

HEALING THE SOUL BY TRANSFORMING THE BODY: A NEW WAY OF FRAMING AVICENNA'S SCIENCE OF THE SOUL

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Abstract: Although scholars acknowledged that Avicenna's science of the soul stands at the crossroads between natural philosophy and metaphysics, thus combining an overall physical investigation of all sublunary souls with a *trans*-physical (or *proto*-metaphysical) inquiry into the human rational soul, this paper aims to show a further disciplinary entanglement within Avicenna's science of the soul, which features in the aforementioned physical investigation and helps to frame it, that is, the interaction between natural philosophy and medicine. Despite the strict division between these two disciplines in Avicenna's system of science, medicine seems to decisively contribute to accounting for the bodily functions of living beings. For this reason, Avicenna refers to medicine several times in his exposition on the soul. This paper approaches the disciplinary entanglement between natural philosophy and medicine in psychology by focusing on the medical concept of *pneuma* (*rūh*), which prominently features in the exposition of three main issues in psychology, i.e., body ensoulment, powers differentiation, and emotions.

Keywords: Avicenna; Galen; Aristotle; soul; body; pneuma; temperament.

1. Introduction

The *Kitāb al-Nafs* (*Liber de Anima seu Sextus de naturalibus* in Latin, *Book of the Soul* in English, henceforth *Nafs*) offers Avicenna's most exhaustive account of the soul. The soul (Ar. *nafs*, Lat. *anima*) is the immaterial principle of sublunary life which, together with the body, constitutes the organic, living composite, be it a plant or an animal (either non-human or human).¹ This account

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1 AVICENNA 1959, *Nafs* I, 1, 5.3-6.1 [16,87-18,10]. All quotations from and the translations

of the soul, however, is not unproblematic. On the one hand, it aims at providing the most general explanation of how the embodied soul is responsible for the activities that sublunary living beings exhibit: the soul is the form (Ar. *ṣūra*, Lat. *forma*) of the organic body, always considered (and known) in connection with it and inseparable (Ar. *ḡayr mufāriqa*, Lat. *non separata*) from it. I labelled this investigation of the soul *psychologia generalis*. On the other hand, however, this account also acknowledges the specificity of the human, rational soul, which, unlike other sublunary souls, enjoys a higher status: by coinciding with the theoretical intellect (Ar. *‘aql* or *‘aql naẓarī*, Lat. *intellectus* or *intellectus contemplativus*), it acts independently of any bodily organ and, consequently, survives the corruption of the body, although the condition of actual separation from it and identification with the theoretical intellect is experienced only in the hereafter (Ar. *ma‘ād*, Lat. *post mortem*).² I labelled this investigation of the human, rational soul *psychologia specialis*.³

Avicenna’s science of the soul (or psychology) thus combines a more general, overall *physical* approach to the immanent principle of all instances of organic life with a specific, *trans-physical* (or *proto-metaphysical*) orientation towards the human, rational soul as a separable entity. Consequently, though placed within the boundaries of natural philosophy, the science of the soul stands at the intersection between physics and metaphysics, making it hard to compartmentalize psychology into a single branch of theoretical

of Avicenna’s *Kitāb al-Nafs* are based on AVICENNA 1959. The quotation from Avicenna’s *Nafs* is usually followed by the reference to the page and the line number of the corresponding passage in the Latin translation in square brackets. See AVICENNA 1968 and AVICENNA 1972. All quotations from and the translations of Avicenna’s *Kitāb al-Qānūn fī l-ṭibb* are based on AVICENNA 1981–1996. All quotations from and the translations of Avicenna’s *Maqāla fī l-adwiya al-qalbiyya* are based on AVICENNA 1984.

2 See AVICENNA 1959, *Nafs* V, 5, 238,1–9 [132,14–23]. See also AVICENNA 1959, *Nafs* I, 1, 11,1–3 [27,32–4].

3 See ALPINA 2021, esp. 58–95.

philosophy (e.g. natural philosophy or metaphysics).⁴ Though acknowledging its amphibious status between physics and metaphysics is crucial to correctly frame Avicenna's science of the soul, this aspect does not exhaust all its essential features. Within the above-mentioned general approach to the soul (*psychologia generalis*), another crucial disciplinary entanglement is detectable, namely that between natural philosophy and medicine. Avicenna was not only a renowned philosopher, but also a prominent physician, who read Greek medical texts translated into Arabic, and considered Galen as the chief authority in this field. Consequently, it is no surprise that, in explaining the biological processes for which the soul is responsible, Avicenna is also interested in tackling their physiological counterpart, which in turn can explain their pathological conditions (e.g. malfunction, impairment, etc.). In fact, this is what direct observation, on which medical practice is grounded, suggests to him.

To this end, in his psychology, he extensively makes use of the medical concept of *pneuma* (or *spirit*, Ar. *rūḥ*, Lat. *spiritus*), both in his account of (external and internal) perception (and related topics), and in his more general exposition on the instruments (or organs, Ar. *āla*, Lat. *instrumentum*) of the soul. By both relying on Galenic teachings (for instances, his exposition in *Quod animi mores corporis temperamenta sequantur* and *De placitis Hippocratis et*

4 As I have shown in the second chapter of my book (see *supra* n. 3), the epistemological status of the science of the soul troubled all the exegetes of Aristotle's *De anima*, where a comprehensive investigation of the soul as the principle of sublunary life is carried out for the first time. Concerning the place of psychology within the theoretical sciences, it is worth mentioning the position held by al-Kindī. In his *Treatise on the Quantity of Aristotle's Books and What is Required for the Attainment of Philosophy* (*Risāla fī kammiyya kutub Aristātālīs wa-mā yuḥtāḡu ilayhi fī taḥṣīl al-falsafa*), al-Kindī assigns to psychology a middle rank between natural philosophy and metaphysics, similar to that of mathematics, because its subject has no need for nature, subsists in itself, and does not require bodies, even though it exists together with bodies to which it is connected in some way. See AL-KINDĪ 1940, 364,15–365,1.

