

The Actions of Spirit and Appetite: Voluntary Motion in Galen

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Abstract

Galen is criticized for combining Plato's tripartition-*cum*-trilocation of the soul, in which each part constitutes its own source of motivation, with the demand that the faculty of voluntary motion is limited to the rational part, being the only one located in the brain and having access to the relevant nerves. While scholars have concentrated on small nerves as connective organs, this paper focuses on the *pneuma*, blood and innate heat. When the latter is increased, the irrational parts can affect the brain's function to such an extent that the rational part's volitions are reduced to their own desires.

Keywords

Galen – voluntary motion – psychology – tripartition – *pneuma* – nerves – motivation

1 Introduction

In *De placitis Hippocrates et Platonis* (*PHP*), Galen discusses three different models of the soul and their topology in the body. The first he ascribes to the Stoic Chrysippus: that affections or emotions (*pathē*), which are identified with judgments (*krisis*), belong to one unitary leading psychic faculty, the so-called *hēgemonikon*, located in the heart.¹ Galen criticizes Chrysippus'

¹ Cf. *PHP* 168.21–232.29; 248.14–249.2 De Lacy. The page numbers of *PHP* and all translations (sometimes with changes) are taken from De Lacy 1981.

identification of the affections with wrong judgments or intellectual errors.² In order to guarantee the possibility of internal psychic conflicts, the affections have, on the contrary, to be independent, irrational movements of the soul that are initiated through the proper faculties of the spirited and appetitive parts.³ Furthermore, the leading faculty cannot be seated in the heart, since Galen takes it as an empirical fact that the heart is not the origin of those nerves that transmit sensory stimuli from the sense organs to the brain, and motor stimuli from the brain to the muscles.⁴ This is also a problem with the second possible solution, which he ascribes to Aristotle and Posidonius, who assume the existence of three different faculties of the soul located in a single organ, the heart.⁵ According to Galen, this position at least succeeds in giving the right *number* of psychic powers, but it fails and breaks down because it makes the heart the seat of the soul. Only Hippocrates and Plato gave the proper account, by stating correctly that there are three essentially distinct parts of the soul, i.e. the *logistikón*, the *thumos* and the *epithumētikon*, which are located in three distinct bodily places, i.e. the brain, the heart and the liver.⁶ To verify his thesis, Galen refers extensively to the fourth and ninth books of the *Republic*, as well as to the *Timaeus*.⁷ According to Galen, Plato in the fourth book of the *Republic* shows sufficiently that our soul's substance is neither simple (*haplḗn*) nor uniform (*monoeidē*), but rather composed of three parts, each of which has its own form (*eidos*), and a certain number of faculties (*dunameis*).⁸ These apply to the parts of the soul which, *qua* being principles, are also the subjects of different functions (*erga*):

2 Cf. *PHP* 270.10-290.27. For a detailed examination of the relationship between Galen and Chrysippus see Tieleman 1996.

3 Cf. *PHP* 272.9-274.39.

4 Cf. *PHP* 96.8-9. On Galen's physiology and the function of the nerves in ancient medicine and philosophy see the studies of von Staden 1989 and 2000, as well as of Burkert 2009, Solmsen 1961, Siegel 1968, and Vegetti 1993.

5 Cf. *PHP* 312.25-31.

6 Cf. *PHP* 312.31-6; 368.20-2; 374.9-19; 418.9-16; 438.28-440.8; 442.36-444.1. Galen emphasizes the spatial distance and separateness of the three parts more clearly than Plato in the *Timaeus*. For example, while in Galen the appetitive part is seated in the liver, Plato locates it in the belly. Cf. Tieleman 1998, 318 and Gill 1997, 273.

7 Cf. *PHP* 174.10-21; 366.31-370.23.

8 Cf. *PHP* 602.18-21. The substance (*ousia*) of the soul is one of the most difficult topics in Galen's philosophy, and can be touched only briefly here. Galen states that small children *differ* in the substance of their souls, which can be observed by reference to the differences of the soul's actions and affections, cf. *QAM* 33.13-16 Müller. But the substance of the soul itself escapes evident perception, experiment and scientific demonstration, which is why we

I have proved that an animal after birth is governed by three principles, one located in the head, whose function is by 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 voluntarily. A second source is seated in the heart; its function is by itself to provide the 'tone' of the soul, to be constant and unyielding in the things that reason commands, and in states of passions to provide the boiling, as it were, of the innate heat, as the soul at such times desires to avenge itself on the supposed wrongdoer, and this kind of thing is called anger; in its relation to other things its function is to be the source of warmth for the several parts and of pulsing motion for the arteries. The remaining power, seated in the liver, has as its functions all the things that have to do with nutrition in the animal, the most important of which in us and in all sanguineous animals is the production of blood. To this same power belongs also the enjoyment of pleasures, and when it is moved by this enjoyment more than it should be, it produces intemperance and licentiousness.⁹

Here, Galen distinguishes three kinds of functions (*erga*) in each part of the soul. There is one class of functions that applies to the parts intrinsically (*kath' heautēn*), another that applies to them in relation to something else (*pros ti*), i.e. in relation to the functions of the rest of the body (like the production of the blood in the liver), and a third class that emerges only during an affection (*kata pathos*). In the spirited part, for instance, this is the boiling of the

cannot say anything certain (or even plausible) about its corporeality, eternity, or corruptibility. Cf. *Foet. form.* [CMG v. 3.3] 104.32-106.13 Nickel; for more details and references cf. e.g. Hankinson 1991, 202-4.

- 9 *PHP* 438.28-440.8: δέδεικται μὲν γὰρ ὡς ἡ τοῦ γεγεννημένου ζώου διοίκησις ὑπὸ τριῶν ἀρχῶν γίνεται, μιᾶς μὲν τῆς ἐν τῇ κεφαλῇ κατωκισμένης ἥς 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 ζώου μέρεσι καὶ τῆς κινήσεως τοῖς κινουμένοις καθ' ὁρμήν, ἐτέρας δὲ τῆς ἐν τῇ καρδίᾳ καθιδρυμένης, ἥς ἔργα καθ' ἑαυτὴν μὲν ὁ τόνος ἐστὶ τῆς ψυχῆς καὶ τὸ μόνιμον ἐν οἷς ἂν ὁ λογισμὸς κελεύσῃ καὶ τὸ ἀήττητον, κατὰ πάθος δ' ἡ οἷον ζέσις τῆς ἐμφύτου θερμασίας ποθοῦσης τιμωρῆσασθαι τῆς ψυχῆς τηνικαῦτα τὸν ἀδικεῖν δόξαντα, καὶ καλεῖται τὸ τοιοῦτον θυμός, ἐν δὲ τῷ πρὸς τι θερμασίας ἀρχὴ τοῖς κατὰ μέρος εἶναι μορίοις ἀρτηρίαις τε κινήσεως σφυγμικῆς τῆς δ' ὑπολοίπου δυνάμεως ἐν ἥπατι καθιδρυμένης ἔργα τὰ περὶ τὴν θρέψιν ἅπαντα κατὰ τὸ ζῶον, ὧν μέγιστον μέρος ἐν ἡμῖν τε καὶ πᾶσι τοῖς ἐναίμοις ζώοις ἐστὶν ἡ τοῦ αἵματος γένεσις. τῆς δ' αὐτῆς ταύτης δυνάμεως καὶ ἡ τῶν ἡδέων ἐστὶν ἀπόλαυσις, ἐν ἣ σφοδρότερον τοῦ δέοντος κινουμένη τὴν τ' ἀκρασίαν καὶ τὴν ἀκολασίαν ἐργάζεται.

innate heat in case of a supposed injustice. For reason there are no affective functions mentioned, but it seems to be the case that reason suffers from the strong motions of the lower parts of the soul whenever they move in an unnaturally strong way.¹⁰ One reason for these strong motions is the increasing of the body's innate heat.¹¹

It is important to note that Galen subsumes both the faculty of sensation and 'of the motion of the parts that move in accordance with impulse' (*tou kinēseōs tois kinoumenois kath' hormēn*) under the relational functions (*pros ti*) of the reasoning part of the soul. The relevant body parts encompassed by the term *pros ti* are the organs of perception as well as all those that are equipped with muscles and therefore can be governed according to one's will. That neither the heart nor the liver can be the causes of voluntary motion corresponds to Galen's advanced anatomical understanding of the functions of the brain. The brain is said to be the principle (*arkhē*) and the source (*pēgē*) of those nerves that transport the psychic *pneuma* as well as the *dunamis* of sensation and voluntary motion to the relevant parts of the body.¹² With respect to the famous anatomical works of the Alexandrian physicians Herophilus and Erasistratus, Galen distinguishes between sensory and motor nerves.¹³ The latter, which are also called 'hard nerves', have their origin in the spinal cord, while the former are softer and originate in the brain.¹⁴ Furthermore, the soft nerves lead to the sense organs, while the hard nerves lead to the muscles.¹⁵ The soft or optic nerves transmit psychic *pneuma*, while the motor or hard nerves transmit the power (*dunamis*) of movement to the muscles, which is why only the brain can be the principle (*arkhē*) of voluntary movements.¹⁶

10 Cf. *PHP* 362.3-364.21.

11 Cf. *QAM* 71.6-11.

12 Cf. *UP* 1, 32.23-33.15 Helmreich, and see the study of von Staden 2000, 112 ff., in which he shows parallels between the anatomic approach of Galen and Erasistratus, e.g. in the concepts of the vital and the psychic *pneuma*, the system of the arteries, the nervous system, the function of the brain as the source of the nerves, and of the heart and the liver as the sources of the arteries and the veins.

13 Cf. *UP* 2, 93.10-14 and Solmsen 1961, 150-67, 169-97 and 185 n. 2.

14 This distinction is summarized in Rocca 2008, 249 as follows: 'Psychic *pneuma* in the ventricles must be able to pass into the spinal marrow and hence the nerves. The spinal marrow is the source of all the hard nerves of the body, the nerves of motion. Cranial nerves, some of which are sensory as well as motor, are derived from the base of the brain. All other nerves are derived from either the spinal cord or cerebellum.'

