Medicine*, Galen will focus his effort on pedagogical methods related to definition and this kind of teaching he calls *dialysis*. Although the latter falls short, in both status and method, of the former, it nonetheless exceeds the method of *analysis* for an overview of the whole (σύνοψιν τοῦ ὅλου) and the memorisation of the individual facts (μνήμην τῶν κατὰ μέρος). This pedagogical method facilitates remembering (εὐμνημόνευτα) what is taught, as the best definition contains within it the principles (κεφάλαια) of the entire art. And the principles are what must be retained in memory.

But no one before us has written a course of teaching beginning from the notion of an end, from which notion all arts are composed methodically. This teaching we have expounded elsewhere; here we shall concentrate on that related to definition. Just as it falls short, in both status and method, of that related to analysis, we shall equally find that it exceeds it for the purposes of overview of the whole and memorization of the individual facts. For all

*that arises from the dialysis of a definition is easy to remember, because the best definition contains within it the principal points of the entire art*¹⁶.

In another tract, his *Commentary to Hippocrates Aphorisms*, Galen states again that for easy memorisation, short sentences encapsulating the essential features of the subject matter under discussion are the more effective in learning, both in the sense of retaining and recalling them to mind¹⁷. In another passage from *Matters of Health*, in which Galen is discussing Theon's views on massage, Galen makes a short digression on how learning the elements - the most basic issues on the subject matter under discussion - is the best way of memorizing them and, at the same time, of having that knowledge at hand for practical purposes. According to Galen's narrative, this didactic dictum was already supported by Hippocrates.

*The first thing to say is that the teaching pertaining to the elements of the matters is more useful than the others in that it makes the whole matter easily taken in at a glance, and establishes it in memory. Thus, it comes easily to recollection, readily demonstrating the use of the things that individually come to hand, as these are referred to a few defined elementary principles*¹⁸.

Again, the main idea behind this excerpt is, on the one hand, that Hippocrates is the great master and that one should pay careful attention to his texts and instruction; on the other hand, that it is by looking at the elements, the backbone of the medical practice, in this sense of massaging, that the teaching of the great master would be better retained in memory and easily remembered. The elements, here, might be understood as - or equivalent to - the principles we have seen above.

Pathologies of memory

The bulk of Galen's views on memory is about memory disorders. This is not surprising, being Galen, a doctor. But memory disorders are not thematised *per se*. In other words, there is no specific category of memory disorders, even if Galen tries to identify them. Memory disorders are addressed within a wider variety of mental disorders¹⁹. In what follows, I will focus on a few aspects of Galen's effort to thematise memory disorders, albeit Galen's concept of disease, and health for that matter, is not straightforward. We might say that it encompasses two distinct conceptions, one humoral and one anatomical²⁰. For this essay, the following text from Galen clarifies what is at stake with the idea of disease.

In *Causes of Symptoms* Galen distinguishes natural (*φυσικαί*) from *psychic* (*ψυχικαί*), and *hegemonic* (*ἡγεμονικαί*) symptoms. The first refers to the vegetative activities, the second to the sensory and motor activities, and the third to the hegemonic activities of the soul.

Regarding these [of the ἡγεμονικόν's activities] there are three primary kinds of symptoms. First, destruction of activities, second, damage to activities, and third passing into another

form. We find destruction in so-called dementia and forgetfulness. For, it has been seen many times some diseases changing from one to another, turning into dementia and forgetfulness. Actually, we have seen some people who have entirely forgotten words and skills, being unable to remember their own names: the sort of thing that Thucydides states to have happened in the plague. And some of those who survived were unable to recognise either themselves or their relatives. We saw some people seized by similar symptoms because of their advanced age. From this, it is clear that dementia and forgetfulness result from cooling. Indeed, drugs that produce these symptoms have cold powers, and it is evident that the body of the brain itself being cooled causes these symptoms, as it seems likely that episodes of apoplexy and epilepsy are due to a significant amount of phlegm being gathered together in the cavities of the brain itself²¹.

Albeit Galen is using here the term symptom instead of disease (νόσημα), we are told elsewhere²² that there is a broader sense of ‘symptom’ that includes any modification within the organism that is contrary to its nature. In this sense, a symptom is a sign of disease, or if not of a well-established illness, of an abnormal condition of the organism. Thus, as often, Galen’s procedure is to find the top quality responsible for altering the mixture of the organism or one of its parts or organs. Thus, a cold imbalance in the brain is the main cause of dementia and memory loss - with the degrees of impairment varying according to the quantity of cold affecting the brain²³. Galen’s use of Thucydides’ episode of the plague is an example of the recognitional aspects of memory disorders, which causes the incapacity to recognise relatives and even oneself²⁴. From the viewpoint of the fluids, phlegm is the leading cause of memory disorders. As it is a cold fluid, it is natural to cause a decrease in the brain’s temperature and, therefore, a reduction of hegemonic activities and memory performativity. Furthermore, Galen holds that when the brain is affected primarily, directly, in its substance, both the beginning and the resolution of the disease are sudden, whereas when it is affected by sympathy, that is, when other parts of the body are the cause of the decreasing of the temperature of the brain, there is a gradual development of the disorder. Regarding the drugs and foods affecting memory’s performance, Galen states that those having a cold nature will eventually affect it. For instance, he says that lettuce (θριδάκινη) has this kind of power, causing lethargic dreams if taken in excess, but also poppy, mandrake, henbane, and hemlock. The latter might kill due to the severity of the cold²⁵. However, none of these substances harms only and specifically memory; they impact all the hegemonic activities by affecting the brain. What is specific to these drugs is the slowing down, the decreasing of what is considered the normal functioning of the hegemonic faculties’ dependent on the disposition of the brain.

In addition to this aetiology of disorders of the *hēgemonikon*, Galen develops in more detail the pathologies of memory in *Affected Parts* III 5-8. We are told in these chapters that at some point in his early career, Galen came to grips with a clinical case of memory loss. To his knowledge, none of his fellow doctors had ever written anything about that kind of disorder. This led him to investigate the affected part corresponding

to this disorder, apply remedies, and try a cure. While doing these clinical experiments, he learned that Archigenes²⁶, one of the leading figures of the so-called Pneumatist school, had written on therapeutics for memory loss. He found a letter from Archigenes to Marso in which the former instructs the latter on how to restore his father's memory. As is Galen's common practice regarding many authors, apart from Hippocrates and Plato, he starts a bitter discussion about Archigenes inconsistency regarding how he does not do in his clinical practice what he preaches in theory. According to Galen, Archigenes supported the view that the *hēgemonikon* is in the heart, but when he had to deal with people with memory loss, he applied therapies to the head. Galen considers this quite baffling because of the performative contradiction and because a doctor must use different remedies according to the affected parts²⁷. Be that as it may, Galen confesses that the topic is hard to deal with, as finding the proper treatment for memory loss is not an easy task. As he writes, "when memory is destroyed, there is no sign of the affected part, neither excrescence, nor any pain, nor secretion or any other thing"²⁸ that one can take into consideration as to start a methodical investigation. Thus, to give a correct diagnosis and find the suitable therapeutics, a doctor needs to pay attention to the individuals' lifestyle, namely watching the sleep of people affected with memory loss to find signs indicating what is the predominant imbalance (δυσκρασία) causing that disorder. The discovery of the imbalance will pave the way for the appropriate therapy²⁹. What is clear, Galen claims, is that memory disorders usually occur in conjunction with damage to the rational functions.