Platonis, both available in some form in Arabic)⁵ and adjusting them to his own claims, Avicenna identifies in the pneuma that originates in the heart at the moment of conception the vehicle of the soul and its powers: it is the first anchor of the soul to the body, and helps to understand how the soul concretely performs those activities which require a bodily organ (that is, all but intellection).

Being a body in every respect, pneuma results from the interactions between four homogenous components, i.e., the four humours (blood, phlegm, yellow bile, black bile), which in turn derive from food digestion. Avicenna even adds that pneuma comes from the quintessence of humours, because it is a *sui generis* body, bordering on incorporeality.⁶ Like other bodies or body parts, pneuma exhibits a *temperament* (or *complexion*, Ar. *mizāğ*, Lat. *complexio*) or a temperamental form (Ar. *şūra mizāğiyya*, Lat. *forma complexionalis*), that is, a uniform quality that makes it suitable to receive its specific form, i.e., the soul and, consequently, its powers and their objects. In fact, pneuma guarantees the soul a first, unitary attachment to the body through the heart, and then transfers the powers from it to their primary location (e.g., the brain for perception and locomotion, the liver for nutrition, testicles for reproduction) and, from there, eventually to the organ on which the exercise of a specific activity depends (e.g., the crystalline lens and the optic nerve in the case of sight). In addition to that, pneuma also transports the objects perceived by the powers it carries, and transmits them to other powers (e.g., the forms perceived by the five external senses to the internal senses located in the cavities – or ventricles – of the brain). This physiological aspect of Avicenna's theory of the soul entails that any alteration of the physical char-

5 See GAROFALO 2011.

6 See AVICENNA 1959, *Nafs* V, 8, 263,13–15 [175,56–58] (see *infra* n. 15); AVICENNA 1981–1996, *Qānūn* I, I, vi, 4, 126,22–24; and AVICENNA 1984, *Adwiya qalbiyya* 1, 222,5–10.

acteristics of the pneuma or any impairment of its movements results in the alteration or impairment of the relevant soul powers as well as the altered reception (or transfer) of their objects. The same holds true for the impairment or corruption of the specific organs of those powers. Finally, the pneuma in the heart is the regulator of animal heat and, most importantly, the seat of emotions. Its temperament accounts for the individual's disposition towards some emotions and not others, and a change in its temperament can result in the corruption of a previous disposition towards some emotion, and the subsequent emergence of a new disposition towards another.

Although pneuma is a medical concept, the fact that its investigation falls within the prerogative of the natural philosopher who inquires into the soul, is attested by the several references to this concept in the *Nafs*, whose last chapter, i.e., V, 8, is specifically devoted to its examination. Furthermore, at the beginning of the *Kitāb al-Qānūn fī l-ṭibb* (*Liber canonis* in Latin, *Canon of Medicine* in English, henceforth *Qānūn*), a five-book manual of Galenic medicine, Avicenna explicitly recommends that the natural philosopher, not the physician, inquires into the nature and features of the pneuma. Being one of the theoretical principles of medicine along with elements, primary qualities, humours, and soul powers, the existence of pneuma as well as that of the other principles, must be assumed from, not investigated by, the physician, who, of course, must know its quiddity, what that is. Their investigation pertains to the natural philosopher. All this has to do with Avicenna's idea of science subordination, which ultimately derives from Aristotle's *Posterior Analytics*: natural philosophy provides medicine with its theoretical underpinnings because medicine is a practical discipline (or art, Ar. *ṣinā'a*, Lat. *ars*) subordinate to natural philosophy.⁷

⁷ AVICENNA 1981–1996, *Qānūn* I, 1, i, 2, 36,10–14: “The things whose quiddity [*bi-l-māhiyya*] the physician has to conceive, whereas he has to assume that they are, though their ex-

The interplay between natural philosophy and medicine on the epistemological level is crucial to explain the mutual influence of body and soul on the ontological level, and, in particular, how the former (notably in the case of the *pneuma*, which has an intermediate status between body and soul) bears on the physiological and pathological states of the powers (and activities) of the latter. The importance of this interplay in shaping Avicenna's science of the soul still awaits to be fully brought to the fore in the scholarship. In the effort to fill this gap, this paper will examine the three contexts of his philosophical psychology in which Avicenna makes use of *pneuma*, that is, 1) body ensoulment; 2) powers differentiation; 3) emotions. This examination aims to show that, according to Avicenna, not only the soul accounts for the activities observable in bodies, as he announced at the beginning of the work in line with Aristotle's position, but also the body plays an essential, active role in favoring (or hindering) the activities of the soul, thus making some concessions to Galen's understanding of the body-soul relationship.