15 Cf. *UP* 1, 459.3-9. See also the related passage in *UP* 1, 461.3-462.17, and Rocca 2003, 83-4.

16 Cf. *PHP* 150.25-9; see n. 4 above.

Since this paper aims to show how the spirited and the appetitive parts of the soul can manipulate the voluntary motions of the rational part of the soul, we first need to clarify whether a coherent conception of *voluntary motion* can be found in Galen's works.

2 Voluntary Motion in Galen

Galen makes use of two different Greek terms interchangeably, which both are usually translated as 'voluntary motion': sometimes he uses the rather Stoic expression 'a motion in accordance with impulse' (*kinēsis kath' hormēn*), and sometimes the more Aristotelian formulation 'a motion in accordance with choice' (*kinēsis kata prohairesin*).¹⁷ Both seem to refer to the same thing, since in *De propriis placitis* and *De motu musculorum* he states clearly that he does not make a distinction between the terms:¹⁸

For also of the motions, then, those of the artery and the vein are natural and without impulse, while those of the muscle are psychic and according to impulse. And whether you call the motions of the muscles 'with choice', or 'voluntary', or 'in accordance with wishing', that does not make a difference.¹⁹

In this passage, Galen states that it does not make a difference whether we call the motions of the muscles 'according to impulse' (*meth' hormēs*), 'with choice' (*meta prohaireseōs*), 'voluntarily' (*hekousiōs*), or 'in accordance with wishing' (*meta boulēseōs*), since they all refer to the same thing: to motions initiated by the brain and the nerves. These motions are 'different in kind' (*genos*) from the physiological motions of the heart (*PHP* 128.1-6) and the liver, which he sometimes calls 'natural' in opposition to the 'psychic' motions and sensations produced by the brain.²⁰ According to this genuine

17 Cf. *De subst. nat. fac. (de prop. plac. frg. ined.)* iv. 6.5-6 Kühn.

18 Cf. *Prop. plac.* 177.14-15 Boudon-Millot and Pietrobelli.

19 καὶ γὰρ οὖν καὶ τῶν κινήσεων αἱ μὲν ἀρτηρίας τε καὶ φλεβὸς φυσικαὶ τε καὶ χωρὶς ὁρμῆς, αἱ δὲ τῶν μυῶν ψυχικαὶ τε καὶ μεθ' ὁρμῆς. εἴτε δὲ μετὰ προαιρέσεως λέγοις τὰς τῶν μυῶν γίνεσθαι κινήσεις, ἢ ἐκουσίως, ἢ μετὰ βουλήσεως, οὐδὲν διοίσει (*De motu musc.* 372.13-17; translation mine).

20 Cf. *De sympt. diff.* vii. 55.8-14 Kühn. Von Staden 2000, 107 summarized the problem as follows: 'At times Galen depicts some of a living being's capacities as belonging uniquely to the soul and others as belonging uniquely to nature, therein following the model developed by Herophilus and by some Stoics. Galen does not apply this 'soul-nature' distinction

physiological difference, it makes perfect sense to give a first definition of voluntary motion as a motion that starts from the brain—while, on the contrary, we can call every motion that starts from the heart and the liver non-voluntary.

Other Galenic texts, however, are in conflict with this broad account of voluntary motion, as a motion initiated by brain and nerves. In *De moribus* for instance, Galen refers to motions that happen ‘without consideration or choice (*beḥira resp. iḥiyār*)’ as involuntary.²¹ This is a problem, since these motions, even though they are involuntary, are muscular motions, and therefore involve the activity of the brain and the nerves. Galen talks about sudden reactions that arise when we are frightened, or laughing against our will (*De moribus* 25 Kraus):

An illustration of this is that some people, when surprised by a terrible sound, are frightened and shocked, and that when they see or hear something amusing they laugh involuntary; they often wish to refrain from this but they are unable to do so.

This description shows that he calls these motions *involuntary* because they happen against someone’s wanting and better judgement. These sudden reactions are based on a perception, which includes or leads to a rudimentary evaluation of the perceived thing as ‘terrible’ or ‘amusing’. We can call these reactions *involuntary* because they happen against the rational insight that we should not be afraid or that it would be better not to laugh in a particular situation. One might think of the case in which someone laughs at a funeral, even if he or she knows that this is really not a good moment at all. In *PHP* 316.25-6, Galen mentions both laughing and crying in the same breath as the emotions of anger, distress and pain. This shows that the bodily motions, through which laughter and crying are expressed, are either closely related to, or even

consistently to the explanation of activities or functions in living bodies, but where he does uphold the distinction, as in *De symptomatum differentiis*, the “natural activities” of a living being are said to include appetite or “striving”, digestion, the distribution of nutriment, the generation of blood, the pulse, and the excretion of residues (i.e. of useless bodily “leftovers”), whereas the “psychic activities” are restricted—exactly as in the theories of Herophilus, Erasistratos, and some Stoics—to cognitive and voluntary motor activity.’ Cf. *De san. tuenda* [CMG v.4.2] 70.30-2 Koch, *De motu musc.* 372.11-15, *De crisibus* ix. 612-13 Kühn, *De temperamentis* 43.2-4 Helmreich, *De subst. nat. fac.* iv. 759 Kühn.

21 Cf. *De moribus* 25. The *De moribus* has only survived in an Arabic summary, and some additional Arabic and Hebrew quotations from the work. We are therefore on rather thin ice regarding terminology. I rely on Davies’ translation in Singer 2013, which is based on a 1972 translation by Mattock (cf. Singer 2013, 135 n. 3).

themselves treated as, emotions or affections. In a discussion of Chrysippus' theory of the emotions as judgments, Galen says this about the phenomenon of crying:

Therefore when Chrysippus says: 'Thus people cease weeping, and people weep against their will, when the underlying circumstances create unlike impressions,' Posidonius again asks the reason why ordinary men often weep when they do not wish to and are unable to check their tears, while in others the tears stop before the wish—obviously because the affective motions press so hard that they cannot be mastered by the will (*boulēseōs*), or are brought to so complete a halt that it can no longer arouse them.²²

Sometimes we cannot control our tears, even if we wish to do so, for instance if we have to give a speech at the funeral of someone near to us, or suddenly stop crying without wanting to.²³ In this passage from *PHP*, just like in the passage from *De moribus* above, Galen uses the term *voluntary motion* in the narrow sense of a motion controlled by reason, while affective motions, on the contrary, are said to be 'not mastered by the will' (*mē krateisthai pros tēs boulēseōs*). But since muscles are involved here, it is reasonable to assume that this kind of involuntary motion, too, is initiated by the brain.

Galen does not pay attention to that problem here, but addresses it in his little-known treatise *On Problematical Movements* (*De motibus dubiis* [*DMD*]). This remarkable work, which, with the exception of one fragment, has survived only in Arabic and Latin, does what the title promises and investigates movements of which the causes are difficult to observe (*DMD* 1.1, 122.1-4 Nutton):

'Problematical' is the name given by those concerned with anatomy to certain movements in living creatures where we see clearly that a

22 ὅθεν κάπειδαν λέγῃ, 'οὕτω γάρ καὶ κλαίοντες παύονται καὶ μὴ βουλόμενοι κλαίειν κλαίουσιν, ὅταν <μὴ> ὁμοίως τὰ ὑποκείμενα φαντασίας ποιῇ,' τὴν αἰτίαν ἔρωτᾷ κἀνταῦθα ὁ Ποσειδώνιος δι' ἣν καὶ οἱ πολλοὶ μὴ βουλόμενοι πολλαῖς κλαίουσιν ἐπισχεῖν μὴ δυνάμενοι τὰ δάκρυα καὶ ἄλλοι κλαίειν ἔτι βουλόμενοι φθάνουσιν[ν ἔτι] παύόμενοι, <δηλονότι> διὰ τὰς παθητικὰς κινήσεις σφόδρα ἐγκειμένως ὥς μὴ κρατεῖσθαι πρὸς τῆς βουλήσεως, ἢ παντελῶς πεπαυμένως ὥς μηκέτ' ἐπεγείρεσθαι δύνασθαι πρὸς αὐτῆς (*PHP* 288.22-9).

23 This example appears a bit strange. One might think of a situation in which crying feels good and relieving but one cannot go on with it, for affections are neither identical with nor always consequently following our judging and wishing.

movement is occurring, but either we fail totally to know the part of the body by which it is produced or, if we do know, we have no idea how it takes place.

Galen starts off by defining voluntary motion again as a motion of the muscles caused by the brain as the 'principal and prime mover of voluntary movement in every part of the animal.'²⁴ In many cases, anatomical dissection can clarify the state of the movement, even if it is complex, like the movement of breathing, which is why some people regard it as 'a natural activity, like the beating of the arteries and the heart, while others say that it is voluntary or a combination of the two' (*DMD* 2.5, 128.16-18). Since ligating the nerves that come down from the neck and move the upper part of the thorax quickly leads to breathlessness and death, one can easily demonstrate that breathing is a voluntary motion according to the physiological definition (2.1-13, 128.1-130.12). This remains true even though we do not stop breathing when we are asleep or in a stupor (10.3, 164.10-13). We can see here that a movement can be voluntary without being conscious. Also the motions of coughing, sneezing and laughing start in the brain (10.1, 164.1-5):

There is also a problem with the movement of the whole chest in coughing, laughing and sneezing. For this part of the animal is moved by muscles that derive the source of their active movement from the origin of the nerves, so that if one cuts them, the animal is immediately deprived of breathing.