[i] All doctors agree to place the soul's reasoning part in the head. Given the procedures they apply to all its affections, it is suitable to examine for each affection of which kind its disposition is. [ii] For example, the damage to memory, since I will talk about this. Usually, it appears that it [damage to memory] occurs with some damage to reason, just as damage to reason takes place with some damage to memory, being the disposition the same in both cases, but more intense when, along with memory, the reason is lost – what is called dementia. [iii] Both (reason and memory) are lost in lethargy and all affections involving stupor, and the disposition of these affections is, necessarily, of the same category. [iii. a] According to the first category because it is an imbalance (it was proved that this disposition is common to the uniform parts that primarily acts); [iii. b] according to the second, because it is a cold imbalance in every case. [iv] It can be seen that this cold imbalance numbs the activities of the soul, as it is clearly shown by animals that are compelled to lurk in a hole because of the cold, and all the cooling drugs and cold food, such as lettuce which, if taken in great quantity, gives rise to deep sleep³⁰.

This chunk of text is crucial for understanding Galen's conception of memory disorders, and for that matter, it needs a few comments. Firstly, Galen starts the exposition of his position by stating the agreement seen among all doctors as regards the seat of the hegemonic activities of the organism in the brain, by the fact that in their clinical practice, it is to this part of the body that doctors apply therapies when some 'cognitive' activity is impaired. Thus, the first thing a doctor must pay attention to, in the

process of getting to know what is going on about memory disorders, is the disposition of the organ in charge of that faculty, namely the brain. Secondly, Galen states that it usually appears (φαίνεται) to the observer that damage to memory happens in conjunction with the damage to other intellectual activities. This proposition aligns with Galen's point that when a centre of motivation is affected, the activities under its jurisdiction are also affected³¹. So, the brain is the organ in charge of reason and memory; it follows that when the brain is disrupted, the hegemonic activities might, quite naturally, be affected too. This statement points out that Galen seems to envisage the workings of *hēgemonikon* as a whole, that is, as unified. In other words, when the organ in which the *hēgemonikon* is located is disrupted, then the faculties of the *hēgemonikon* are, with more or less severity, affected too. Furthermore, the terminology seems to be relevant here. Galen starts the chapter using the term βλάβη, which is a word of art in his clinical vocabulary: the term Galen employs to define the most generic category of disease, which encompasses all the signs of the organism that do not accord to the best constitution and those already signifying a stabilised pathological condition. In other words, βλάβη means the impeding functioning of the organism or part of it that can be empirically captured³². Another issue is that Galen employs here the verb φαίνεται (appears). Although it might raise some doubts about the reality and accuracy of what is perceived, it also means what reveals and discloses the fact of what is perceived. Thus, the first point is that when memory is somehow disrupted, reason also is, and the same happens the other way round. There is, then, a fundamental relation between memory and reasoning. That this is the case seems to follow from the fact that, according to Galen, the disposition is the same when both capacities are disrupted. But the damage is more intense and severe when there is a loss of reason *and* memory. This pathology is called dementia (μώρωσις). According to Galen, in dementia (μώρωσις), both reasoning (λογισμός) and memory (μνήμη) are not only damaged (βλάβη) but destroyed (ἀπόλλυται) and this is due to an imbalance (δυσκρασία) in the disposition (διάθεσις) of the brain³³. The same happens to people affected by lethargy (λήθαργος). At this point in the text, Galen adds a categorical division about the imbalance affecting the disposition of the brain in dementia and lethargy. He writes that the first category is an imbalance; the second category is a cold imbalance. This is a somehow surprising sentence. From a logical point of view, the division is a bit loose³⁴. The text says that imbalance and cold imbalance are two different categories or genera. In this sense, a *cold imbalance* would be a species of the genus *imbalance*. Properly speaking, the genus is the category under which species falls, and the differentia tells what characterises the species within that genus. Now we might understand this distinction not as logical but as a hierarchical one. Namely, as a distinction that reveals a degree of severity among the imbalances affecting the disposition of the brain. But Galen adds a further difference: the first category (πρῶτον γένος) of the diseases affecting the uniform parts is an *imbalance*, whereas

cold imbalances cause the second (δεύτερον) of those diseases³⁵. If this reading is correct, dementia is an example of the genus imbalance, whereas lethargy is an example of diseases falling under the genus of cold imbalances. Therefore, we suggest that Galen divides brain diseases in this passage into two categories of causes: imbalance and cold imbalance. One might take this categorical distinction not in a strict sense but in a way in which genus and species are somehow interchangeably employed. In this sense, the disease would be the genus, whereas imbalance and cold imbalance the species falling under that genus³⁶.

Also significant in this excerpt is that the *imbalance* disrupts the usual disposition (διάθεσις) of the brain *qua* uniform part (ὁμοιομερής) that primarily acts (πρώτως ἐνεργεῖ). It is not clear what Galen has in mind with the phrase πρώτως ἐνεργεῖ. What we know is that Galen considers the human body is structured in two levels of organisation: the uniform (ὁμοιομερής), and the organic/instrumental ones. The former are uniform in their composition, viz. their constitution is the result of the mixture of the four elementary qualities - hot, cold, wet, and dry - in other words, every part is like every other - or it exhibits no structure³⁷. This suggests that the uniform parts of the organism are more fundamental and elementary regarding the more basic and core capacities and activities of the organism. Although the brain is classified as an organic part, we know that organic parts are made up of uniform ones - the former having a higher level of organisation. Thus, when we are told elsewhere that an excess of thick fluids in the brain's substance occurs, the brain might be affected either as an organic or a uniform part. When it is affected as an organic part, there is a blockage of the pores impeding the flowing and exit of psychic pneuma and other bodily fluids. In contrast, when it is damaged as a uniform part, there is an alteration of its mixture (κρᾶσις)³⁸, which is the case here. Therefore, altering the disposition (διάθεσις) of the brain *qua* uniform part, the lesion and severity of the affection would be more severe. Finally, Galen claims that when the faculty of reasoning and memory are affected, the disposition (διάθεσις) underlying them is the same. And when that happens, the disease is dementia (μώρωσις). As we have mentioned already, the disposition is a more or less permanent state of the body or one of its parts or organs that makes the organism the way it is: healthy or sick. In this specific case, Galen points to the disposition of the brain. As already mentioned, the doctor's goal is to discover the disposition of the brain in the case of memory loss. But in learning the disposition of an organ, what is relevant in the doctor's inquiry is to find out what kind of interaction is the case between the four elemental qualities - hot, cold, moist, and dry - causing the disposition of the brain. Dementia (μώρωσις) and memory loss, according to Galen, are due to a dyscrasia of the brain, what causes this dyscrasia is a predominance of cold fluid in the brain, the result, necessarily, is that the disposition is the same in both cases. The same applies to lethargy. Thus, the disposition underlying memory loss and disruption of reasoning is the same, pointing to the thesis that what is affected in these disorders

is primarily the brain's mixture of elementary qualities. This seems to be plausible, as, for Galen, the brain's condition is dependent on the mixture of the fundamental qualities - hot, cold, wet, and dry. If there is any change to the mixture of uniform parts composing the brain, there will be a change in its more fundamental disposition. As the brain is the part of the organism in charge of the mental and intellectual faculties, it is reasonable to assume that the disposition is the same in memory loss and loss of reason. And the disposition in these pathological states is characterised by a predominance of cold³⁹. Galen finishes this chunk of text recurring to empirical evidence among animal's behaviour and foodstuff properties, as a justification of his conclusion that a cold imbalance is the leading cause of the soul's stupefaction and, *a fortiori*, of memory loss⁴⁰.