2. Focusing on the Soul Without Forgetting the Body

As Avicenna makes it clear at the outset of his investigation, psychology deals primarily with the soul, that is, the constituent of the composite living substance in virtue of which it is what it is in actuality, whose investigation

istence is not evident, are the following: elements, whether they are and how many they are; the temperaments, whether they are and how many they are; likewise, humors, whether they are, how many they are and how they are; powers [*al-quwà*], whether they are, how many they are, and where they are; pneumata [or spirits, *al-arwāh*], whether they are, how many they are, where they are; and if the state of each [of them] changes or remains stable due to some cause, and, if there are [many] causes, how many they are." More on the subordination of medicine to natural philosophy, and the role of zoology in this subordination in ALPINA FORTHCOMING(1) and the bibliography quoted therein.

has priority over that of the body, that is, the other constituent of the composite living substance in virtue of which it is what it is in potentiality. The investigation of this latter pertains to other disciplines (in all likelihood, to botany and zoology) and is possibly conducted with a different method, as is stated in the prologue to the *Nafs*.⁸

However, the fact that the soul performs most of the activities in and with the help of the body leads psychology to take also the body into consideration as the receptacle and instrument of the soul. The inclusion of physiological aspects in the account of soul powers is a clue to Avicenna's combination of both a top-down and a bottom-up approach to this subject. For, if the soul has always remained above and beyond the physician's purview, the soul powers and their activities (except for intellection) are a topic to which both the philosophical and the medical perspective can contribute. An indication of this fact is detectable once again in Avicenna's list of philosophical principles at the beginning of the *Qānūn* as well as in his references to medicine in the *Nafs*.⁹ In particular, in the *Qānūn*, Avicenna refers exclus-

8 AVICENNA 1959, *Nafs*, prologue, 2,18–3,8 [12,44–13,56]. See ALPINA FORTHCOMING(1) and ALPINA 2022(2).

9 The explicit references to medicine in the *Nafs* are the following: 1) AVICENNA 1959, *Nafs* II, 4, 76,20 [146,21], where Avicenna refers to the explanation provided in medical books (Ar.: “wa-‘alā hādā l-qiyās mā qad šuriḥa fī l-kutub al-ṭibbiyya,” Lat.: “Similiter est in aliis quae exposita sunt in libris physicis”) concerning the fact that flavours result from different ratios between elementary qualities. Here Avicenna might be referring to the extensive discussion about the classification of flavors in *Qānūn* II, i, 3 (it is worth mentioning that in *Qānūn* III, vi, I, 2, the list of flavours occurs in connection with the exposition of the diseases of the tongue and how they can alter their perception); 2) AVICENNA 1959, *Nafs* III, 8, 156,14–15 [275,60], where Avicenna detects one of the causes for seeing one thing as two in a disordered movement of the visual pneuma in the eye. This case is said to be similar to vertigo: one of its causes is the movement of the pneuma in the concavity of the brain as has been discussed in medical books (Ar.: “min al-asbāb al-maktūba fī kutub al-ṭibb,” Lat.: “[...] aliqua causarum quae scriptae sunt in libris Physicae”). There reference might be therefore to the exposition of the causes of vertigo in *Qānūn* III, i, i, v, 1 (a reference to the movement of the pneuma in the brain as a cause for vertigo is also found in *Nafs* IV, 1); 3) AVICENNA 1959, *Nafs* IV, 4, 201,13 [67,70], where Avicenna connects the temperament of the cardiac pneuma with the

ively to powers (Ar. *quwà*, Lat. *virtutes*), not soul (Ar. *nafs*, Lat. *anima*) because the physician may detect the malfunctioning of a certain organ (or body part) usually associated with a specific power when the latter cannot perform its usual activity, regardless of whether a single essence called *soul* exists or not.¹⁰ Avicenna shares this view with Galen.¹¹

As said, in what follows, I will focus primarily on Avicenna's account of a peculiar body, that is, pneuma and, in particular, on how this medical concept is used to tackle (and solve) three fundamental issues at the core of his psychology, that is, body ensoulment, powers differentiation, and emotions. On a more general level, Avicenna's account of the pneuma as a *sui generis* body at the end of the *Nafs* serves also to mark the transition from the inquiry into the soul to that into the body, which will be carried out in the *Hayawān* (more on this work in the following section). As I have shown elsewhere, this investigation is complementary to that of the soul, and is a clue to the global project Avicenna envisages for the *Šifā'-Qānūn* ensemble.

cause of individual dispositions towards different emotions, that are the accidents of the two branches of the desiderative power, as it is explained in medical books (Ar.: "fī kutubīnā l-tibbiyya," Lat.: "in nostris libris physicis"). As I have shown elsewhere (see *infra* n. 34), here Avicenna might be referring to his own tract *Maqāla fī l-adwiya al-qalbiyya* (*On Cardiac Remedies*). Moreover, there is also a more generic reference to anatomy in AVICENNA 1959, *Nafs* III, 8, 151,18–19 [268,44], where Avicenna explains why our eyes see only one image and not two; it is because vision occurs at the intersection of the two optic nerves. Avicenna then explicitly defers the discussion of their nature to the anatomical investigation (Ar.: "hīna natakal lamu fī l-tašrīh," Lat.: "cum loquemur de chirurgia"). In all likelihood, the reference is to *Qānūn* III, iii, I, 1, where Avicenna deals with the physiology of the eye.

¹⁰ See AVICENNA 1981–1996, *Qānūn* I, 1, vi, 1, 123,7–11: "However, the physician insofar as he is a physician should not explore the truth of these two matters [*sc.* those concerning the heart and the brain]. This is incumbent upon the philosopher or, to be precise, the natural philosopher. When the physician is made to admit that these aforementioned organs are some sort of principles [*mabādi' mā*] for these powers, then [ascertaining] whether these [powers] are acquired from a principle prior to them [*sc.* the soul] or not, is not incumbent upon him while engaging with medicine. Rather, he should disregard those issues that the philosopher should, however, not overlook." See also the passage quoted *supra* n. 7.

¹¹ See VAN DER EIJK 2020, esp. 74.