The causes of laughter are hard to explain, since we laugh when we are tickled as well as when we see or hear funny things (10.5, 164.17-21):

It is entirely unclear why the contact of the hand should produce an effect similar to what happens when we see or hear something ridiculous, or why those who hear or see such things should themselves be moved to laughter, even if they try as much as possible to resist.

These passages show that a movement can be voluntary in a physiological sense without being conscious, since we do not stop breathing during sleep, yet not in accordance with our will, since sometimes we laugh even if we do not want to. To sum up: there are non-voluntary movements, like the pulsation

24 *ut sit quod quidem principaliter et primo movens universas animalis particulas motibus qui secundum impetum cerebrum* (*DMD* 1.17, 126.12-14).

and the production of blood, which are physiologically independent from the brain, and involuntary movements which have their cause in the brain but do not obey our willing, and do not even have to be conscious.

And it becomes even more complicated: Galen mentions yet another category of movements, exactly the opposite of the latter, that obey our willing without being caused in the brain. Beside the movement of the tongue, he explicitly mentions the swelling of the penis in young men, which occurs very quickly when they see or think of someone they are in love with (4.2-7, 136.1-19). That 'the penis becomes erect in obedience to the thoughts (*fantasie*) of intercourse' happens 'because the part has been specifically created for this purpose' (4.17, 138.20-2). It is striking that Galen is not completely clear about whether muscles are involved in this kind of movement or not. There is one passage (6.25-36, 140.24-142.32) in which we read that the penis becomes erect when *pneuma* and a certain kind of so-called 'hotter blood' enter the large arteries of the penis after the activity of some very small muscles, to which anatomists point; but in a subsequent passage these tiny muscles are completely ignored (6.1, 148.1-6):

Thus, we ought to consider whether there are not elsewhere in the body movements that not only obey the will (*impetibus*) of living creatures but also their mental imagining, as in the penis when its tube-like body is filled with incoming *pneuma*, whereby it increases in size according to how much it is filled. But you can also see in ruminants that it is not only muscles that have the innate capacity of voluntary movement.

The penis belongs to those body parts that have some inner principle of movement since 'those parts which have been created to expand draw in (*attrahere*) *pneuma* from the arteries' (4.36, 142.31-2).

In the light of these passages, we do well to distinguish different accounts of what might be called *voluntary motion* in Galen: one notion (VM1) refers to the motions initiated by the brain and the nerves. The motions initiated by the heart and the liver, like the pulsation and the production of blood, on the contrary, are genuinely different, since they do not involve the brain and the nerves. A second notion (VM2) refers to rational motions that occur after proper reasoning and as a consequence of a decision. These motions can interchangeably be called by different names, e.g. as motions according to impulse, will or decision.

And there is a third notion of 'problematic' mixed cases, which includes motions that are called voluntary but are not initiated by the brain, and motions that are called involuntary even though they are initiated by the brain.

When Galen deals with the *kinēseis kath' hormēn* and *kata prohairesin* he is usually identifying VM1 and VM2. Ideally, a voluntary motion is caused by the brain and occurs voluntarily, i.e. after rational reasoning and decision. But what happens in the mixed cases? That we cannot simply identify VM1 and VM2 becomes especially obvious when we take a look at animals that are able to move their muscles without being rational. According to Galen, without being rational in the proper sense, they nonetheless share some of the rational faculties. In *De moribus*, he assumes the existence of a scale of rational capacities, of which only some count as rational in a narrow sense, pertaining to human beings alone, while others are said to belong to animals too. In that passage, animals are said to share a sensory capacity, retention and subsequent recall, as well as imagination, while the apprehension of the compatibility and incompatibility of things—as the cause of thinking and scrutiny, division and composition as well as the discovery of crafts and arts—is called ‘that capacity by which the rational animals are most particularly distinguished’ (*De moribus* 45). In the case of human beings, decision, longing and deliberate movement are said to follow on thinking and scrutiny about practical matters. Other animals neither possess the faculty of apprehending the compatibility and incompatibility of things nor, consequently, those faculties which are caused by it. But animals, nonetheless, do ‘share the rest of the capacities with the rational animals, for they long to perform actions, and imagine them’ (*ib.*). It remains a bit murky whether the animal’s other motions are based on imagination only, whether they are also based on a rudimentary form of decision, or whether decision belongs to the rational faculties proper to human beings.²⁵

But how does this work in case of the human being and the three parts of the human soul? All parts of the soul can have objects based on imagination (*phantasia*) of a kind that allows them to conceive their goals.²⁶ The motions of the heart and the liver are called natural, and genuinely different from those of the brain, and there is no problem that they can be the principles of their own motions like the boiling of the innate heat in anger. But we have to distinguish between the simple natural motion of the emotions and the complex proper striving of spirit and appetite. How can they realize that striving, which involves more complex voluntary motions?

Galen is aware that there are certain ‘problematic’ motions with respect to which VM1 and VM2 do indeed fall apart, such as those of the penis which obey our will and imagination (VM2) but are not caused by the brain (VM1). And he

25 This passage is also discussed by Schiefsky 2012, 346–7.

26 Cf. *Aff. dig.* [CMG v.4.1.1] 20.10–13 De Boer. For the role of imagination and the special goals of the two irrational parts in Galen see the next sub-chapter below.

offers a physiological alternative for how they can be realized without causing contradictions with his account of voluntary motion. This alternative refers to the *pneuma* and the blood instead of brain, nerves and muscles. Unfortunately, he does not offer the same clear explanation for the equally problematic movements of spirit and appetite, like weeping, laughing or other even more complex emotional responses, nor for those actions which are needed in order that these parts, too, can achieve their aims.

3 The Puzzle

Keeping these problems in mind, we now need to return to our initial question. Since the heart and the liver, the organs of the lower parts of the soul, are the principles of the arteries and veins, but not of the nerves necessary for sensation and voluntary motion, it remains unclear as to how the spirited and appetitive parts can be the physiological origins of their own movements—like for instance the realization of Medea's striving for revenge, or the acrat's immoderate longing for bodily pleasure. Galen, following Plato's *Republic*, also assigns special aims and desires to the irrational parts of the soul. With respect to the *thumos*, these aims are defined as ruling, liberty, honour and victory; regarding the *epithumētikon* he mentions the striving for food, drink and pleasure in general.²⁷ In order to attain their proper goals, the lower parts of the soul should be able to function as the sources of their own kind of voluntary motions. One could ask whether the swelling of the penis might count as a proper motion of the appetitive part, which is also the part that strives for sex. But the swelling of the penis, being a simple mechanical movement that works without the activity of the muscles, cannot be used as an example for a proper *action* of the appetitive part. If the appetitive part strives for sex, the motions in question must be much more complex than merely making the penis erect, since having sex involves several muscles in the body. Thus, the tripartition of the soul not only demands that all three parts of the soul have their own motions, but also that they can engage in *practical actions*.

To this day, scholars have criticized Galen for not paying attention to the notorious problem that there is an incompatibility between the physiological approach to the brain as the source of the nerves, and the psychological demands of tripartition. This has led them to make critical observations such as the following: 'the two non-rational parts are in fact precluded from moving any muscles; there is, in the literal sense of the word, no way in which they can

27 Cf. *QAM* 35.18–36.3, *PHP* 288.9–18 with Plato, *Republic* 437b1–c10; 439a1–d2; 581b10.

determine our actions, because it is reason and reason alone, which makes the muscles move by means of the connecting nerves.²⁸ This critique culminates in the statement that the adaptation of the tripartition rather harms than benefits Galen's own doctrines.²⁹

But there have also been some cautious attempts to solve this problem. Some scholars have noticed that Galen recognizes this severe and notorious problem.³⁰ On the basis of a fragment that has been treated as an excerpt of Galen's commentary on the *Timaeus*, Larrain (who discovered it) argued in the early nineties in favour of a reconciliation between Galen's physiology and psychology.³¹ The excerpt mentions small nerves that function as connective organs between the brain, the heart and the liver. More recently, Schiefsky, too, has argued in favour of a solution to the problem by pointing to these small nerves (2012, 331-49). Tieleman also argues in favour of Galen's awareness of the problem on the basis of that excerpt, but then contrasts it with a passage from *PHP* in which Galen talks about the mutual independence of the brain and the heart by pointing out that 'the heart needs no help from the brain to move the pulse, and the brain needs none from the heart for the animal to have sensation and act in accordance with choice.'³² In what follows, I want to recapitulate and supplement the work of those positions that focus on the nerves as connecting organs. Additionally, I want to present an alternative and, as I think, more promising physiological solution that helps to explain the possibility of voluntary motions for the spirited and appetitive parts by means of the human being's *pneuma*, the blood and the innate heat.

3.1 *Previous Studies: The Nerves as Connecting Strands between the Brain, the Heart and the Liver*

The first possible physiological solution relies on the demonstration of small nerves that connect the organs in which the parts of the soul are located. With reference to passages from *PHP* and *De usu partium* as well as from the excerpt mentioned above it can be shown that the brain and the heart are connected

28 Mansfeld 1991, 141.

29 Cf. Gill 2009, 417-18.

30 Cf. Tieleman 2003, 155.

31 Cf. Larrain 1991, 9-30. Nickel 2002, 73-8 argues that it is in fact a pupil's compilation of *PHP* and *in Tim*. See further Garofalo 1995, 645-6. More recently, Das 2014, on the basis of medieval Arabic medical texts, has adduced good reasons for the assumption that these excerpts may indeed be attributed to Galen.