Galen tries to pinpoint disorders specific to memory without being entirely successful. In the end, memory disorders are not distinguishable from disorders affecting the other faculties under the jurisdiction of *hēgemonikon*. Furthermore, Galen's approach is, for the most part, a brain-based view of these disorders.

Conclusion

From the texts we have selected, and in a nutshell, we might say that for Galen, memory is a faculty dependent on the brain and that it is the *hēgemonikon*, properly speaking, who recalls. Further, there is a close relationship between the faculty of representation and memory - and this point is not new in ancient Greek authors - as both faculties are closely dependent on sense-perception and images. From the pedagogical viewpoint, the contents would be better memorised and recalled when they are organised by order, starting with the most general and, at the same time, elementary traits about the matters at issue. This, says Galen, will facilitate retention and recall. Furthermore, this feature is critical for the constitution of a scientific community. Lastly, the most significant part of Galen's observations on memory is its disorders. As we have seen, these observations establish some distinctions about the severity of the affections but did not say much about any definition of memory, besides the fact that it is a faculty dependent on the disposition of the brain. Thus, Galen does not have a unified view of memory. Nonetheless, he does have an essential perspective on how to understand the workings of memory and its shortfalls. And this is no less significant.

Bibliography and note

The abbreviations for Galen are taken from Hankinson RJ, *The Cambridge Companion to Galen*. Cambridge: Cambridge University Press; 2008. pp. 391-397. Galen's texts are referred to Kühn KG (éd), (*Galenus, Opera Omnia*. 22 vols. Leipzig: Cnobloch; 1819-1833. They are referred to by way of volume (in Roman) and page number (in Arabic) in that edition, even in cases where there are already later critical editions. A typical reference might read QAM 2 (IV.

772 K.) QAM is the Latin abbreviation for *The Capacities of the Soul Depend on the Mixtures of the Body*; 2. stands for the section of the text; IV. stands for Kühn's volume; 772 stands for the page in that volume; K. stands for Kühn. In the case of QAM, which is a text that has been widely studied, there is more than one critical edition, and in this sense, I will refer to the two latest ones, that of Müller and of Bazou, which are indicated in the bibliography.

Abbreviations Used

CMG = *Corpus Medicorum Graecorum*, Leipzig and Berlin: Teubner, Akademie Verlag and de Gruyter.

K. = Kühn KG, *Claudii Galeni Opera Omnia*. 22 vols. Leipzig: Cnobloch; 1821-1833.

SM = *Claudii Galeni Scripta Minora*, 3 vols., i ed. Marquardt J, 1884; ii ed. Müller I, 1891; iii ed. Helmreich G, 1893. Leipzig: Teubner.

Galen's Texts and Translations:

Galen, *Ars medica = Ars Med.* (I K.) Boudon V (ed. and French trans.), *Galien. Tome II*, Paris: Les Belles Lettres, 2000. trans. in Singer 1997.

Galen, *Causis Morborum = Caus. Morb.* (VII. 1-41 K.). Johnston I (English Translation), *Galen: On Diseases and Symptoms*. Cambridge: Cambridge University Press, 2006.

Galen, *De constitutione artis medicae = CAM* (I K.). Fortuna S (Ed. and Italian translation), *CMG V 1,3*, 1997.

Galen, *De foetuum formatione = Foet. Form.* (IV K.). Nickel D (Ed.), *CMG V 3,3*, 2001.

Galen, *De libris propriis = Lib. Prop. (My Own Books)* (XIX K.). Ed. in SM II; Boudon-Millot V (ed. and French trans.), *Galien. Tome I*, Paris: Les Belles Lettres; 2007; English trans. in Singer 1997.

Galen, *De locis affectis = Loc. Aff. (Affected Places)* (VIII K.). Books 1 and 2 Gärtner F (ed.), *CMG V 6,1,1*, 2015.

Galen, *De Morborum Differentiis = Morb. Diff.* (VI. 836-880 K.) Johnston I (English trans.), *Galen: On Diseases and Symptoms*. Cambridge: Cambridge University Press; 2006.

Galen, *De motu musculorum = Mot. Musc.* (II K.). Rosa P (ed.), Rome: Fabrizio Serra; 2009.

Galen, *De ordine librorum propriorum = Ord. Lib. Prop. (The Order of My Own Books)* (XIX K.). Ed. in SM II; Boudon-Millot V (ed. and French trans.), *Galien. Tome I*, Paris: Les Belles Lettres; 2007; trans. in Singer 1997.

Galen, *De placitis Hippocratis et Platonis = PHP (The Doctrines of Hippocrates and Plato)*. (V K.). De Lacy P (ed. and English trans.), 3 vols., *CMG V 4,1,2*, 1978-84.

Galen, *Quod animi mores corporis temperamenta sequantur (The Soul's Dependence on the Body) = QAM* (IV K.). Ed. in SM ii; Bazou A (ed.), *Ακαδημία Αθηνών*, 2011; In: Singer P (ed English trans.), *Galen: Psychological Writings*. Cambridge: Cambridge University Press; 2013.

Galen, *De sanitate tuenda = San. Tu. (Matters of Health)*. (VI K.). Koch K (ed.), *CMG V 4,2*, 1923. Johnston I (English trans.), *Galen. Hygiene*. 2 vols. Loeb Classical Library, 2018.

Galen, *De symptomatum differentiis = Symp. Diff.* (VII K.). Gundert B (ed. and German Trans.), *CMG V 5,1*, 2009. In: Johnston I (English trans.), *Galen: On Diseases and Symptoms*. Cambridge: Cambridge University Press; 2006.

Galen, *De methodo medendi = MM (The Therapeutic Method)* (X K.). Johnston I and Horsley G. (English trans.), 3 vols. Loeb Classical Library, 2011.

Galen, *De usu partium = UP* (III-IV K.). Helmreich G (ed.), two vols., Leipzig: Teubner, 1907 and 1909. In: May M (English trans.), *Galen: On the Usefulness of the Parts of the Body*.

Ithaca, New York: Cornell University Press; 1968.

Galen, *De Temperamentis* = Temp (I. 509-694 K.). Helmreich G (ed.), Leiozig: Teubner; 1904.
Singer P and van der Eijk P (ed. and English trans.), *Galen: Works on Human Natures. Volume I. Mixtures*. Cambridge: Cambridge University Press; 2019.

Bibliography:

Ahonen M, *Mental Disorders in Ancient Philosophy*. Heidelberg: Springer; 2014.

Boudon-Millot V, *Galien de Pergame. Un médecin grec à Rome*. Paris: Les Belles Lettres; 2012.

Boudon-Millot V, *What is a Mental Illness, and How Can It Be Treated? Galen's Reply as a Doctor and Philosopher*. In: Harris W (ed.), *Mental Disorders in the Classical World*. Leiden-Boston: Brill; 2013. pp. 129-145.

Deichgräber K, *Die griechische Empirikerschule*. Berlin: Weidmann; 1930.

Devinant J, *Les Troubles psychiques selon Galien. Étude d'un système de pensée*. Paris: Les Belles Lettres; 2020.

Donini P, *Psychology*. In: Hankinson RJ (ed.), *The Cambridge Companion to Galen*. Cambridge: Cambridge University Press; 2008. pp. 184-209.