2.1 *Body Ensoulment: All You Need is One Single Attachment*

Avicenna's most exhaustive account of pneuma is contained in *Nafs V*, 8, which is devoted to the body instruments of the soul and, notably, to the pneuma as its primary vehicle.

Grafting the exposition of a medical concept such as pneuma onto a philosophical framework grounded on Aristotelian natural philosophy is not a straightforward operation.¹² For, on the one hand, Avicenna *qua* physician cannot overlook the advancement of medical science on anatomy and physiology. On the other hand, however, he cannot uphold medical positions that might undermine philosophical tenets, which are in principle non-negotiable. In this specific context, Avicenna has to secure the soul's oneness, one of the main conclusions of his philosophical psychology (ultimately proved in *Nafs V*, 7),¹³ against an anatomical model that does not comply with this unitary principle. In particular, Galen and his followers claimed that there are multiple chief organs in the body (brain, heart, liver), all on equal footing, with three different pneumata (psychic, vital, natural) and three sets of powers (perception and locomotion; animation, pulsation, respiration, and emotions; nutrition, respectively), a position that might lead to a partition of the soul, which would be divided according to these three main bodily substrata.

Despite considering Galen as his main medical authority, Avicenna has to uphold a position which reconciles both medicine and philosophy.¹⁴ For

¹² It is worth mentioning that Aristotle himself makes use of the concept of pneuma. See, for instance, *De generatione animalium* II, 3. On the concept of pneuma in Aristotle, see FREUDENTHAL 1995.

¹³ On *Nafs V*, 7, see RASHED 2018.

¹⁴ AVICENNA 1959, *Nafs V*, 8, 262,19–263,8 [174,37–175,48]: “It is appropriate that now we deal with the instruments belonging to the soul. We say: concerning the matter of the organs to which the chief powers of the soul are attached, people have much exaggerated on both sides in stubbornness, and leaned towards great arbitrariness and vehe-

this reason, while taking the Galenic notion of pneuma as an intermediary entity between body and soul, following Aristotle's teachings, he grants primacy to the heart over all other organs, thus upholding a cardiocentric anatomical model. As a consequence, at the time of body ensoulment, the soul attaches to the body firstly through one single organ, that is, the heart (and the cardiac pneuma in it), which thus guarantees the soul's unity, and only after that first attachment it flows into the rest of the body:

Firstly, we say: the primary vehicle of the body powers of the soul is a subtle body, which passes through the outlets, spiritual, and this body is the pneuma [Ar. *rūh*, Lat. *spiritus*].

[...] If the soul is one, it is then necessary that it has a first attachment to the body, from which it governs and nurtures it, that this [first attachment] is by the mediation of this pneuma, and the first thing that the soul enacts is enacting the organ through whose mediation its [*sc.* of the soul] powers are emitted to the rest of the organs through the mediation of this pneuma, and that this organ is the first to be formed among the organs, and the first source for the generation of the pneuma, this being the heart [Ar. *al-qalb*, Lat. *cor*]. This is indicated by what accurate dissection has verified. We shall supply an explanation of what is meant [by that] in the section on animals [see *Ḥayawān* XIII, 3]. It is, therefore, necessary that the first attachment of the soul is to the heart.¹⁵

By referring to the cardiac pneuma as the primary vehicle of the soul powers, which thus guarantees the unity of the soul, in *Nafs* V, 8, Avicenna explicitly connects this investigation with that of the organic body in the *Kitāb al-Ḥayawān* (*Liber de animalibus* in Latin, *Book of Animals* in English, henceforth *Ḥay-*

ment partisan spirit, to which inclined each one of the two parties, departing thereby from the truth. The one among them who made the soul one in essence and nonetheless affirmed that the chief organs are many, committed the biggest mistake. For, when he opposed the philosophers on this [issue], upholding that there are many parts of the soul, but agreed with those upholding the soul's oneness, he did not realize that it necessarily follows from that that the chief organ to which the soul is firstly attached is made one. As for those multiplying the parts of the soul, it is not against them [*sc.* in contradiction with their view] to ascribe to each part of it a specific source and a single centre." For a thorough analysis of this text and its context, see ALPINA 2022(1).

15 AVICENNA 1959, *Nafs*, V, 8, 263,9–10; 263,20–264,6 [175,49–51; 176,64–72].

awān). Moreover, in this context, Avicenna also speaks of the material constituents of pneuma: like the whole body and its parts, pneuma is made of humors, and must exhibit a temperament suitable for life, that is, for carrying the soul and its powers.¹⁶ This aspect is particularly relevant for the other function Avicenna assigns to the pneuma, that is, powers differentiation. Since the pneuma is the vehicle of the soul powers that perform their activities through a bodily organ, its temperament cannot remain always the same. Rather, it must undergo some qualitative change when the pneuma reaches the bodily seat of a specific soul power; otherwise, this latter cannot turn into first actuality (in the Aristotelian fashion, the second actuality, that is, the exercise of a capacity, coincides with the reception of its proper object).¹⁷ The temperament of pneuma has to exhibit the appropriate disposition (*isti‘dād*) to receive a certain power, but not another. In this respect, the temperament of the pneuma can be considered as the principle of individuation of the different powers of the soul in the very same way in which the whole body is the principle of individuation of the soul, which in itself is only one in notion:

Its temperament [*sc.* the temperament of the pneuma] also undergoes changes in virtue of the difference which must occur to it in order for it to become capable of carrying different powers. The temperament with which the pneuma is angry [*sc.* carries the irascible power] is not suitable for the temperament with which it desires and senses [*sc.* carries the desiderative and the sensing power]; nor the temperament that is suitable for the visual pneuma [*sc.* the pneuma that carries the power of sight] is in itself [the same temperament] that is suitable for the moving pneuma [*sc.* the pneuma that carries the power of locomotion]. If the temperament were one, the [soul] powers settled in the pneuma and their activities would be one.¹⁸

16 AVICENNA 1959, *Nafs V*, 8, 263,13–15 [175,56–58]: “The relation of this body [*sc.* of pneuma] to the subtlety of humors and their vaporous nature is [like] the relation of the organs to the density of humors, and it has a specific temperament.”