32 μήτε τὴν καρδίαν εἰς τὴν τῶν σφυγμῶν κίνησιν ἐγκεφάλου τι προσδεῖσθαι μήτε τὸν ἐγκέφαλον καρδίας, ἵν' αἰσθάνηται τε καὶ κατὰ προαίρεσιν ἐνεργῇ τὸ ζῶον (*PHP* 150.5-6).

with each other via the smallest nerves or nerve-like strands. One general question concerning the solutions we will present below is whether they can be reconciled with a passage from *PHP*, in which Galen talks about the mutual independence of the three organs.³³ In this passage, Galen provides a complicated anatomical proof. On the one hand, the experiment shows that the heart has no need of the brain for causing its own motion because, if one cuts the veins, arteries and nerves between these organs, the heart and the arteries do not stop pulsating. On the other hand, it also shows that a cutting of these nerves does not deprive the animal of the activity of its four limbs or of sensation. Galen furthermore harshly criticizes

all those physicians and philosophers who supposed that the animal became stupefied when the arteries mentioned were cut or intercepted in the manner described, and who then inferred from this that the heart supplies sensation and motion to the brain ... For if the animal really became stupefied—a term that to them means lack of sensation and motion—it would necessarily follow (as they saw) that the heart sends to the brain the first beginning of sensation and motion, which the brain itself supplies through the nerves to the whole body, so that the brain is a kind of second source, not strictly the first ... For as it was demonstrated earlier that the heart is the source of the arteries, and the brain of the nerves, the conclusion would follow, if their statement were true, that the heart through the arteries supplies the brain with psychic power. But it is not true; for they were mistaken about what appears in dissections. The animal does not become stupefied even after you cut the nerves, much less the arteries. It becomes voiceless when the nerves have been damaged, but not when the arteries, and still less when the veins have been damaged.³⁴

33 Cf. Tieleman 2003, 155-6.

34 ὅσοι δὲ τῶν ἰατρῶν τε καὶ φιλοσόφων ἐπὶ ταῖς εἰρημέναις ἀρτηρίαις ἦτοι τμηθείσαις ἢ ὡς εἴρηται διαληφθείσαις ὥντο καροῦσθαι τὸ ζῶον, εἴτ' ἐκ τούτου συνελογίζοντο τὴν καρδίαν ἐγκεφάλῳ χορηγεῖν αἴσθησίν τε καὶ κίνησιν ... εἴπερ γὰρ ὄντως ἐγίγνετο καρῶδες τὸ ζῶον, ὅπερ αὐτοῖς ὄνομα βούλεται σημαίνειν τὸ ἀναίσθητόν τε καὶ ἀκίνητον, ἐξ ἀνάγκης ἂν ἀκολουθεῖν τὸ τὴν καρδίαν ἐπιπέμπειν ἐγκεφάλῳ τὴν πρώτην ἀρχὴν αἰσθήσεως τε καὶ κινήσεως, ἣν αὐτοὶ ἄπαντι τῷ σώματι διὰ νεύρων χορηγεῖ, ὥστ' εἶναι δευτέραν τινὰ ἀρχὴν αὐτόν, οὐκ ἀκριβῶς πρώτην ... ἀποδεδειγμένου γὰρ ἐν τοῖς ἔμπροσθεν ὡς ἡ μὲν καρδία τῶν ἀρτηριῶν ὁ δ' ἐγκέφαλος τῶν νεύρων ἐστὶν ἀρχή, περαίνονται ἂν, εἴπερ ἀληθὲς ἦν τὸ λεγόμενον, ὡς ἡ καρδία διὰ τῶν ἀρτηριῶν ἐγκεφάλῳ χορηγεῖ δύναμιν ψυχικὴν. οὐ μὴν ἀληθὲς γ' ἐστίν, ἀλλὰ κατεψεύσαντο τοῦ φαινομένου κατὰ τὰς ἀνατομίας. καρῶδες μὲν γὰρ οὐδ' ἐπὶ τοῖς νεύροις τμηθείσι γίγνεται τὸ ζῶον, μήτι γε δὴ ταῖς ἀρτηρίαις· ἄφωνον τμηθείσι γίγνεται τὸ ζῶον, μήτι γε δὴ ταῖς ἀρτηρίαις· ἄφωνον δὲ τῶν

The passage shows that the connecting nerves between the heart and the brain do not allow for a transfer of the power of voluntary motion and sensation from the heart to the brain. The heart cannot be the first principle (*tēn protēn arkhēn*) for voluntary movements which it later on transmits to the brain, for damaging the nerves between the heart and the brain only leads to the loss of the voice and nothing more. But even if the option of the heart being the first or initial principle for the generation of voluntary motion is explicitly excluded here, this does not necessarily imply that these connecting nerves have no psychic function *at all*.

As we have seen above, Galen, although he deems Aristotle's assumption that the heart is the *source* of many nerves to be wrong, does not exclude the possibility that there is a small nerve *leading into* it: 'Even then we shall show that the heart clearly does not have "sensory and volitional nerves", but a small one, as we said before, descends from the brain and grows into it.'³⁵ The demonstration of that small nerve growing from the brain into the heart would be of great importance for the consistency of Galen's doctrine, if he had aimed to show that it functions as a psychologically relevant connection between the organs. For then it would guarantee the connection of the rational and spirited parts of the soul which, all in all, would be a useful first step for making the doctrine of the tripartition of the soul compatible with his physiology. While Galen in *PHP* does not say a word about this, the probable excerpt from the commentary on the *Timaeus* is more explicit on this point:

It can be shown that all the nerves of the living being have their principle in the brain, from which fine offshoots lead into the heart. For also this needs to participate in the higher principle, because it wants to serve it, as will be shown in the following.³⁶

According to this passage, there is teleological proof for the existence of small offshoots (*apophuseis*) of the nerves in the fact that the spirited part has to

νεύρων μὲν βλαβέντων γίγνεται, τῶν ἀρτηριῶν δ' οὐ γίγνεται καὶ πολὺ δὲ μάλλον ἔτι τῶν φλεβῶν (*PHP* 150.20-152.1).

35 καὶ οὕτως δὲ δείξομεν οὐκ ἔχουσιν ἀξιόλογα τὸ μέγεθος ἢ τὸ πλῆθος αἰσθητικὰ τε καὶ προαιρετικὰ νεῦρα τὴν καρδίαν ἐναργῶς, ἀλλ' ὥς ἐμπροσθεν εἴρηται σμικρὸν ἀπ' ἐγκεφάλου κατιὸν εἰς αὐτὴν ἐμφύεται (*PHP* 96.12-14).

36 ὅτι ἀπὸ <τοῦ> ἐγκεφάλου πάντα φαίνεται τὰ κατὰ τὸ ζῶον νεῦρα τὴν ἀρχὴν ἔχοντα, ἀφ' ὧν καὶ εἰς τὴν καρδίαν ἀποφύσεις μικραὶ παραγίνονται. καὶ γὰρ καὶ ταύτην ἔδει μετασχεῖν τῆς ἀνωθεν ἀρχῆς ὑπηρετήσῃ ταύτῃ μέλλουσιν, ὥς ἐξῆς δειχθήσεται (*In Plat. Tim. comm.* fr. 14.1-4 Larrain, e cod. Scorial. Φ III, 230 Revilla).

participate (*metaskhein*) in the higher principle, i.e. the rational part in the brain, in order that it can serve it (*hupēretein*).³⁷ The last two quotations describe the fact that the small branches of the nerves grow from (*apo*) the brain into (*eis*) the heart. Thus in both cases a clear direction is given: the brain is the starting-point of the nerves while the heart receives them. The question arises whether the fact that the brain is the starting-point of the nerves has any implication for the direction of the activity of the nerves. One might assume that the brain can make use of the nerves that go to the heart, but is the same also true the other way around? If we count these branches as proofs for an interaction between the parts of the soul seated in the relevant organs, the possibility of use in both directions would be helpful. Hankinson states hypothetically that the direction of the growth of the nerves might eventually indicate the direction of the faculties that are transported by them. A proof of this is that, if one cuts the nerves, only those bodily parts are deprived of sensation and voluntary motion which are posited in the bodily regions lying below the cut.³⁸ Unfortunately, this rather obvious assumption cannot be verified certainly with respect to the passage at hand. However, a further passage from *De usu partium* that combines all the elements already mentioned shows with even more clarity that Galen has seen the necessity of a connection between the three parts:

I have demonstrated in other works of mine that the liver is the source of a faculty similar to that which governs plants, but that it must also be closely associated with the two other sources and not entirely separate, just as these others are not separate from one another. For, as Plato says, the liver is like a wild animal, but this integral part of ourselves must be nourished if there is to be a human race. The reasoning part of us, which is the real man, is situated in the brain and has as its handmaiden (*huperetēn*) and servant the spirited [soul] to protect it against this wild animal. Wherefore our Creator connected these parts with offshoots

37 The term *hupēretein* comes up in some of Plato's and Galen's psychological remarks, whenever the alliance between the spirited part and reason is emphasized, cf. *PHP* 350.31-352.5, and *Tim.* 70d.

38 'There are two important features of this passage ... The second is that, given that causal influence is directional, flowing one way only, if you intervene at some point in the vessel which transfers the influence such as to interrupt it, then all points downstream of the interruption will be affected, while those upstream of it will not be affected' (Hankinson 1991, 224 with regard to *PHP* 372.18-374.4).