Hankinson RJ, *Galen's Anatomy of the Soul*. *Phronesis* 1991;36(2):97-233.

Hankinson RJ, *Philosophy of Nature*. In: Hankinson RJ (ed.), *The Cambridge Companion to Galen*. Cambridge: Cambridge University Press; 2008. pp. 210-241.

Jouanna J, *The Typology and Aetiology of Madness in Ancient Greek Medical and Philosophical Writing*. In: Harris W (ed.), *Mental Disorders in the Classical World*. Leiden-Boston: Brill; 2013. pp. 97-118.

Julião R, *Galen on Memory Forgetting and Memory Loss*. In: Thumiger C and Singer P (eds), *Mental Illness in Ancient Medicine. From Celsus to Paul Aegina*. Leiden-Boston: Brill; 2018. pp. 222, 244.

Lewis O, Thumiger C and van der Eijk P, *Mental and Physical Gradualism in Graeco-Roman Medicine*. In: Keil G, Keuck L and Hauswald R (eds), *Vagueness in Psychiatry*. Oxford: Oxford University Press; 2017. pp. 27-45.

Lewis O, *Archigenes of Apamea's Treatment of Mental Diseases*. In: Thumiger C and Singer P (eds), *Mental Illness in Ancient Medicine. From Celsus to Paul Aegina*. Leiden-Boston: Brill; 2018. pp. 143-175.

Mattern SP, *The Prince of Medicine. Galen in the Roman Empire*. Oxford: Oxford University Press; 2013.

Nutton V, *Galenic Madness*. In: Harris W (ed.), *Mental Disorders in the Classical World*. Leiden-Boston: Brill; 2013. pp. 119-127.

Nutton V, *Galen. A Thinking Doctor in Imperial Rome*. London-New York: Routledge; 2020.

Pigeaud J, *La psychopathologie de Galien*. In: Vegetti M, Manuli P (eds), *Le opere psicologiche di Galeno*. Naples: Bibliopolis; 1988. pp. 153-183.

Rocca J, *Anatomy*. In: Hankinson RJ (ed.), *The Cambridge Companion to Galen*. Cambridge: Cambridge University Press; 2008. pp. 242-262.

Schlange-Schöningen H, *Die römische Gesellschaft bei Galen: Biographie und Sozialgeschichte*. Berlin: De Gruyter; 2003.

Singer PN, *Galen's Pathological Soul. Diagnosis and Therapy in Ethical and Medical Texts and Contexts*. In: Thumiger C and Singer PN (eds), *Mental Illness in Ancient Medicine. From Celsus to Paul Aegina*. Leiden-Boston: Brill; 2018. pp. 381-420.

Tieleman T, *Chrysippus' On Affections. Reconstruction and Interpretation*. Leiden-Boston:

Brill; 2004.

von Staden H, Gattung und Gedächtnis: Galen über Wahrheit und Lehrdichtung. In: Kullmann W, Althoff J & Asper M (Hrsg.), Gattungen wissenschaftlicher Literatur in der Antike, Tübingen: Gunter Narr; 1998. pp. 65-94.

- * I would like to thank the referees' observations on a previous version of this text. Any shortcomings are my own.
1. Our best source for Galen's literary production, are Galen's auto-bio-bibliographic tracts *My Own Books* (*De Libris Propriis* - *Lib. Prop.*) and *The Order of My Own Books* (*De Ordine Librorum Propriorum* - *Ord. Lib. Prop.*). The most recent critical edition of these two texts is Boudon-Millot V, Galien. Tome I: Introduction Générale; Sur L'Ordre de ses Propres Livres; Sur ses Propres Livres; Que L'Excellent Médecin est aussi Philosophe. Paris: Les Belles Lettres; 2007. Both tracts are translated into English in Singer PN, Galen: *Selected Works*. Oxford-New York: Oxford University Press; 1997. For an overview of Galen's life, ideas, practice and social context, cf. Nutton V, Galen. *A Thinking Doctor in Imperial Rome*. London-New York: Routledge; 2020; Boudon-Millot V, Galien de Pergame. *Un médecin grec à Rome*. Paris: Les Belles Lettres; 2012; Mattern SP, *The Prince of Medicine. Galen in the Roman Empire*. Oxford: Oxford University Press; 2013; and Schlange-Schöninggen H, *Die römische Gesellschaft bei Galen: Biographie und Sozialgeschichte*. Berlin: De Gruyter; 2003.
 2. We might refer to Plato's work, but there is no single tract in which Plato focuses his attention only on memory.
 3. See, on this issue, Danziger K, *Marking the mind: A history of memory*. Cambridge: Cambridge University Press; 2009.
 4. Galen, Hipp. Off. Med. 1.4 (XVIII B. 659,12-20 K.): ἐμοὶ δὲ ἐν τοῖς <Περὶ> τοῦ κοινοῦ λόγου βιβλίου δέδεικται τρεῖς εἶναι τὰς πάσας ἐν ἡμῖν δυνάμεις, αἷς χρώμεθα πρὸς τε τὰς τῶν τεχνῶν συστάσεις καὶ τὸν βίον* αἰσθησιν τε καὶ νοῦν καὶ μνήμην, ἀλλὰ τὴν μὲν μνήμην ἀποτίθεσθαι τε καὶ φυλάττειν ἐν αὐτῇ τὰ γνωσθέντα δι' αἰσθήσεως καὶ νοῦ ταμεῖόν τι τῶν εὐρημένων αὐτοῖς οὖσαν, οὐκ αὐτὴν εὐρίσκουσαν ἐκάστου πράγματος φύσιν. εἰς δὲ τὴν τῶν ζητούμενων εὐρεσίαν τε καὶ κρίσιν, αἰσθησίαν τε καὶ νοῦν ἡμῖν ὑπάρχειν φύσει. *τῶν βιβλίων in Kühn's text. I follow the emendation suggested by Garofalo, according to Roselli A, *Memoria e sommatoria nel processo cognitivo*. Galeno 2007;1:73-86, 80; (con edizione di Galeno, comm. in hipp. off. med. XVIII B 650,8-652,13 Kühn). Deichgräber K, *Die griechische Empirikerschule*. Berlin: Weidmann; 1930. p. 89 in a footnote quotes this passage from Hipp. Off. Med. and had already emended the text to τὸν βίον. Cf. Galen, Subf. Emp. 12 (89, 7 Deichgräber), in which he mentions a work entitled *On Common Reason*. There is a reference to this work also in *Ord. Lib. Prop.* 14. 20-22 (168,10 Boudon-Millot = XIX. 44 K. = SM II 120 Müller). In the latter reference Galen says the work is composed by two books. His imagery for memory here is close to that from the Stoics, namely the image of memory as a thesaurus, a storehouse. See also QAM 2 (IV. 772 K. = 35 M = 12, 11 Bazou) for the same idea. Otherwise stated, translations are my own.
 5. Galen, MM 1.4 (K. 36-37 K.)
 6. Galen, PHP 7.3 (V. 600,12-18 K. = 438,28-440,8 De Lacy). δέδεικται μὲν γὰρ ὡς ἡ τοῦ γεγεννημένου ζῆου διοικήσεις ὑπὸ τριῶν ἀρχῶν γίνεται, μιᾶς μὲν τῆς ἐν τῇ κεφαλῇ κατοικισμένης ἧς ἔργα καθ' ἑαυτὴν μὲν ἢ τε φαντασία καὶ ἡ μνήμη καὶ <ἡ> ἀνάμνησις,

ἐπιστήμη τε καὶ νόησις καὶ διανόησις, ἐν δὲ τῷ πρὸς τι τῆς τ' αἰσθήσεως ἡγεῖσθαι τοῖς [τ'] αἰσθανομένοις τοῦ ζῴου μέρεσι καὶ τῆς κινήσεως τοῖς κινουμένοις καθ' ὄρμην. (trans. after De Lacy). In Foet. Form. 3 (V. 672,10-16 K.) Galen states that the brain is the last central organ to be formed, after the liver and the heart, because the faculties that are under its charge are not used while the embryo is in the womb. And among the faculties Galen places once again memory alongside reason and imagination.