17 This idea has been already put forward by FANCY 2021, esp. 209.

18 AVICENNA 1959, *Nafs V*, 8, 263,15–19 [175,58–176,63].

As it will become evident shortly, the role of pneuma as vehicle of the soul powers and their differentiation bears on the functioning of those powers: any pathological alteration in physical (or chemical) composition of the pneuma which carries a specific power results in an alteration or even impairment of its specific activity. Conversely, the preservation of the pneuma in its healthy state (or its restoration through medical practice) entails the recovery of the correct functioning of that power.

2.2 Powers Differentiation: Changing to Stay the Same

After devoting *Nafs* III, 1-7 to the presentation and refutation of the predecessors' opinions about vision, and the exposition of his own account of visual perception, in *Nafs* III, 8, Avicenna attempts to determine the causes for seeing one thing as two. As we shall see, these causes might be related to the visual pneuma, that is, the pneuma which is responsible for carrying not only the visual power but also its object, that is, an apparition (*šabaḥ*) of the external visible object. However, before embarking in this discussion, Avicenna provides what he believes are the fundamental (philosophical) principles (*uṣūl*, literally *roots*) for his subsequent discussion. These principles are nothing but the most comprehensive exposition about pneuma as the continuous bodily vehicle of the soul's perceptive power I am aware of, which is thus worth quoting (almost) in full:

Just as from the external form in estimation there stretches a cone which becomes thin until its angle drops behind the surface of the crystalline [humor], likewise the apparition [Ar. *šabaḥ*, Lat. *simulacrum*] [of the visible thing] on the crystalline [humor] is conveyed through the mediation of the pneuma in the two [optical] nerves, which conveys [it] to their intersection in the shape of a cone. Then, the two cones meet and intersect there. From them one single form related to the apparition [Ar. *šūra šabaḥiyya*, Lat. *forma similitudinaria*] [of the visible thing] is combined in the part of the pneuma that bears the seeing power.

Behind that, there is another [part of the] pneuma conveying the [form of the] object of sight, which does not perceive [that form] another time [...]. This conveying [pneuma] is of the substance of what sees, and penetrates into the pneuma poured into the frontal space of the brain. The visual form is then impressed another time in that pneuma bearing the power of the common sense. The common sense thus receives that form, and that is the perfection of sight. The seeing power is different from common sense, even though it flows from it, and common sense directs it because the power that sees does not hear, smell, touch, or taste. On the contrary, the common sensing power sees, hears, smells, touches, and tastes, as you will learn [*sc. Nafs IV, 1*]. Then, the power, which is the common sense, conveys the form to the part of the pneuma which is connected with the part of the pneuma carrying it [*sc. the power, that is, common sense*]. Then, that form is imprinted on it, and there the common sense stores it in the form-bearing power, which is imagery, as you will learn [*sc. Nafs IV, 2*]. This power [*sc. imagery*] then receives that form and retains it. The common sense receives the form, but does not retain it, whereas the power of imagery retains [that form] after receiving it. The cause for that is that the pneuma in which there is the common sense holds in itself the form taken from outside, which is imprinted, only as long as the perceived relation between it and the visible thing [of which it is the form] is retained or has been acquired recently. So, when the visible thing disappears, the form is wiped out from it [*sc. common sense*], and does not remain stable for any significant period of time. On the contrary, the form remains in the pneuma in which there is imagery, even after a long time, as it will become evident for you shortly [*sc. Nafs IV, 2*]. When the form is in the common sense, it is in reality sensed in it [...].

Then, that form which is in imagery penetrates into the rear cavity [of the brain], when the estimative power wishes, and thus opens the vermiform substance by removing what is between the two body parts called the two lobes of the vermiform substance. Thus, the form is connected with the pneuma carrying the estimative power through the mediation of the pneuma which carries the imaginative power, which in human beings is called cogitative [power]. The form which is in imagery is therefore imprinted in the pneuma of the estimative power. The imaginative power, which serves the estimative power, brings to the latter what is in imagery, except that the form does not remain in actuality in the estimative power, but rather [it is there] as long as the way is open, and the two pneumata come together, and the two powers face each other. [...] These are fundamental principles [Ar. *uṣūl*, Lat. *fundamenta*] with which you must be accustomed.¹⁹

Combining Aristotle with Galen, Avicenna distinguishes the heart as the first attachment of the soul and the primary seat for emotions (as we shall see in § 2.3) from the brain as the primary seat for the set of powers physicians refer

¹⁹ AVICENNA 1959, *Nafs III*, 8, 151,19–154,2; 154,11 [268,45–271,87; 272,00].

to as *nafsāniyya* (Lat. *animales*, i.e., *animal* or *psychic*, that is, proper to the soul, where *soul* is used in a restricted sense).²⁰ These powers are the perceptive and motive powers observable in non-human and human animals, which perform their specific activities in the suitable bodily organs (e.g. the eye, the hear, tendons and muscles, etc.). In the quoted passage, Avicenna focuses specifically on the power of sight, which is the topic of the third treatise of the *Nafs*, and describes how this power (and its object) is connected with the higher perceptive powers located in the cerebral cavities (or ventricles), which are Avicenna's well-known internal senses. The continuity between all perceptive powers – with the exclusion of the intellect, which does not act by means of a bodily organ – is guaranteed by the pneuma, a unitary, continuous bodily vehicle of powers (and their contents), which changes the qualities of its temperament to actualize different powers in different bodily organs as a result of its physical displacement throughout the body.²¹ The qualitative

20 On Avicenna's terminological shift concerning the names of soul powers between the medical and the philosophical context, see ALPINA 2020.