(*apophuseōn*), and so contrived for them to heed one another (*epaiein allēlōn*).³⁹

Here, Galen links the necessity of his moral account, according to which the spirited part should be able to support the rational part of the soul, directly with the *creatio* of the fine offshoots (*apophuseōn*) which connect the relevant organs. It is reasonable to assume that Galen uses the term *apophuseis* for the small nerve-like branches here, instead of using the term *neura*, in order to avoid the misunderstanding that these small offshoots transport the power of voluntary motion. But it seems clear that he does not completely want to deny their psychological function; rather, the present text supplies us with a further important piece of information: the fine branches of the nerves are supposed to guarantee heedfulness *between* these parts, which implies that they function as a connection in both directions, from the brain to the heart and *vice versa*.⁴⁰

Even if we do not get any more physiological details, we can see that Galen is aware of the psychological necessity of *interaction* or *communication* between the three parts of the soul. But additionally, the tripartition demands the option that all three parts of the soul can be the cause of their own actions and aim at their own proper goals, such as food, drink and pleasure with regard to the appetitive, or honour, victory and power with regard to the spirited part. Thus, the fundamental issue remains: can we use these small nerves also as transmitters of the special *dunamis* for voluntary motion from the lower parts to the brain in order that they can function as their own quasi-*agents* within the tripartite soul? This would, indeed, be highly speculative, since Galen never addresses this option. It is rather the case, as we have seen in the crucial passage cited above, *PHP* 150.20-152.1, that he excludes this option by refusing both the nerves and the arteries as hypothetical *copula* for the transmission of

39 τὸ δ' ἦπαρ ὅτι μὲν ἀρχὴ τῆς τοιαύτης ἐστὶ δυνάμεως, οἷα καὶ τὰ φυτὰ διοικεῖ, δέδεικται δι' ἐτέρων, ἀλλὰ καὶ ὡς συνήφθαι ἐχρῆν αὐτὸ ταῖς ἄλλαις δύο καὶ μὴ παντάπασιν ἀπεσχίσθαι, καθάπερ οὐδ' ἀλλήλων ἐκεῖναι. τὸ μὲν γὰρ οἷον τι θρέμμα ἀγριὸν ἐστίν, ὡς φησὶν ὁ Πλάτων, τρέφειν δὲ ξυνημμένον ἀναγκαῖον, εἴπερ ποτέ τι μέλλοι τὸ θνητὸν ἔσεσθαι γένος· τὸ δὲ λογιζόμενον ὄντως ἐστὶν ἄνθρωπος, ἐν ἐγκεφάλῳ καθιδρυμένον ὑπηρέτην τέ τινα καὶ βοηθὸν ἔχον τὸν θυμὸν ἐπικουρον ἑαυτῷ κατὰ τοῦδε τοῦ θρέμματος. ὅθεν αὐτὰ διὰ τῶν ἀποφύσεων ὁ δημιουργὸς ἡμῶν συνάψας ἐπάτειν ἀλλήλων ἐτεχνήσατο (*UP* 1, 227.1-15, tr. May, slightly revised).

40 Schiefsky 2012, 346 interprets this passage as Galen's ultimate answer to the required possibility for a communication between the parts of the soul: 'the need for communication is explicitly linked with the demands of the tripartite theory: the three parts are connected by "offshoots" (*apophuseis*) so that they may "heed" (*epaiein*) one another.'

the relevant psychic *dunamis*. It is rather the case that each part is the source (*pēgē*) of its own proper functions.⁴¹

And what about the liver? In the passage from *UP* quoted above (1, 227.1-15), we have seen that Galen includes the liver in his examination of the connection between the organs when he aims to show that they can ‘heed one another’ (*epaiein allēlōn*). At the same time, however, the liver is not equipped with those nerves that are relevant for sensation and voluntary motion, but only with small nerve-like branches as well as a small, extra nerve (*elakhistou de neurou*, cf. *UP* 1, 226.2-7) the psychological relevance of which (as a so called *primitive nerve*) is uncertain.⁴² The existence of this small nerve guarantees an organic connection between the liver and the heart analogous to the small branches of the heart. In *UP* Galen again emphasizes the function of the nerves of the heart and the liver:

All viscera receive their share of nerves in order that they may have some sensation and may not be altogether plants, and in particular the liver and heart receive nerves because they are the sources of certain faculties, the one of the appetitive soul, the other of the irascible soul. I have shown in my book *On the Teaching of Hippocrates and Plato* that these sources must give heed to one another, be connected to some extent, and communicate with one another.⁴³

Just as in the case of the heart we should again note that, even if Galen admits a *communicative* function of any kind whatsoever for this small nerve, as well as a general connection between the organs, we should be sceptical about the relevance of this nerve with respect to the transmission of *voluntary motion*. But as the appetitive part, too, must be physiologically able to go for its personal goals, and to realize its own impulses, this transmission is needed.

To sum up some interim results: it is true that Galen admits the existence of connecting nerves between the organs, but he denies that they give the liver

41 Cf. *PHP* 210.26-9.

42 ‘Indeed, the liver is sometimes presented as forming part of the nervous system in *UP*, though only by means of a small nerve, in view of the primitive, non-cognitive type of functions associated with the liver, which are here again linked with the idea of “nature” (Gill 2007, 421).

43 κοινή μὲν γὰρ ἅπαντα ταῦθ’, ἵν’ αἰσθήσεώς τιнос μετέχη καὶ μὴ παντάπασιν ἢ φυτά, διὰ τοῦτο νεύρων μετέλαβεν· ἰδίᾳ δ’ αὐτῶν ἡπάρ τε καὶ καρδία, διότι καὶ αὐτὰ δυνάμεων τινων ὑπάρχουσιν ἀρχαί, τὸ μὲν τῆς ἐπιθυμητικῆς ψυχῆς, τὸ δὲ τῆς θυμοειδοῦς. ἐδείχθη δ’ ἐν τοῖς Περὶ τῶν Ἱπποκράτους καὶ Πλάτωνος δογμάτων ἐπαίειν ἀλλήλων χρῆναι τὰς ἀρχὰς καὶ συνήφθαι κατὰ τι καὶ κοινωνεῖν (*UP* 1, 365.5-14, tr. May with slight changes).

and the heart a share in voluntary motion and sensation. Even if there are some indications in Galen's work that these small nerves might have the psychological function of guaranteeing the physiological realization of heedfulness between the three parts of the soul, this option is never explicitly elaborated. In what follows, I aim to concentrate on two alternative physiological solutions for our problem. The first solution focuses on the arteries, the *pneuma*, and the innate heat, the second one on the veins, the blood and also the innate heat; these turn out to be the relevant connective organs between the three psychic centres by means of which the appetitive and spirited parts can *causally influence* the voluntary motions which start from the brain.

3.2 *Alternative Solution (1): Arteries, Innate Heat and Pneuma*

Connection via the small nerves is not the only way offered by Galen. Hankinson, without elaborating any further, already mentioned in a short note the 'speculative' option that the boiling blood in the arteries might have an influence on the brain by impairing its proper functions such that it emits abnormal signals (1993, 208 n. 76). I will follow this promising path by aiming to show that it is more than a mere speculative possibility. In addition, I want to develop this approach by including and explaining some relevant passages about blood, *pneuma* and innate heat (*emphuton thermon*) that can be found in Galen's work.

In *De methodo medendi*, Galen distinguishes three bodily sources for three different kinds of *pneuma*. The source of psychic *pneuma* is the brain; it is nourished through inhalation and in the *rete mirabile*. The source of vital *pneuma* is the heart and the arteries. And the source of natural *pneuma*—the very existence of which Galen himself calls into question—lies in the liver and the veins.⁴⁴ The vital *pneuma* and the psychic *pneuma* in the organism

44 Cf. *De meth. med.* 10, 839.10–840.1. Siegel 1968, 186 and Rocca 2003, 65 n. 95 have also emphasized that a trifold division of *pneuma* is neither needed for nor fitting into Galen's system of physiology. Temkin 1951, 185–6 also doubts its relevance: 'After what has been said we need not reiterate the difficulties inherent in Galen's concept of the vital spirit; but we may well ask ourselves whether we have learned anything about a natural spirit. Is the latter identical with the pneumatic component of the venous blood? Perhaps. But in that case it would only be an inferior form of the *pneuma* contained in the arteries. Or as one might say, both veins and arteries carry blood mixed with natural spirit, but the veins have much blood and little vital spirit, whereas the arteries have little and purer blood, and more and thinner natural spirit ... But in the Galenic system a natural spirit, distinctly differentiated from the vital spirit, has little meaning. It has no specific function to fulfill ... If this is true, we have to ask ourselves why Galen mentioned the natural spirit at all, in view of his obvious doubts.'

are connected. First, outer air is inhaled and undergoes some change in the lungs to become a *pneuma*-like substrate,⁴⁵ afterwards it is changed into vital *pneuma* by means of blood and innate heat in the left ventricle of the heart.⁴⁶ Through the system of the arteries, in which it undergoes further changes, it finally enters the brain. Afterwards it is further modified in the brain's *retiform plexus* and its *choroid plexuses*. The process of this qualitative change of the outer air into vital and finally into psychic *pneuma* is completed in the ventricles of the brain.⁴⁷ It is clear, then, that many factors are indispensable for the production of psychic *pneuma*. Thus, even though Galen calls the brain the source of the psychic *pneuma*, it is far from being the only organ involved in its production. To secure the change from vital *pneuma* into psychic *pneuma* in the arteries and the ventricles of the brain we need a connection between the heart and the brain, which is given by the system of the arteries. Some nerves transport the psychic *pneuma* and others the faculty of movement, while the arteries only transport vital *pneuma*. According to Galen, the existence of this vital *pneuma* is difficult to prove, but the assumption that it is produced in the heart and the arteries, and mainly nourished by means of inhalation and blood seems convincing to him.⁴⁸

At *PHP* 150.25-33 we read that the heart cannot function as the first principle (*tēn protēn arkhēn*) and supply the brain with the psychic power through the arteries. Does that challenge or even contradict the option that *psychic pneuma* is influenced because it is nourished by vital *pneuma*? If we cut the arteries between the heart and the brain, the animal does not become stupefied but only loses its voice. This, again, shows that the brain is the starting point of sensation and of voluntary motion. But is that compatible with the assumption that *psychic pneuma* is nourished by vital *pneuma*? In *De motibus dubiis* we learn that the fact that the brain, the heart and the liver are three independent principles of distinct motions does not make the brain independent from the heart with respect to the preservation of its substance (*DMD* 1.19, 126.18-22):

45 On the unclear status of this substrate cf. Rocca 2003, 237 and Eastwood 1981, 169 n. 3.

46 Rocca 2003, 64 interprets this as a tribute to the Stoic doctrine of *pneuma*, while Galen himself attributes the great importance of the outer air to Hippocrates.