7. See, on the soul issue in Galen, Hankinson RJ, Galen's Anatomy of the Soul. *Phronesis* 1991;36(2):197-233. Donini P, Psychology. In: Hankinson RJ (ed.), *The Cambridge Companion to Galen*. Cambridge: Cambridge University Press; 2008. pp. 184-209. On the anatomy of the brain, see Rocca J, Anatomy. In: Hankinson RJ (ed.) *The Cambridge Companion to Galen*. Cambridge: Cambridge University Press; 2008. pp. 242-262.
8. Galen, *Ars Med.* 6 (I. 322,7-18 K. = 290,12-291,3 Boudon) ἡ μέντοι τῶν ἡγεμονικῶν ἐνεργειῶν ἀρετὴ τε καὶ κακία τῆς ἀρχῆς μόνης ἐστὶν αὐτῆς καθ' ἑαυτὴν γνῶρισμα. καλῶ δὲ ἡγεμονικᾶς ἐνεργείας τὰς ἀπὸ τῆς ἀρχῆς μόνης γινομένας. ἀγχίνοια μὲν οὖν λεπτομεροῦς οὐσίας ἐγκεφάλου γνῶρισμα, βραδυτῆς δὲ διανοίας παχυμεροῦς· εὐμάθεια δ' εὐτυπώτου, καὶ μνήμη μονίμου. οὕτω δὲ καὶ ἡ μὲν δυσμάθεια δυστυπώτου. ἡ δ' ἐπιλησμοσύνη διαρρεούσης, καὶ τὸ μὲν εὐμετάβολον ἐν δόξαις θερμῆς, τὸ δὲ μόνιμον ψυχρᾶς. (trans. after Singer). See also UP 1 (III. 636-638 K. = 461,4-462,17 H.) where Galen states that the substance of the brain is similar to that of the nerves although softer than that of the latter, as this fits better for an organ that is in charge of thinking, remembering and imagining.
9. Galen, *Mot. Musc.* 2.6 (IV 444,14-445,11K. = 35,4-35,14 Rosa) τὸ πολλοὺς ἀνθρώπους ἐνίοτε πράξεις τινὰς πράξαντας ὀλίγον ὕστερον ἐπιλελῆσθαι τελῶς αὐτῶν, οἷον ὅσοι διὰ φόβον ἢ μέθην ἢ τι τοιοῦτον ἕτερον οὐδὲν ὧν ἐν ἐκείναις ταῖς καταστάσεσιν ὄντες ἐπραξαν ἔτι γινώσκουσιν. αἴτιον δὲ μοι δοκεῖν ἐστὶ τὸ μὴ προσεκτικῶς παντὶ τῷ νῷ περὶ τὰς πράξεις αὐτοὺς ἐσχηκέναι. τὸ γὰρ τοι φαντασιούμενον τῆς ψυχῆς, ὃ τί ποτ' ἂν ᾖ, ταῦτο τοῦτο καὶ μνημονεύειν ἔοικεν. ἂν μὲν οὖν ἐναργεῖς τοὺς τύπους τῶν πραγμάτων ἐν ταῖς φαντασίαις λάβῃ, διασώζει μέχρι παντός, καὶ τοῦτο μὲν τὸ μνημονεύειν ἐστίν· ἂν δ' ἀμυδρῶς καὶ παντάπασιν ἐπιπολῆς, οὐ διασώζει, καὶ τοῦτ' ἔστι τὸ ἐπιλελῆσθαι. καὶ διὰ τοῦτ' ἐν μέθαις, καὶ φροντίσι, καὶ φόβοις, καὶ ὄλωσ τοῖς ἰσχυροῖς τῆς ψυχῆς παθήμασιν οὐδενὸς ὧν ἂν πράξωσιν εἰς ὕστερον ἔτι μὲμνηνται. According to the latest editor of the text, Rosa, in line 445.4 K. = 35.9 Rosa one must read τύπους, as I am reading, instead of τόπους, as is printed in Kühn and other MSS. Although I am following Rosa's reading, Kühn's text with τοὺς τόπους might also make sense, given the tradition of associating memory to places. Thus, instead of "If, then, it clearly grasps the imprints of the objects in the appearances it preserves them forever, and this is remembering" we would have something like: "If, then, it clearly grasps the places of things in the appearances it preserves them forever, and this is remembering". Pigeaud J, *La psychopathologie de Galien*. In: Vegetti M, Manuli P (eds), *Le opere psicologiche di Galeno*. Naples: Bibliopolis; 1988. p. 168, footnote 23, had already suggested τύπους instead of τόπους.
10. Galen, *Temp.* (52.4 – 12 Helmreich = I 591.2 – 11 K.) ἐπανελεθόντες αὐθις ἐπὶ τὸ προκειμένον ἀφῆ κρινόμεν πρώτως καὶ μάλιστα τὸ κατὰ τὰς ἡλικίας θερμόν. ἔσται δ' ἡ κρίσις [ἡμῖν] ἀρίστη καθ' ἑν καὶ ταῦτὸν σῶμα βρέφους ἐνός. οὐ γὰρ ἀδύνατον ὅποια τέ τις ἢ θερμασία διετεῖ τὴν ἡλικίαν ὑπάρχοντι προὔπληρχεν αὐτῷ μεμνησθαι καὶ ὅποια νῦν ἐστὶ δυοῖν ἢ τριῶν ἐτῶν, εἰ τύχοι, μεταξὺ γενομένων. εἰ γὰρ ὄλωσ φαίνοιτο μεταβολὴ τις ἐπὶ τὸ θερμόν ἢ ψυχρὸν γεγονέναι τῷ βρέφει, χαλεπὸν οὐδὲν ἔτι συλλογιζέσθαι τὴν ἕως τῆς ἀκμῆς ἐσομένην ὑπεροχήν. (trans. Singer P and van der Eijk P)