21 See AVICENNA 1959, *Nafs* V, 8, 263,15–19 [175,58–176,63] quoted above. See also AVICENNA 1984, *Adwīya qalbiyya* 1, 222,18–223,16: “Just as the generated organs are many in number, whereas the first organ to be generated is one in number, while the generation of the rest of the organs depends on its generation in accordance with the different opinions concerning that one <which is generated first>, likewise the pneumata in us are many in number, whereas the pneuma that is the first among the generated pneumata – according to the opinion of the most eminent philosopher [*sc.* Aristotle] – is one and is generated in the heart. Then, it spreads, flows, and penetrates in the rest of the chief organs. Thus, when it is established in each of them, there it acquires a specific temperament. The brain acquires the temperament through which it is prepared to receive the powers of sensation and locomotion. The liver acquires the temperament through which it is prepared to receive the powers of nutrition and growth. Testicles acquire the temperament through which they are prepared to receive the powers of reproduction. That being said, the principles of <all> these powers are – according to this philosopher [*sc.* Aristotle] – in the heart, just as the principles of the power of sight, of hearing, of taste, etc. are – according to his opponents [*sc.* physicians and some philosophers like the Platonists] – in the brain, but – according to them – the pneuma is only prepared to receive these powers by essence and perfection in another organ: as for sight, by means of the temperament of crystalline moistness when it blends with the temperament of the pneuma; as for hearing, by means of the temperament of the nerve spread on the surface of the auditory meatus; as for taste, by means of the temperament of the moistness

change of pneuma, however, entails only the first actualization of powers. Following Aristotle's teaching in the *De anima*, the second actualization of powers occurs when they receive their specific object and actually perceive it (or perform their activity on it). The specificity of these objects depends on the different degrees of abstraction from their material attributes they enjoy, starting from the abstraction performed by the five external senses up to the intellect.²² The fact that the pneuma is the continuous material vehicle and substratum of soul powers allows us also to understand how the very same perceptible object can move from a perceptive power to another and consequently undergo qualitatively different processes of abstraction. This approach succeeds in keeping together the distinction between objects and powers with the existence of a continuous material vehicle, i.e., the pneuma, which qualitatively changes while staying the same in substance. As Avicenna himself states in *Nafs V*, 8, medical experience provides further evidence of that:

Moreover, [we say:] if the powers of the soul, which are attached to the body, did not pass through carried in a body, the congestion of the [bodily] passageways would not obstruct the penetration of the locomotive, and sensitive, and also imaginative powers [into the body]. However, it [sc. the congestion of the passageways] causes an obstruction evident to those who have undertaken medical experiments [Ar. *'inda man ġarraba l-taġārib l-tibbiyya*, Lat. *secundum eum qui cognovit experimenta physica*].²³

that the soft flesh under the tongue produces." See also AVICENNA 1981–1996, *Qānūn I*, 1, vi, 4, 127,13–18: "When a portion of pneuma arrives at the cavity of the brain, it receives a temperament appropriate to derive from it and by means of it the activities of the power existing in it like a body. The same happens in the liver and the testicles. According to physicians, as long as the pneuma that is in the brain does not change into another temperament, it is not prepared to receive the soul, that is, the principle of sensation and motion. The same happens in the liver, even though the first mingling helped the reception of the first vital power."

²² See AVICENNA 1959, *Nafs II*, 2.

²³ AVICENNA 1959, *Nafs V*, 8, 263,10–13 [175,51–55].

The same point, expressed in a more detailed manner, is made in the *Qānūn*.²⁴

What is more, in *Nafs* III, 8, after introducing the so-called fundamental principles of the exposition of the causes for seeing one thing as two, Avicenna singles out in the pathological conditions of pneuma the possible causes for the malfunctioning of sight:

The second cause [*sc.* for seeing one thing as two] is the movement of the seeing pneuma and its undulation on the right and the left so that the perceptive part [of the pneuma] precedes its center, which is assigned to it by nature, leading towards the direction of the two crystalline humors in an undulatory and disarrayed manner. Then the apparition and the imagining are impressed in it before the intersection of the two cones. Thus, one sees two apparitions. This is similar to the apparition impressed by the Sun once in stagnant and still water and that impressed by it in undulatory water repeatedly. [...]

The third cause comes from the disarrayed movement, forward and backward, of the internal pneuma which is behind the intersection [of the two seeing nerves] so that there the pneuma has two movements in two opposite directions, that is, a movement towards the common sense, and a movement towards the intersection of the two nerves, so that the form of a sensible thing is conveyed to it another time before what the pneuma conveys to the common sense is wiped out. It is as if, just as the pneuma conveys the form to the common sense, a part of it returns to receive what the seeing power conveys to it. That happens due to the speed of the movement.²⁵

2.3 Potentiality vs Disposition: Don't Get Emotional

Avicenna's exposition on emotions in *Nafs* IV, 4 is probably the context in which the reference to pneuma is conspicuous by its absence. There, after

24 AVICENNA 1981–1996, *Qānūn* I, 1, vi, 4, 126,27–127,1: “The psychic [*nafsāniyya*] powers do not come into being in the pneuma and in the body parts, except after the coming into being of this power [*sc.* the vital power]. Even if a body part is deprived of the psychic [*nafsāniyya*] powers, but it is not deprived of this power [*sc.* the vital power], it [remains] alive. Have you ever seen that the paralyzed limb or the semiparalysed limb, when it is immediately deprived of sensation and motion because of a temperament which impedes that [that limb] receives them [*sc.* the locomotive powers], or because of an obstruction which occurs between the brain and that limb in the sinews projecting towards it, is nonetheless alive? On the contrary, the limb to which death occurs loses sensation and motion, and there occurs to it to decay and corrupt.”