47 Cf. *UP* 1, 393.23-394.6 with Kovačić 2001, 120. The *retiform plexus* is described by Rocca as 'a network of fine arteries at the base of the brain', the *choroid plexuses* as a network 'of veins and arteries in the ventricular system, which complete the transformation of vital to psychic *pneuma*'. On the whole process of that transformation see Rocca 2003, 64-5.

48 Cf. *De meth. med.* 10, 839.13-17.

When I wrote about the ruling part of the soul, I showed that, although the brain itself needed the help of the heart and the liver in order to maintain its substance, the power of voluntary movement was not transmitted from them to it.

Furthermore, the vital *pneuma* is not the only material cause of the psychic *pneuma* since the latter is also 'watered and nourished' (*ardomenou kai trephoumenou*) by inhalation and the supply from the *rete mirabile*.⁴⁹ This indicates that the outer air is also an independent material source of the psychic *pneuma*. But even if inhalation could temporarily maintain the proper functions when the arteries are cut, the substantial dependence of psychic *pneuma* on vital *pneuma* remains.

The dependence described above additionally provides the interesting possibility that the temperature of the vital *pneuma* can influence the temperature of the psychic *pneuma*. The medium by which this qualitative change is managed is the innate heat. The heart functions as the source and regulating instrument of the innate heat,⁵⁰ and the vital *pneuma* is also called a 'kind of source of the innate heat' (*pēgē tis ousa kai hēde tēs emphutou thermasias*, *De meth. med.* x. 635.17-18). Unfortunately, no distinct writing about the innate heat has survived, but we nonetheless find many signs of its comprehensive relevance in Galen's doctrine.⁵¹ The innate heat plays a significant role in many bodily and psychic processes: it is increased in the heart by bodily exercises as well as by affections like anger, desperation and shame.⁵² As we have already seen, during anger the *ergon kata pathos* of the spirited part consists in the boiling of the innate heat in the face of an assumed injustice.⁵³

The formulation *kata pathos* is used in two ways: the so-called 'boiling' of the innate heat is both an affective, runaway activity of the spirited part, and the cause of the suffering (*pathēma*) of the rest of the soul and the body.⁵⁴ If the movements of the spirited part are immoderate and runaway (*ametroi, ekphoroi*) they become movements contrary to nature (*kinēsis para phusin*),⁵⁵

49 Cf. *De meth. med.* 10, 839.ff.

50 Cf. *UP* 1, 318.15-17, and Temkin 1951, 180.

51 See the helpful overview given by Durling 1988.

52 Cf. *De san. tuenda* 61.21-8.

53 Cf. *PHP* 438.35-440.2.

54 For a detailed elaboration of the different accounts of *pathos* as activity and suffering given in *PHP*, see Hankinson 1991, 208 n. 77, tracing them back to *Phdr.* 245c and Aristotle, *De an.* 1.1, 403b12.

55 Cf. *PHP* 362.3-364.2.

and in that sense anger can be described as an illness of the soul.⁵⁶ The innate heat, when increased in an unnatural manner, has negative consequences for the body. That is why we have to distinguish between the natural, useful and moderate version of the innate heat and its opposite. During anger, a kind of overheating occurs. In *De sanitate tuenda* Galen calls anger 'a boiling of heat in the region of the heart',⁵⁷ which is also the place where the vital *pneuma* is generated. As we have seen, the vital *pneuma* provides the basis for the creation of psychic *pneuma* via the arteries that connect the heart and the brain. Therefore, we can justifiably assume that an excessive heating of the vital *pneuma* affects the temperature of the psychic *pneuma* in the brain. If the vital *pneuma* grows warmer, the psychic *pneuma* is warmed, too. But what happens, if the brain and the psychic *pneuma* residing in it get hotter than appropriate?

Galen provides many instances to show that too much heat has negative consequences for body and soul. The consumption of wine, which unnaturally increases the heat in the organism, obviously has negative effects on the rational soul: 'Wine commands the soul to abandon its previous accuracy in intellectual activity and the previously correct performances of its actions.'⁵⁸ As Plato has shown, the whole soul suffers from immoderate consumption: 'For [Plato] holds that wine fills the whole body, and especially the head, with hot vapours, and thus becomes the cause of too unbalanced a motion in the appetitive and the spirited part of the soul, and too rash a decision in the rational (*boulēs de propetesteras tōi logistikōi*).'⁵⁹ Both consequences are of great interest for our present investigation.

On the one hand, the heating of the body leads to immoderate and unnatural movements of the spirited and the appetitive parts. On the other hand, the most peculiar function of the rational part, i.e. thinking, is also vitiated. The term 'too rash' (*propetōs*) with respect to the volition of the rational part must be explained. It follows from Galen's overall account in *PHP* that a solution is 'too rash' whenever the rational part is not able to assess the right moment (*kairos*) for the initiation of an action. Usually, the determination of the right moment is the special ability of the rational part of the soul when it is in its

56 Cf. Hankinson 1991, 207.

57 Cf. *De san. tuenda* 61.24-15.

58 οἶνος κελεύει τὴν ψυχὴν μῆτε νοεῖν ἀκριβῶς, ἀ πρόσθεν ἐνόει, μῆτε πράττειν ὀρθῶς, ἀ πρόσθεν ἔπραττε (*QAM* 70.17-19, tr. Singer 2013, with slight changes).

59 ἡγείται γὰρ τὸν οἶνον ἀτμῶν θερμῶν ὅλον τε τὸ σῶμα καὶ μάλιστα τὴν κεφαλὴν πληροῦντα κινήσεως μὲν ἀμετροτέρας αἴτιον γίνεσθαι τῷ τ' ἐπιθυμητικῷ μέρει τῆς ψυχῆς καὶ τῷ θυμοειδεῖ, βουλῆς δὲ προπετεστέρας τῷ λογιστικῷ (*QAM* 71.6-11).

natural condition, while both the spirited and appetitive parts are naturally prone to rash judgments and actions. Just as the appetitive part too rashly inclines to that which appears pleasant to it (*epi to phainomenon propētōs hēdu pheromenē*) before the rational parts has had the chance to investigate thoroughly what is going on,⁶⁰ so the spirited part, when it is not restricted by reason, starts to rage against the supposed wrongdoer in the very moment when it experiences a supposed injustice. Galen illuminates this on the basis of a well-known passage of the *Odyssey*, in which the returning Odysseus finds suitors in his own home; and while his spirit strives for immediate revenge, his rational part, recognizing that it was the wrong moment (*akairian*) for action, obstructs this action.⁶¹ It is striking that Galen in *QAM* 71.6–11 cited above ascribes overhasty decisions, which usually apply to the irrational parts of the soul, to the rational part itself when it operates under changed conditions in a heated organism.

From Galen's overall claims as we have presented them so far, the following consequences seem to ensue. Since psychic *pneuma* is nourished by vital *pneuma*, we can reasonably assume that it is co-affected when the vital *pneuma* is overheated. As we have seen, such an increase of temperature in the heart and the brain can happen through both strong psychic affections and the consumption of wine. Since we can assume that the consequences of increasing temperature in the brain after the consumption of wine are similar to those which occur during anger or shame, we have found the spirited part can gain a strong influence on the rational part's volitions: by increasing the innate heat during an affection, spirit can enforce a shortcut in the rational process. This interpretation is strengthened by *PHP* 416.21–4, in which Galen characterizes the power of the spirited part as energetic and fiery in such a way that it makes the angry person appear choleric and insane.

Furthermore, Galen shows in the *Ars medica* that the heat and dryness of the heart has implications for a person's character and practical actions. These consequences are described as follows:

With a hot and dry heart, the pulses are hard and large, fast and frequent: and breathing is of large volume, fast and frequent ... They are quick to

60 Cf. *Aff. dig* [CMG v.4.1.1] 20.7–13 and *PHP* 340.10–18.

61 Cf. *PHP* 188.5–8 and *Od.* 20.23–4. Also Plato picks up this passage in the *Republic* in order to show the difference between the spirited and the rational part, as Galen is aware: cf. *Resp.* 441b3–c2.

action, spirited, and speedy; fierce, unkind, reckless, shameless; tyrannical in character; bad-tempered and implacable.⁶²

Galen first describes the positive and then the negative qualities of a person whose character is dominated by the spirited part. From the investigation above, we can conclude that these characteristics are related to the *degree* of the innate heat. While the *spirited part* in the positive case is able to engage in helpful and spirited (*hetoimoi kai thumikoi*) practical actions, which support the activities of the rational part, in the negative case he directs his characteristics against the rational part. Furthermore, Galen describes this relationship as reciprocal, since ‘to be sure, people who become sharp-spirited because of the hot mixture then fire up their innate heat by their sharpness of spirit’.⁶³ This shows that there is a reciprocal relationship between bodily constitution and the activities motivated by character.

3.3 *Alternative Solution (2): Veins and Blood as Relational Organs between the Liver and the Brain*

I now want to investigate another physiological relation between the organs that is not dependent on the nerves but on veins, natural *pneuma* and blood. There is a single passage where Galen vaguely hints at the liver and the veins as the sources of natural *pneuma*.⁶⁴ Since there is no further information about that third kind of *pneuma*, scholars, just like Galen himself, have reasonably been sceptical about its very existence.⁶⁵ Therefore we will not follow this option any further, and instead concentrate on the blood. We will see that there are promising options for the blood helping us to explain the strong influence of the appetitive part within the organism.