11. Galen, Temp. 1.9 (32,24 – 33,25 Helmreich = I 560,14 – 562,9 K.) οὐκουν οὐδ' ἐνταῦθα χαλεπὸν οὐδὲν ὄψει θ' ἅμα καὶ ἀφῆ τὸ τοιοῦτον σῶμα διαγνόντα παραθέσθαι τῇ μνήμῃ καὶ τούτῳ κανόνι τε καὶ κριτηρίῳ χρῆσθαι πρὸς τὴν τῶν ἐλλειπόντων ἢ πλεοναζόντων ὑγρῶν τε καὶ ξηρῶν διάγνωσιν. ἔστω δὲ δηλονότι τὸ κρινόμενον σῶμα συμμέτρως θερμόν. εἰ γὰρ εἰς ἄκρον ἦτοι θερμότητος ἢ ψύξεως ἄγοιτο τοῦτι τὸ μέσον ὑγροῦ καὶ ξηροῦ σῶμα, φαντασίαν ἐνίοτε παρέξει ψευδῆ καὶ δόξει ποτὲ μὲν ὑγρότερον εἶναι τοῦ συμμέτρου, ποτὲ δὲ ξηρότερον. (trans. *Ibid.*).
12. On this topic, see von Staden H, Gattung und Gedächtnis: Galen über Wahrheit und Lehrdichtung. In: Kullmann W, Althoff J & Asper M (Hrsg.), Gattungen wissenschaftlicher Literatur in der Antike. Tübingen: Gunter Narr; 1998. pp. 65-94.
13. Galen, Alim. Fac., 1 (VI. 479-480 K. = 216 Helmreich); Opt. Doc. 2. (I. 44,17 K.)
14. Galen, San. Tu. 6.9 (VI. 419, 9-11 K. = 184,14-16 Koch) ἡ γὰρ τοι κατὰ μέθοδον διδασκαλία τὰ κοινὰ καὶ καθόλου περιλαμβάνουσα εἰς πολλὰ τῶν κατὰ μέρος εὐμνημόνευτός τε καὶ σύντομος γίνεται. (trans. Johnston)
15. Galen, San. Tu. 1.12 (VI. 61,13 – 62,8 K. = 28,32-29,19 Koch) τῆς μὲν γὰρ ὑγιεινῆς τέχνης ἐπάγγελμά ἐστιν ἅπασιν ἀνθρώποις ὑποθήκας δίδοναι πρὸς ὑγείαν, ἦτοι καθ' ἕκαστον ἰδίας ἢ κοινῆ σύμψασιν ἀρμοττούσας ἢ τὰς μὲν τινὰς ἰδίας αὐτῶν, τὰς δὲ κοινὰς. οὐ μὴν ἐγχωρεῖ γε περὶ πάντων ἅμα διελθεῖν, ἀλλὰ πρῶτον μὲν ὡς ἂν τις ἐπὶ μήκιστον ἐκτείνων τὴν ζωὴν ὑγαίνη τὰ πάντα· [. . .] δεῦτερον δὲ μεθ' ὑποθέσεως ἢ τέχνης ἢ πράξεως ἢ ἐπιτηδεύματος ἢ ὑπηρεσίας τινὸς ἦτοι πολιτικῆς ἢ ἰδιωτικῆς ἢ ὄλως ἀναγκαίας ἀσχολίας. οὐδὲ γὰρ ἄλλως ἂν σαφῆς ὁ λόγος οὐτ' εὐμνημόνευτος οὔτε μεθόδῳ περαινώμενος ἡμῖν γένοιτο χωρὶς τῆς εἰρημένης ἄρτι τάξεως. (trans. Singer)
16. Galen, Ars. Med. I (I. 306, 2-12 K. = 275,1-11 Boudon) οὐδεὶς μέντοι γε τῶν πρὸ ἡμῶν ἔγραψε τὴν ἐκ τῆς τοῦ τέλους ἐννοίας ἀρχομένην διδασκαλίαν, ἐξ ἧς αἱ τέχναι πᾶσαι συνίστανται κατὰ μέθοδον. ἀλλ' ἐκείνην μὲν ἐτέρωθι διηγήσομεν, ἐνταυθοὶ δὲ τὴν ὀρικὴν ποιησόμεθα διδασκαλίαν. ὅσον γὰρ ἀπολείπεται τῆς κατὰ ἀνάλυσιν ἀξιωματί τε καὶ μεθόδῳ, τοσοῦτον πλεονεκτοῦσαν εὐρήσομεν εἰς σύνοψιν τε τοῦ ὅλου καὶ μνήμην τῶν κατὰ μέρος. εὐμνημόνευτα γὰρ ἰκανῶς ἐστί τὰ ἐκ τῆς τοῦ ὅρου διαλύσεως ἅπαντα, διὰ τὸ περιεῖχαι ὅλης τῆς τέχνης ἐν ἑαυτῷ τὰ κεφάλαια τὸν ἄριστον ὅρον (trans. Singer)
17. Galen, In Hipp. Aph. comm. 1.1 (XVIII. 355,10 K.) χρήσιμον δὲ τὸ καταλιπεῖν συγγράμματα καὶ μάλιστα τὰ σύντομά τε καὶ ἀφοριστικά· εἷς τε γὰρ αὐτὴν τὴν πρώτην μάθησιν καὶ εἰς τὴν ὦν ἔμαθέ τις ὠφεληθῆναι μνήμην καὶ εἰς τὴν ὦν ἐπελάθετο τις μετὰ ταῦτα ἀνάμνησιν ὁ τοιοῦτος τρόπος τῆς διδασκαλίας ἐπιτήδειος.
18. Galen, San. Tu. 2. 4 (VI. 117,12 – 118,3 K. = 52,37 – 53,6 Koch) ἐπειδὴ τοῖνον οὐ μόνον ὅτι παρέλιπεν, ἀλλὰ καὶ ὅτι χρησιμωτάτας ὑπαρχούσας, ὁ λόγος ἀπέδειξεν, ἐξῆς ἂν εἶη καιρὸς ἐπὶ τι τῶν ὀλίγων ἔμπροσθεν ἀναβληθέντων ἰέναι καὶ πρῶτον γε εἰπεῖν, ὡς ἢ κατὰ τὰ στοιχεῖα τῶν πραγμάτων διδασκαλία χρησιμωτέρα τῶν ἄλλων ἐστίν· εὐσύνοπτόν τε γὰρ ἐργάζεται τὸ πᾶν πρᾶγμα καὶ τῇ μνήμῃ παρατιθέμενον εἰς ἀνάμνησιν τε ραδίως ἐρχόμενον ἀπάντων τε τῶν κατὰ μέρος ἐπιδέξιν χρῆσιν ἐτοιμῶς δεχόμενον, ὡς ἂν εἰς ὀλίγα καὶ ὀρισμένα στοιχεῖα τῆς ἀναφορᾶς γινομένης αὐτῶν. (trans. Johnston).
19. On the topic of 'mental disorders' in Galen, see Devinant J, Les Troubles psychiques selon Galien. Étude d'un système de pensée. Paris: Les Belles Lettres; 2020. Namely, pp. 137-172; 173-257; Boudon-Millot V, What is a Mental Illness, and How Can It Be Treated? Galen's Reply as a Doctor and Philosopher. In: Harris W (ed.), Mental Disorders in the Classical World. Leiden-Boston: Brill; 2013. pp. 129-145; Jouanna J, The Typology and Aetiology of Madness in Ancient Greek Medical and Philosophical Writing. *Ibid.* pp. 97-118. Specifically on Galen, pp. 108-117; Nutton V, Galenic Madness.