25 AVICENNA 1959, *Nafs* III, 8, 155,1–15 [273,15–274,35].

saying that emotions are affections of the two branches of the desiderative power of the soul, that is, of the irascible and the concupiscible power, as a consequence of a perceptive act, Avicenna adds the following remark:

We now say: these activities and accidents [*sc.* fear, sadness, sorrow, and the like] are among the accidents that occur to the soul while it is in the body, and do not occur without the participation of the body. For this reason, together with them the temperaments of bodies change. They also come about together with the temperaments of bodies coming about. For the disposition to anger follows some temperaments, the disposition to appetite follows some other temperaments, and [the disposition to] cowardice and fear follow some other temperaments.²⁶

In this short passage, Avicenna mentions emotions among the activities and accidents which belong to the soul because it exists in a body, thus affecting both components of the animate, composite substance. He immediately goes on to explain why this is so. First, their occurrence in the soul affects the body temperament, which undergoes some change. As we shall see, this is the standard Aristotelian account of emotions, which also involve a body alteration, thus proving that soul is not separated from the body.²⁷ Second, in a less Aristotelian but more Galenic fashion, the occurrence of emotions is determined by the body temperament, which is disposed towards some emotion and not another.²⁸

Despite this twofold explanation for the involvement of soul and body in the occurrence of emotions, Avicenna seems to focus only on the first one. After suggesting a threefold classification of the states occurring in the body-soul composite,²⁹ Avicenna maintains that emotions are states belonging

26 AVICENNA 1959, *Nafs* IV, 4, 197,3–8 [59,49–60,55].

27 See *De anima* I, 1.

28 See, for instance Galen's *Quod animi mores corporis temperamenta sequantur*. On Avicenna's view on emotions, see ALPINA FORTHCOMING(2).

29 AVICENNA 1959, *Nafs* IV, 4, 197,10–13 [60,58–62]: "These states come to be only due to the

primarily to the soul, whose occurrence may derivatively cause some affection in the body, thus complying with the Aristotelian account:

Fear, anger, and sadness generate an affection occurring primarily to the soul. Anger or sadness insofar as it is anger or sadness is not an affection which causes pain to the body, even though it is followed by a corporeal affection which causes pain to the body, like the ignition of heat or its remission, and the like. That is not anger or sadness itself, but something following anger or sadness. We ourselves do not deny that the most appropriate thing for it is [to say] that it belongs to the soul insofar as it is in a body, then it [*sc.* this affection] is followed in the body by affections proper to the body.³⁰

The body seems thus to be affected and altered by some emotion, which is a state occurring primarily in the soul, without being capable of determining (or concurring to determine) its occurrence, contrary to what Avicenna seems to have suggested in the first passage quoted above. Shortly afterwards, he makes this point clearer:

In short, we say: the soul is such that from all that there comes to be in the bodily element a transformation of the temperament without there coming to be a corporeal activity or affection. Thus, heat comes to be not from something hot, nor coldness from something cold. Rather, when the soul imagines an imaginative content, which becomes strong in the soul, it does not take long before the corporeal element receives a form connected with it or a quality. This happens because the soul shares the same substance of some principles clothing the matters [...].³¹

The discourse about the capacity of the states of the soul to alter the body flows into a longer discussion about the soul's capacity to affect the body at

participation of the body. The states which belong to the soul due to the participation of the body fall under different classes: [(i)] those [states] belonging primarily to the body, but because it [*sc.* the body] has a soul; [(ii)] those belonging primarily to the soul, but because it [*sc.* the soul] is in the body; [(iii)] those equally distributed between the two [*sc.* body and soul]."

30 AVICENNA 1959, *Nafs* IV, 4, 198,8–14 [61,80–62,88].

31 AVICENNA 1959, *Nafs* IV, 4, 199,1–6 [62,97–4].

distance, which is, in turn, part of the exposition of the 'operative' type of prophecy connected with the locomotive powers of the soul. However, at the very end of *Nafs IV, 4*, Avicenna refers the reader to his not further specified medical books to understand the cause of the individual dispositions towards some emotion and not another:

We have already dealt in our medical books [Ar. *fī kutubinā l-tibbiyya*, Lat. *in nostris libris physicis*] with the cause of the dispositions of individuals, who differ in their temper and according to the difference of their states, towards happiness, sadness, anger, forbearance, rancor, blamelessness, etc., in a way that is not found in the predecessors in similar detail and [degree of] validation. So, let it be read there.³²

As it stands, this passage does not allow us to connect it with the issue of the role of body temperament in determining individual dispositions towards emotions, let alone the role of pneuma in this context, although here Avicenna does refer to individual temper (Ar. *gibilla*, Lat. *natura*). However, if the reconstruction I proposed elsewhere is correct,³³ the writing Avicenna is alluding to here is his *Maqāla fī l-adwiya al-qalbiyya* (*De viribus cordis* or *De medicinis cordialibus* in Latin, *On Cardiac Remedies* in English, henceforth *Adwiya qalbiyya*), a *sui generis* medical treatise which combines medicine with philosophy. This treatise deals with the question of how one can act upon the temperament of the cardiac pneuma of human beings – which, among other things, is the bodily seat of the emotions – in order to strengthen or weaken its disposition towards a particular emotion. It is, therefore, particularly relevant to the topic Avicenna is discussing in *Nafs IV, 4*, especially for the philosophical distinction between potentiality (Ar. *quwwa*, Lat. *potentia*) and disposition (Ar. *isti'dād*, Lat. *aptitudo*) it suggests with respect to emotions:

32 AVICENNA 1959, *Nafs IV, 4*, 201,13–16 [67,70–75].

33 See ALPINA 2017.

It seems that philosophers and their followers among physicians agree on the fact that happiness, sadness, fear, and anger are among the affections proper to the pneuma that is in the heart. Every affection becomes strong or weak not due to an agent. In its intensification and weakening, it only follows the intensification and the weakening of the disposition of the substance that receives the affection. Some philosophers have subtly distinguished between potentiality and disposition: potentiality exists for both contraries equally, whereas disposition does not exist for both contraries equally. [...] The fact that the pneuma is potentially happy or sad is different from its being disposed to one of them but not to the other. It seems that the disposition is the perfection of the potentiality in connection with one of the two opposites. From this it is evident that, although the pneuma, inasmuch as it is in potentiality, is able to be both happy and distressed, inasmuch as the very disposition is concerned, it has <the capacity only for> one of them. It is therefore evident that potentiality for both these things necessarily follows it [*sc.* the pneuma] [...], whereas the determined disposition toward one of them does not necessarily follow it and only occurs to it according to a reason and a cause.³⁴

If, at the end of *Nafs* IV, 4, through the reference to his medical books, Avicenna was hinting at the physiological counterpart, provided in the *Adwiya qalbiyya*, of the account of emotions contained in the *Nafs*, the role played by the cardiac pneuma in his account becomes evident. The specific temperament of the cardiac pneuma is capable of turning the pure potentiality towards whatever emotion into a determined disposition towards one emotion to the exclusion of the others. In the *Adwiya qalbiyya*, Avicenna focuses especially on the quantitative and qualitative characteristics of the cardiac pneuma, which determine its disposition to experience a certain affection and the intensity of such an affection.

Moreover, since this treatise has a practical purpose, that is, the medical treatment of ailments of the cardiac pneuma by operating on its tempera-

³⁴ AVICENNA 1984, *Adwiya qalbiyya* 3, 226,10–227,9. This passage is contained in the excerpt of the *Adwiya qalbiyya* which al-Ġūzġānī, Avicenna's disciple and secretary, inserted between the fourth and the fifth treatise of the *Nafs* and which was translated in Latin together with the rest of the work. For the first Latin translation of this passage, see AVICENNA 1968, 191,53–66. On the occasion and vicissitudes of this excerpt, see ALPINA 2017.

ment, in the *Adwiyā qalbiyya*, Avicenna suggests medicaments to change the chemical constitution of the cardiac pneuma in order to alter its natural disposition:

The cause of disposition to pleasure is the fact that the one who is delighted is in his most excellent state concerning quantity and quality [of his pneuma] so that there is neither decrease in its substance nor an unnatural state of what is in it. As for quantity, the pneuma that experiences pleasure must be great in magnitude, so that its power is stronger: for, the increase of substance in quantity entails the increase of power in strength, as became clear in the natural principles. Also, due to its abundance, a great amount of the pneuma remains in the principle [*sc.* the heart], whereas another great amount of it expands, as it happens in happiness and pleasure. [...] As for quality, if its temperament is excellent, its constitution is the most excellent, and its luminosity is very abundant, it is very much similar to the substance of the heaven. These are the causes of the disposition to pleasure and happiness, whereas their contraries are the causes of the disposition to pain and grief.³⁵

3. Conclusion

This paper aimed to bring to the fore the entanglement between natural philosophy and medicine as a crucial element to frame Avicenna's general, overall physical investigation of the soul, which I have labelled *psychologia generalis*. For, besides the combination of natural philosophy and metaphysics, Avicenna's psychology features a close connection between natural philosophy and medicine to account for those powers of the soul which perform their activities by means of a bodily instrument (all but intellection). In accounting for their functioning, Avicenna combines a top-down and a bottom-up approach. On the one hand, he acknowledges the existence of a higher principle, that is, the soul, which is the ultimate subject and the source of those powers (and their activities).

³⁵ AVICENNA 1984, *Adwiyā qalbiyya* 4, 229,4-14. For the first Latin translation of this passage, see AVICENNA 1968, 193,99-194,13.

On the other hand, however, he appeals to medical knowledge to explain the physiological and pathological conditions of these powers (and their activities). In particular, in this paper, Avicenna's use of the medical concept of *pneuma*, which was also known to and used by philosophers, has been scrutinized. The concept of *pneuma* proves to be an essential feature of Avicenna's explanation of three fundamental problems at the core of his philosophical psychology, that is, 1) body ensoulment; 2) powers differentiation; 3) emotions. Avicenna's use of the concept of *pneuma*, however, does not only contribute to understanding the functioning of the whole body-soul compound (and its parts), but also makes it clear that, in Avicenna's model, the body does bear on the soul. This fact has a twofold implication: on the one hand, any pathological condition of the body (or of one of its parts) can directly interfere with and even impair the activities of the soul powers, and, on the other hand, a restoration of the healthy state of the body (or of one of its parts) can directly result in the full recovery of the correct functioning of that power. Acknowledging the active role of the body in Avicenna's philosophical psychology is pivotal to correctly frame his science of the soul, where Galen's medical knowledge is grafted onto Aristotle's philosophical teachings.

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