In *PHP* 438.28-440.8, we have already seen that the liver has the physiological function of generating blood and nourishing the body. Thus, the liver is connected with the rest of the body via the blood, which leads to a wide range of interactions. Being the source of the veins, the liver is responsible for the transport of the food’s qualities, namely warmth, coldness, dryness

62 θερμῆς καὶ ξηρᾶς καρδίας οἱ σφυγμοὶ σκληροὶ καὶ μεγάλοι, καὶ ταχεῖς, καὶ πυκνοὶ, καὶ αἱ ἀναπνοαὶ μεγάλαι τε καὶ ταχεῖαι, καὶ πυκναὶ ... εἰς δὲ τὰς πράξεις ἔτοιμοι καὶ θυμικοὶ καὶ ταχεῖς, ἄγριοι, καὶ ἀνήμεροι, καὶ ἰταμοὶ, καὶ ἀναίσχυντοι, καὶ τυραννικοὶ τοῖς ἥθεσι, καὶ γὰρ ὀξύθυμοι καὶ δόσπανστοι (*Ars med.* i. 334.13-335.4, tr. Singer 1997).

63 διὰ γοῦν τὴν θερμὴν κράσιν <οἱ> ὀξύθυμοι γιγνώμενοι αὐταῖς πάλιν ταῖς ὀξύθυμαῖς ἐκπυροῦσι τὴν ἔμφυτον θερμασίαν (*QAM* 79.4-7).

64 Cf. *De meth. med.* 10, 840.1.

65 Cf. Rocca 2003, 65 n. 95; Manzoni 2001, 39-44 and Siegel 1968, 186.

and wetness, to all parts of the body. This is how the liver supplies the body with nutrients. In this context, Galen uses the metaphor of the liver as the manger of the body.⁶⁶ After having received the foodstuff from the stomach, it is changed into nourishing blood. One part of the blood is transported to the heart where it is changed again. For this process, the warmth of the body is relevant again: the blood that is changed in the heart has the function of carrying warmth into the arteries. Furthermore, we have seen that inhaled air and blood nourish the vital *pneuma* in the heart.

The connections that are offered here are complex. The liver is involved in the production of vital *pneuma* by carrying some of the blood created from nourishment, and necessary for its production, to the heart. Moreover, the liver supplies all parts of the body with nourishing blood. If we remember what Galen says about the effects of the consumption of wine, we can conclude that the liver and therefore also the appetitive part located in it have a strong influence within the organism. Since the liver wields power over the nourishment of the body, it has a strong influence on the soul's capacities. To prove the dependence of the soul's capacities on the mixtures of the body is, at least, the obvious aim of *QAM*. According to Galen, this mixture is in large part dependent on the blood which, again, is derived from nourishment. For the production of the blood, which generates the mixture of the body, the liver and the veins are the central organs, since they change the nourishment into blood and the other humours. This makes the liver a significant point of transfer, where the influence of the body on the soul becomes especially manifest, since here the qualities of the foodstuffs are changed in such a way that they are incorporated into the organism, and can influence body and soul. By pointing to his own books which deal with these matters, i.e. *The Capacities of Foodstuffs*, Galen stresses the need for gaining expertise about good and bad balances of the humours, since the latter have an injurious impact on the activities of the soul (*energeiai tēs psychēs*), while the former preserve them unharmed.⁶⁷ The consumption of wine especially shows that certain foodstuffs influence body and soul in a short period of time.⁶⁸ Sometimes, however, this influence needs more time to develop: 'For it [the liver] is not the source of the obvious motion, as the heart is of pulsation and the brain of sensation and volition. Nor is it the cause of rapid injury, as each of the others is, but time is required for weakness of the liver to harm the animal's nutrition

66 Cf. *PHP* 418.9-16. On this metaphor and its different use in the *Timaeus*, see Tieleman 1996, introduction.

67 Cf. *QAM* 72.18-73.2.

68 Cf. *QAM* 39.20-41.6.

and coloring.⁶⁹ Even through a slow process of change, the liver can have a good or bad influence on the rest of the body—and therefore also on the soul.

As we have seen in *PHP* 440.6-8, Galen calls the *erga katha pathos* of the appetitive part both intemperance (*akrasia*) and licentiousness (*akolasia*). These affections are physiologically connected with the blood, and express themselves in practical actions. The consumption of wine is a good example of this process: sometimes the appetitive part has a desire for wine. If someone drinks more wine than is beneficial for his or her individual constitution, or if someone is still young and therefore anyhow naturally fiery,⁷⁰ its consumption has the negative impact that the body is overheated. The overheating of the body and the brain then leads to overhasty volitions and actions as *QAM* 71.6-11 shows. It follows that the appetitive part is able to influence the rational part in the brain via the warmth of the blood. This observation touches the question of what causes immoderation, and weakness of will. In accordance with the *Timaeus*, Galen distinguishes two factors that are responsible for the badness of the soul: the constitution of the body, and bad upbringing. In this context, he cites a passage from the *Timaeus*, in which parents and educators are called the causes of badness.⁷¹ Conversely, nutriment, daily activity and knowledge are called the means with which we can flee from what is bad. Here we can see the influence on our character of the constitution of the body, which is formed through both our inborn nature and our education, including lifestyle and dietetics. Whether the appetitive part gets so strong that it can manipulate the practical actions of a human being depends on our general constitution—the constitution the body has from birth and through education from early childhood on.

It follows that, like the spirited part of the soul, the appetitive part too can manipulate the voluntary movements of the rational part of the soul by means of an increasing of the innate heat. Since it is the nature of the appetitive part to strive for the things which appear to be pleasant without thinking it over again,⁷² and since this striving for pleasant things can, again, increase the

69 οὔτε γὰρ ἐναργοῦς ἐστι κινήσεως [ἡ] ἀρχή, καθάπερ ἡ μὲν καρδία τῆς σφυγμικῆς, ὁ δ' ἐγκέφαλος τῆς αἰσθητικῆς τε καὶ προαιρετικῆς, οὗτ' ὀξείας βλάβης αἴτιον, ὡς ἐκεῖνων ἐκάτερον, ἀλλ' ἐν τῷ χρόνῳ βλάπτεται τὸ ζῶον εἰς εὐτροφίαν τε καὶ εὐχροίαν ἥπατος ἀτονήσαντος (*PHP* 374.1-4). That the influence of an impaired liver is not as fast and immediate as that of the heart and the brain, does not mean that it is not important: cf. Hankinson 1991, 224.

70 That the young should not drink wine comes also clear in Galen's interpretation of a passage from the Platonic *Laws* where it is said that children should not drink wine at all because of the fiery nature of their young bodies and souls. Cf. *Leg.* 666a3-7.

71 Cf. *Tim.* 86d5-e3, 87b3-8; and *QAM* 71.19-72.2.

72 Cf. *Aff. dig.* [*CMG* v.4.1.1] 20.10-13.

innate heat even more, and since, furthermore, the voluntary movements of the rational part become overhasty in the case of increasing heat, it follows that the appetitive part can make the movements of the rational part (very much like) its own.

In a well-educated soul the spirited part can be strong and supportive of the rational part, while the appetitive part, on the contrary, should be weak.⁷³ Whenever the movements of the spirited part are in accordance with nature (*kata phusin*), it will try to support the voluntary actions of the rational part and fight as its ally against the immoderate movements of the appetitive part.⁷⁴ Considering the example of the great-souled man (*megalopsuchos*), Galen emphasizes that the tension of his soul (*tonos tēs psuchēs*) is strong, whereas the things he suffers from (*pathēmata*) are small.⁷⁵ In *PHP* 438.28-440.8 we have seen that he counts the *tonos* of the soul among the proper functions (*erga kath' heautēn*) of the spirited part.⁷⁶ Further, Galen calls the innate heat the essence of that strength, which enables someone to act steadfastly.⁷⁷ Thus, a proper amount of heat in the organism does not harm the soul but is beneficial for it: when the innate heat is a natural constituent of the bodily constitution it is a factor beneficial for the strength and firmness of the person's actions, while its coldness leads to laziness, immobility and weakness.⁷⁸ Also, apart from this, the natural form of the innate heat has many beneficial functions within the organism. It is true that an abundance of heat harms the brain, but this does not mean that the brain is naturally cold. The brain too has its own proper warmth, as Galen emphasizes against Aristotle, according to whom the brain is said to have a cooling function.⁷⁹ But the moderate, natural warmth of the organism is not identical with the negative form of the boiling (*zesis*) of this warmth during an affection.⁸⁰ This is why I have some doubts concerning Schiefsky's suggestion that Galen identifies the *tonos* with the boiling of the innate heat. Moreover, he concludes from this assumption that Galen's conception of *tonos* exemplifies his general tendency to understand psychological

73 Cf. *De moribus* 42.

74 Cf. *PHP* 350.14-16.

75 *De loc. aff.* viii, 301.14-302.5 Kühn = *SVF* 2.876.

76 On the *tonos* of the soul in Galen, see Trompeter 2016.

77 Cf. *Mor.* 27.

78 Cf. *De moribus* 1, 27.13-19.

79 Cf. *UP* 1, 446.5-453.9.

80 In the case of the natural process of digestion, which is also described as a kind of cooking, Galen does not use the term *zesis* but *pepsis*: cf. *UP* 1, 208.4-5.

activities as physiological ones.⁸¹ In the light of our present investigation it seems better to call the *tonos* of the soul a proper psychological function of the spirited part that is connected to the moderate and natural form of the innate heat. The *boiling* of that heat, on the other hand, is the unnatural and immoderate form of that heat, by means of which the irrational parts of the soul can manipulate the voluntary movements of the rational part.

4 The Actions of Spirit and Appetite

We have shown different possible solutions to the question of how the spirited and appetitive parts can have an impact on the voluntary movements of the rational part of the soul. Even if they cannot be the physiological *principle* of the voluntary motions in the sense of VM1 (see the distinction drawn in Section 2 above), since in that sense their movements are by definition *non-voluntary*, they can nonetheless influence the voluntary motions of the rational part by increasing the innate heat in the organism in such a way that these motions become *involuntary* in the sense that they do not occur on basis of proper reasoning and rational decision. Thus, we might say that these rash actions either belong to the rational part, but are misled, or that they were initiated by the irrational parts—since in the end *they* are the causes of the physiological changes in the brain which led to the hasty motions.