- Ibid. pp. 119-127; Singer P, Galen's Pathological Soul. Diagnosis and Therapy in Ethical and Medical Texts and Contexts. In: Thumiger C and Singer P (ed.), *Mental Illness in Ancient Medicine. From Celsus to Paul Aegina*. Leiden-Boston: Brill; 2018. pp. 381-420. On memory disorders in Galen's, see Julião, R, Galen on Memory Forgetting and Memory Loss. In: Thumiger C and Singer P (ed.), *Mental Illness in Ancient Medicine. From Celsus to Paul Aegina*. Leiden-Boston: Brill; 2018. pp. 222, 244.
20. See, for instance, CAM 2 (I. 231-232 K. = 60 Fortuna)
 21. Galen, Caus. Symp. 2.7 (VII. 200.9–204.4 K.) ἔστι μὲν οὖν κὰν ταύταις τρία τὰ πρῶτα γένη τῶν συμπτωμάτων· ἐν μὲν ἀπώλεια τῆς ἐνεργείας· ἕτερον δὲ βλάβη· τὸ δὲ τρίτον εἰς ἕτεραν ιδέαν ἐκτροπή. ἀπώλεια μὲν ἐν ταῖς καλουμέναις μώρωσεσι τε καὶ λήθαις. ὅπται γὰρ οὐκ ὀλιγάκις ὡς εἰς ἀπόστασιν τινα κατασκήψαντα νοσήματα μώρωσιν ἢ λήθην ἐπήγαγεν. ἐνίους γοῦν καὶ γράμματα καὶ τέχνας τελέως ἐπιλαθομένους ἔθεασάμεθα καὶ μηδὲ τῶν σφετέρων ὀνομάτων μεμνημένους, ὁποῖόν τι καὶ ὁ Θεουκιδίδης φησὶν ἐν τῷ λοιμῷ συμβῆναι· τινὰς γὰρ τῶν διασωθέντων ἀγοῆσαι σφᾶς τε αὐτοὺς καὶ τοὺς ἐπιτηδείους. ὠφθησαν δὲ καὶ διὰ γῆρας ἔσχατον ἔνιοι παραπλησίους ἀλόντες συμπτώμασιν· ᾧ καὶ δῆλον, ὡς ἐπὶ καταψύξει γίνεται καὶ μώρωσις καὶ λήθη. καὶ γὰρ οὖν καὶ τὰ φάρμακα τὰ τῶν τοιούτων συμπτωμάτων ποιητικὰ ψυχρὰ ταῖς δυνάμεσιν ἔστι. τὰ μὲν δὴ τοιαῦτα συμπτώματα τὸ σῶμα αὐτὸ κατεψύχθαι δηλοῖ τοῦ ἐγκεφάλου, ὥσπερ καὶ τὰ ἀποπληκτικὰ καὶ τὰ ἐπιληπτικὰ διὰ φλεγματώδους χυμοῦ πλῆθος ἐν ταῖς κοιλίαις αὐτοῦ τοῦ ἐγκεφάλου συναθροισθέντος ἔοικε γίνεσθαι. καὶ διὰ τοῦτο ἐξαιφνίδιος ἢ τε γένεσις αὐτῶν ἔστι καὶ ἡ λύσις, οὐδαμῶς τούτου συμβῆναι δυναμένου κατὰ τὰς τῶν σωμάτων δυσκρασίας. αἱ δὲ μέτριοι βλάβαι καὶ οἶον νάρκαι τοῦ λογισμοῦ τε καὶ τῆς μνήμης ἐπὶ βραχυτέρα καταψύξει συμβαίνουσιν, ἥτοι διὰ τι τῶν εἴσω τοῦ σώματος ληφθέντων φαρμάκων ψυχρῶν, ἢ κατὰ τῆς κεφαλῆς ἐπιτεθέντων, ἢ καὶ χυμοῦ ψυχροῦ κατὰ τὸν ἐγκέφαλον ἠθροισμένου· (trans. after Johnstson). As regards the comparison of this typology with the one found on Symp. Diff., cf. Jouanna J, The Typology and Aetiology of Madness in Ancient Greek Medical and Philosophical Writing. In: Harris W (ed.), *Mental Disorders in the Classical World*. Leiden-Boston: Brill; 2013. pp. 109-12. One also finds a summary of Galen's nosology in Ahonen M, *Mental Disorders in Ancient Philosophy*. Heidelberg: Springer; 2014. p. 143. Both authors point out to the deficiencies of Kühn's text in this passage, namely in the 2nd line of the Greek quoted above. Thus, instead of εἰς ἕτεραν ιδέας ἐκτροπήν as we find in Kühn, Jouanna suggests εἰς ἕτεραν ιδέαν ἐκτροπή, for "one would expect ἐκτροπή in the nominative, since it is parallel to the other terms in the nominative designating the other categories of alteration ἀπώλεια and βλάβη." Jouanna J, The Typology and Aetiology of Madness in Ancient Greek Medical and Philosophical Writing. In: Harris W (ed.), *Mental Disorders in the Classical World*. Leiden-Boston: Brill; 2013. p. 112, footnote 39.
 22. Galen, Symp. Diff. 2.3 (VII 54–5 K. = 214.14-216.13 Gundert)
 23. Galen, Loc. Aff. III. 6 (VIII 162-163 K.)
 24. Although Galen states that these patients forgot completely words and skills, we do not know whether this is a chronic or episodic impairment of memory. This example seems to be a trope in Galen's writings, at least in respect to the intersubjective consequences of memory deficits. cf. Galen, Symp. Diff. 3.13 (VII. 62.1-6 K. = 226.17-22 Gundert) where it is mentioned again, and in QAM 5 (IV.788.12– 17 K. = 49.3– 9 Müller = 33,11-18 Bazou).
 25. For lettuce, see Galen, Loc. Aff. 3.6 (VIII. 161,9-10 K.). For poppy, mandrake, henbane and hemlock, see Galen, Caus. Morb. 3 (VII.10–18 K.)

26. On Archigenes, cf. Lewis O, Archigenes of Apamea's Treatment of Mental Diseases. In: Thumiger C and Singer P (eds), *Mental Illness in Ancient Medicine. From Celsus to Paul Aegina*. Leiden-Boston: Brill; 2018. pp. 143-175.
27. On Galen's uses of the Placita tradition, see Tieleman T, *Chrysippus' On Affections. Reconstruction and Interpretation*. Leiden-Boston: Brill; 2004. pp. 61-63. See also Lewis O, Thumiger C and van der Eijk P, *Mental and Physical Gradualism in Graeco-Roman Medicine*. In: Keil G, Keuck L and Hauswald R (eds), *Vagueness in Psychiatry*. Oxford: Oxford University Press; 2017, for an analysis about Archigenes therapeutic method for memory loss.
28. Galen, *Loc. Aff.* 3.5 (VIII. 156,11-13 K.). ἔνθα δὲ ἀπόλωλεν ἡ μνήμη, σημεῖον οὐδὲν ἐστὶ τόπου πεπονθότος, οὐκ ὄγκος παρὰ φύσιν, οὐκ ὀδύνη τις, οὐκ ἔκκρισις, οὐκ ἄλλο οὐδὲν. See also Galen, *Morb. Diff.* (VI. 849 K.) where we are told that: 'diseases arising in a dyscrasia of the qualities themselves alone are harder to detect, unless at this time a major turning aside of the part towards what is contrary to nature occurs'.
29. Galen, *Loc. Aff.* 3.6 (VIII. 164).
30. Galen, *Loc. Aff.* 3.6 (VIII. 160.9 – 161.11 K.). [i] ὁμολογουμένου μὲν ἅπανσι τοῖς ἰατροῖς αὐτοῖς τοῖς ἔργοις, οἷς δρῶσιν κατὰ πάντα τὰ τοῦ λογιστικοῦ πάθη, τὴν κεφαλὴν ὑπάρχειν οἶκον αὐτοῦ, προσῆκον ἦν ἐπισκέψασθαι περὶ τῆς ἐκάστου πάθους διαθέσεως ὅποια τις ἐστίν· [ii] οἷον ἢ τῆς μνήμης βλάβη, ἐπειδὴ προϋθέμην ὑπὲρ αὐτῆς διελθεῖν. ἅμα μὲν γὰρ αὐτὴ φαίνεται πολλακίς γενομένη μετὰ βλάβης τινὸς τοῦ λογισμοῦ, καθάπερ γε καὶ ἢ τοῦ λογισμοῦ βλάβη μετὰ τοῦ καὶ τὴν μνήμην βεβλάφθαι, τῆς μὲν διαθέσεως ἀμφοτέροις τῆς αὐτῆς οὔσης, ἐπιτεταμένης δὲ, ὅποτε τῇ μνήμῃ συναπόλωλεν ὁ λογισμὸς, ὅπερ ὀνομάζεται μώρωσις. [iii] ἀπόλλυται δὲ ἄμφω ταῦτα καὶ κατὰ τοὺς ληθάργους τε καὶ τὰ καρῶδη πάθη πάντα, καὶ τὴν διάθεσιν αὐτῶν ἀναγκαῖον ὑπάρχειν ὁμογενῆ· [iii.a] κατὰ μὲν τὸ πρῶτον γένος, ὅτι δυσκρασία, δέδεικται γὰρ αὕτη τῶν ὁμοιομερῶν μορίων, ἃ πρῶτως ἐνεργεῖ, διάθεσις εἶναι κοινή· [iii.b] κατὰ δεύτερον δὲ, ὅτι ψυχρά τις ἐστὶν ἢ δυσκρασία πάντως, [iv] αὕτη γὰρ ὁρᾶται ναρκουσα τὰς ψυχικὰς ἐνεργείας, ὡς τὰ γε διὰ κρῦος ἀναγκαζόμενα φωλεῦν ζῶα σαφῶς ἐνδείκνυται, καὶ πάντα τὰ ψύχοντα φάρμακα, καὶ τῶν ἐδεσμάτων δὲ τὰ ψυχρά, καθάπερ ἢ θριδακίνη καταφορικὸς ἐργάζεται τοὺς ὕπνους, εἰ πολλὴν αὐτὴν προσενέγκαιτό τις·
31. Galen, *Ars. Med.* 6.7 (I. 322,9-13 K. = 290,11-13 Boudon)
32. Among many other passages, see Galen, *Ars. Med.* 4.7 (I. 316,4-7 K. = 284,7-11 Boudon) ἐν δὲ τοῖς αὐτοῖς τούτοις γένεσι καὶ ἢ τῶν νοσῶδων σωμάτων ἐστὶ κακία, καθ' ἑκάτερον τοῦ νοσῶδους τὸ σημαινόμενον· ὅρος δ' ἄμφοιν ἐστὶ διακριτικὸς ἢ τῆς αἰσθητῆ βλάβη· The badness of morbid bodies, too, falls into these same categories, in accordance with each of the meanings of the term 'morbid'. In both cases, the distinguishing mark is the perceptible impairment of function. (trans. Singer)
33. The term διάθεσις means a "non-permanent, but equally non-ephemeral, temperament of the body" which is responsible for "the well- or ill-functioning of its various systems." Hankinson RJ, *Philosophy of Nature*. In: Hankinson RJ (ed.) *The Cambridge Companion to Galen*. Cambridge: Cambridge University Press; 2008. p. 231. Cf., Galen, *Loc. Aff.* 1.2; *Sympt. Diff.* 1. 4; *MM* 1.7. It is worth noting that Galen at *MM* 1.8 (X 64 K.) distinguishes the dispositions from the causes that bring them about. Further, Galen employs the term interchangeably with κατασκευή (mostly), σχέσις, ἕξις and φύσις [cf. *Opt. corp. const.* 1 (IV.738,8–18 K. = 8,3–12 H)], but also with κατάστασις [*San. Tu.* 3.7 (VI. 201.8–10 K. = 3.7.10, 89.13–14 Koch)]. The relevant aspect of the term is that it refers to the condition of the organism or of an organ, although it is hard to understand what Galen has

in mind with the διάθεσις of an organ. Gundert B, Galen. Über die Verschiedenheit der Symptome. Herausgegeben, Übersetzt und Erläutert. Berlin: Akademie Verlag; 2009. p. 264, suggests that κατασκευή is an innate condition of the organism, whereas διάθεσις is an acquired one.

34. Namely regarding the use of the term genus (γένος). Genus (γένος) seems to be a strong term here and appears to be not very accurate from a nosological perspective. Daremberg employs “la division plus général” and “division secondaire” in his French translation of the text, pp. 554-555, respectively. But this choice thus not solve the problem completely, as it remains hard to understand what Galen is trying to establish with this division.
35. I am translating πρῶτον γένος as the first category. This is a term of art in Aristotle. Galen does not make use of the term that often. He employs it in Ars. Med. 36.2 (I. 403,8 K. = 383,16 – 384,1 Boudon). Singer PN, in his English translation renders the phrase as “the first category” (p. 392 of the English translation), the same in Boudon’s French translation: “la première catégorie”. In PHP 2.8 (V. 273,4 = 156,28-29 De Lacy) Galen makes use once again of the phrase. De Lacy translates as “first kind”. Still in PHP 9.5 (V. 753,18 = 566,24 De Lacy) and 9.6 (V. 775,11 = 584,19 De Lacy) De Lacy translates the phrase this time by “the first genus”. See also Diff. Puls. 4.7 (VIII. 734,5-6 K.). In all these passages Galen employs the phrase in contexts in which he deals with the division of matters according to genus and species.
36. This might not be a satisfactory solution, but I do not find any other way of trying to make sense of the text.
37. Cf. Galen, MM 1.6 (X. 48 K.) Galen says in MM 8.1 (X. 530 K.) that “the nature of the simple and primary parts (τῶν ἀπλῶν καὶ πρώτων μορίων), which Aristotle calls homoiomerous, arises from the mixing of hot, cold, moist and dry...”. For Aristotle, cf. Parts of Animals, 647b10-655b27. Items falling under this category include bones, cartilage, veins, arteries, nerves, ligaments, membranes, and flesh. We have the heart, liver, lungs, brain, stomach, spleen, eyes, and kidneys under the organic parts. Morb. Diff. 3 (VI. 841K.)
38. Galen, Loc. Aff. 3.10 (VIII 180,1-5 K.)
39. Another way of reading this phrase is that, for Galen, these two faculties, namely reason and memory, are the brain’s most fundamental or elementary ones. These are the only two faculties that Galen mentions in this chapter of the tract.
40. Further down, Galen introduces a further distinction between causes of lethargy and of memory loss. Thus, “if cold attacks with excessive moistness, lethargic and torpid affections take place; without this (excessive moistness), damages to memory and dementia.” Galen, Loc. Aff. 3.6 (VIII. 162.14-17 K.) εἰ δὲ ψυχρότης μεθ’ ὑγρότητος ἰκανῆς προσέλθοι, καταφορικὰ καὶ καρῶδη πάθη συνίσταται· χωρὶς δὲ ταύτης αἴ τε τῆς μνήμης βλάβαι καὶ αἴ γε μωρώσεις. As in the previous case, what is affected is always the brain, even if Galen tries to indicate a detailed process of progression of the imbalance taking place in different parts of the brain. In lethargy, however, it is added that the mixture of the brain causing the disposition that brings about lethargy is a cold and wet one.