It is striking that Galen, also even in *De motibus dubiis*, never directly addresses how the actions of the irrational parts of the soul come to be. We have seen that in *PHP* he deals extensively with the physiological movements of the irrational parts, like the pulse or the production of blood, that are not voluntary at all, either in the sense of VM1 or in the sense of VM2, since they are not motivated by the brain, and reason is not involved either. But, as we have seen, Galen also recognises mixed cases. In *De motibus dubiis*, *De moribus*, and *PHP* he points to affective reactions like fright, laughter and crying, which are difficult to classify since they *are* voluntary in the sense of VM1, but involuntary in the sense of VM2. We can conclude that, when Medea is murdering her own children, her action is voluntary in the sense of VM1, since her complex action

81 'Galen's references to the "tone" of the soul and the "boiling" of the innate heat in connection with the spirited part reflects a tendency towards a physical understanding of psychological activities, despite his official agnosticism on the question of the substance (*ousia*) of the soul. The notion of psychic strength as tone (*tonos*) is ascribed to Chrysippus in *PHP* IV 6,1-11, V 403-6 K.; Galen appropriates the term but associates it with the innate heat rather than the Stoic *pneuma*' (Schiefky 2012, 337 n. 27).

must be caused by the brain, but involuntary in the sense of VM2, since she acts against her better knowledge. The same is true for the person who laughs or cries against his or her will. Small children and animals move voluntarily solely in the sense of VM1. In their case, irrational motion in the sense of VM2 does not play a role, since they are not able to engage in proper reasoning and thus *cannot act against reason*.

We finally can conclude that, according to Galen, the actions of spirit and appetite, like any other practical action, are initiated by the brain—with the crucial difference that the temperature of the brain is manipulated by means of the living being's *pneuma* and blood. Thus, they are voluntary in the sense of VM1 but, since they corrupt the actions of the rational part, they can, at the same time, be called involuntary in the sense of VM2. Either way, it cannot be the case that the actions of the rational part are 'in the interests of' the irrational parts.⁸² How could Medea's striving for revenge be an action of reason, if this action has none of the qualities that are needed for defining it as a rational action? We cannot negate the autonomy of the irrational parts' striving, since then Galen's concept of voluntary motion would resemble the Stoic model of the unitary soul.⁸³ In fact, according to Gill, this is exactly what happens here. He admits that Galen, in order to secure the psychological possibility of irrational action, moves in the direction of a unitary psychophysical view of the organism which would be more compatible with the Stoic account of the *hēgemonikon*.⁸⁴ That is why he states that Galen's account would work better had he called the functions of the irrational parts a matter of nature, and allocated 'psychic' functions to the rational part alone.⁸⁵ That is to say that Galen's view would have been more coherent if he had stuck consequently to the distinction between *natural* functions like nutrition and *psychic* functions like sensation and voluntary movement, as he often does.⁸⁶

82 Cf. Mansfeld 1991, 133-5.

83 Which, according to Gill, would be more compatible with Galen's physiology than the Platonic psychology: see Gill 2007, 418-23; 2010, 165-7.

84 'And I think that Galen would have done much better if he had adopted the Stoic account of the *hēgemonikon*, the ruling part or "control-centre", with its unified picture of psychological functions, in place of the Platonic tripartite psyche with three different sources of motivation' (Gill 2007, 410).

85 'I think his theory would have been much more coherent and tenable if he had advanced a view more like that of the Stoics, one which adopted the idea of a unified psychological center while attributing sub-psychological processes to "nature"' (Gill 2007, 416).

86 Cf. *De sympt. diff.* 7.55 Kühn, *De san. tuenda* 170.30-2, *De motu musc.* iv. 372.11-15 Kühn; *De cris.* ix. 612-13 Kühn; *De temperamentis* 43.2-4; *De subst. nat. fac.* iv. 759 Kühn. 'The liver (or liver-based system) operates in a more independent way, but also at a more basic

The problem with this interpretation is more than obvious: Galen would *never* accept the Stoic view of the unitary soul, but clearly believes that there are two different psychic powers, a rational (*logikē*) and an irrational (*alogon*) one: 'For errors are faulty judgments and reason that has been mistaken about the truth and has erred. But affection, on the contrary, is not something that has erred or makes a mistake in its reasoning; it is a motion of the soul disobedient to reason.'⁸⁷ Affections are not identical with the faults of the rational reasoning, but autonomous psychic movements that are disobedient to it and therefore can cause errors:

This, indeed, is one primary and egregious error made by those who make rash declarations regarding matters of good and bad in human life, and it arises from self-love, self-regard, conceitedness or love of esteem. For we observe some cases where people have convinced themselves of the truth of their own beliefs, but others where they are engaged in convincing those around them for the sake of honour or financial reward, while remaining personally uncertain of their own statements. Both these classes of people commit errors, evidently; the latter knowingly (and in their case the evil would be one connected with affection), the former unknowingly (and these people's blunder would fall rather under the heading of error in the specific sense).⁸⁸

There are two categories of error here. The specific sense includes those that are committed unknowingly. Here people do not know that they are adhering to a false belief. On the other hand there are those errors that are committed

(plant-like) level, carrying forward low-level processes of nutrition. The functions of the liver, and also the purely automatic functions of the heart, can be assigned to "nature", by contrast with the cognitive work of the control-centre, which can be assigned to the "psychic" functions' (Gill 2007, 422; cf. also von Staden 2000, 107).

87 τὰ μὲν γὰρ ἁμαρτήματα μοχθηραὶ κρίσεις εἰσὶ καὶ ὁ λόγος ἐψευσμένος τῆς ἀληθείας καὶ δημαρτημένος· τὸ δὲ πάθος ἐμπαλιν οὐδὲν μὲν ἡμαρτημένον οὐδὲ παρορώμενον κατὰ τὸν λογισμόν, ἀπειθὴς δὲ ἐστὶ τῷ λόγῳ κίνησις ψυχῆς (*PHP* 242.33-6).

88 ἔν μὲν δὴ πρῶτον τοῦθ' ἁμάρτημα <καὶ> μέγιστόν ἐστι τῶν προπετῶς ἀποφνηαμένων τι περὶ τῶν κατὰ τὸν ἀνθρώπινον βίον ἀγαθῶν τε καὶ κακῶν ἐκ φιλαυτίας ἢ ἀλαζονείας ἢ δοξοσοφίας ἢ φιλοτιμίας φυόμενον· ἐνίοις μὲν γὰρ ἀναπεπεικότας ἑαυτοὺς <ὀρώμεν>, ὡς ὀρθῶς δοξάζουσιν, ἐνίοις δὲ τιμῆς ἕνεκεν ἢ πρὸς χρηματισμόν τοὺς πέλας μὲν ἀναπειθόντας, αὐτοὺς δ' ὑπόπτως ἔχοντας ὑπὲρ ὧν λέγουσιν· ἁμαρτάνουσι <δ'> ἐκάτεροι δὴλον ὅτι, γιγνώσκοντες μὲν οἱ δεῦτεροι, καὶ εἴη ἂν αὐτῶν ἐμπαθεῖς τὸ κακόν, ἀγνοοῦντες δ' οἱ πρότεροι, καὶ εἴη ἂν αὐ καὶ τούτων τὸ σφάλμα κατὰ τὸ καλούμενον ἰδίως ἁμάρτημα (*Aff. dig.* 44.11-20).

knowingly. Here people stick to their false belief although they know that they are false. This happens because their weak character is dominated by a certain striving, like that for reputation. Such errors are called rash (*propetōs*), and are caused by the affections.

Our previous results about the physiological connection of affections and rational errors turn out to be in accordance with this ethical account. Galen describes errors that are caused by the affections and lead to hasty volitions and actions. Thus, it is not reason alone that causes its own errors, as is the case in Stoic philosophy. In addition to these, Galen mentions errors which happen knowingly and are caused by the affections. These *moral* errors, caused by the affections, make people act against their better judgement, and therefore presuppose the simultaneous existence of at least two different powers within the soul.

5 Conclusion

The notorious problem in Galen's philosophy as to how his psychological and physiological approaches to voluntary motion can be reconciled can be sorted out if we take a closer look at the different classes of physiological and psychological functions of each part of the soul. Even if the 'voluntary' motions in one sense of the word are physiologically restricted to the activity of the brain, sometimes the natural authority of the rational part can be undermined. Unlike rational errors, which are unrecognised mistakes in thinking, affections are the causes of errors that come to be knowingly and involve a manipulation. This manipulation of the rational part of the soul by the irrational parts leads to a change in the ability of the rational part to make proper decisions. If the movements of the irrational parts of the soul are immoderate, and the innate heat in the heart and in the liver increases, the brain gets warmer too. Thus, the irrational parts can increase the innate heat and manipulate volition. Consequently, the volitions of the rational part can become rash, and indistinguishable from the motions of the irrational parts. When body and soul are in their natural state, only the rational part can cause voluntary movements. But when they are in the grip of the affections, i.e. in an unnatural state, the irrational parts of the soul become the proper causes of hasty and erroneous action by influencing the temperature of the brain via innate heat, *pneuma* and blood. In the end, the notorious problem of a conflict between Galen's psychological and physiological account can be reconciled by distinguishing rational voluntary motion, caused by a properly working rational part in a

naturally conditioned brain, from irrational voluntary motion, caused by the immoderate movements of the irrational parts during an affection.⁸⁹

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89 I would like to thank Teun Tieleman, Robert Vinkesteyn, James Wilberding and my unknown referee for careful reading, helpful remarks and support, as well as Philip van der Eijk and his research team for productive discussion of and comments on an earlier version of this paper. Further, I want to give many thanks to the NWO for funding the research project *Human Nature: Medical and Philosophical Perspectives in the Work of Galen of Pergamum* at Utrecht University, thanks to which this paper could be completed.

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