

DESCARTES'S THREE MEDICINES: PHYSICS, METAPHYSICS, AND THE PASSIONS*

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Abstract

René Descartes's medical studies compose an important section of his entire production. Yet, both their incomplete and fragmentary nature, along with several other problems make medicine a secondary field in Descartes's philosophy, despite the fact he depicted it as a branch of the tree of his philosophy. While historians of philosophy have generally downplayed its importance, several scholars have recently attempted to restore the centrality of medicine in Descartes's philosophical enterprise. Yet, Descartes also provided medicine with a specific use. In this article, I aim to disclose his philosophical uses of medicine, as three medicines surface in Descartes's work. The first is the physiology of vision in *L'Homme*, which Descartes used to confirm the veracity of his physics (ca.1632-1633). The second is the pathology he used to confirm his metaphysics in the *Meditationes de prima philosophia* (1641). The third is the physiology of the composite he used to encompass the understanding of passion in *Les Passions de l'âme* (1649). While Descartes's medical knowledge played a crucial architectural role in his philosophy, a narrowly focused medical enterprise surfaced, ultimately revealing the uses of medicine for the completion of his philosophical project.

Keywords: Descartes, medical philosophy, physiology, metaphysics, mind-body union.

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In 1637, René Descartes portrayed an outstanding role for medicine as one of the sciences of his philosophical programme. In Part 6 of the *Discours de la Méthode*, he writes that his principles of philosophy

opened my eyes to the possibility of gaining knowledge which would be very useful in life, and of discovering a practical philosophy which might replace the speculative philosophy taught in the schools. Through this philosophy we could know the power and action of fire, water, air, the stars, the heavens and all the other bodies in our environment, as distinctly as we know the various crafts of our artisans; and we could use this knowledge – as the artisans use their – for all the purposes for which it is appropriate, and thus make ourselves, as it were, the lords and masters of nature. This is desirable not only for the invention of numerous devices which would facilitate our enjoyment of the fruits of the earth and all the goods we find there, but also, and most importantly, *for the maintenance of health*, which is undoubtedly the chief good and the foundation of all the other goods in this life. For even the mind depends so much on the temperament and disposition of the bodily organs that if it is possible to find some means of making men in general wiser and more skilful than they have been up till now, I believe we must look for it in medicine.

Later he continues claiming that “we might free ourselves from innumerable diseases, both of the body and of the mind, and perhaps even from the infirmity of old age, if we had sufficient knowledge of their causes and of all the remedies that nature has provided”¹.

This very well-known text tells a lot about Descartes’s ambitious programme. And it tells a lot about the role he attributed to medicine, that is, a discipline to restore the health of the body². Moving from knowledge of

1 R. Descartes, *Discours de la Méthode*, VI, AT VI 61-62; CSM I 142-143. [Emphasis added.] I refer to Descartes following Ch. Adam, P. Tannery (eds.), *Œuvres complètes de Descartes*, 11 vols, Vrin, Paris 1964-1974 [hereafter AT followed by the number of the volume]; and the English translation is from J. Cottingham, R. Stoothoff, D. Murdoch (eds.), *The Philosophical Writings of Descartes*, 2 vols, Cambridge University Press, Cambridge 1984-1985 [hereafter CSM followed by the number of the volume]. The English translation of the correspondence is from J. Cottingham, R. Stoothoff, D. Murdoch, A. Kenny (eds.), *The Philosophical Writings of Descartes*, Cambridge University Press, Cambridge 1991 [hereafter CSMK]. The English translation of *Le Monde* and *L’Homme* is from S. Gaukroger (eds.), *René Descartes. The World and Other Writings*, Cambridge University Press, Cambridge 1998 [hereafter G].

2 One should note that, in Descartes’s early *Studium bonae mentis*, he claimed that a practical medicine [*practica*] is one of the liberal sciences, while a theoretical medicine is an experiential science. According to this text, a broad understanding of medicine as divided in theoretical (i.e., anatomy and physiology) and practical medicine (pathology and therapeutics) apparently developed in Descartes’s early

the elements, i.e., the power and action of fire, water, air, and the knowledge of cosmology and the other bodies, Descartes claimed we could know nature, and one of the results of this system of knowledge is the 'maintenance of health'. This is, of course, consistent with the metaphor of his philosophy as a tree and medicine as one of the three branches of such a tree³. Yet, this text tells us something more. As he continued, he clarified that the medicine he intended to develop would 'free [...] from innumerable diseases', but also from the problems of old age. In other words, he aimed at discovering nothing less than how to prolong life⁴. Regrettably, it is difficult to say that this project developed into something more concrete, as there is no trace of Descartes's success in the prolongation of life. In different periods, Descartes suggested to his correspondents he was "looking for a medicine grounded on infallible demonstrations"⁵, as if he could actually develop a medicine as certain as mathematics, and based on the principles of his philosophy, whose ultimate goal is to prolong life and make life better. However, this grandiose project looks like the famous mountain that gives birth to a mouse, as he published neither a medical text, nor a complete (natural) philosophical investigation of living bodies, and there is no trace of the possibility of prolonging life, besides a few vague and inconsistent recommendations he gave to the princess Elisabeth of Bohemia⁶. In 1646, he partially admitted the failures of his medicine⁷.

Historians have generally tried to deal with the shortcomings of Descartes's medicine, while the restricted focus of his investigation should not be underestimated. Just to name a few crucial texts: Annie Bitbol-Hespériès's *Le principe de vie chez Descartes* is a good reference, together

reflections, although he never problematized these features completely. See *Studium bonae mentis*, AT XI 202.

3 See *Lettre-Préface*, AT IX-2 14-15; CSM I 186.

4 On this issue in the early modern period, see L. Tonetti, *L'arte di prolungare la vita. Medici, filosofi e alchimisti alla ricerca della longevità*, Editrice bibliografica, Milano 2022.

5 Descartes to Mersenne, January 1630, AT I 106; Descartes to Huygens, 4 December 1637, AT I 649.

6 Cfr. L. Shapiro (ed.), *The Correspondence between Princess Elisabeth of Bohemia and René Descartes*, The University of Chicago Press, Chicago&London 2007 [hereafter: Shapiro]. Some treatments are collected in a bio-medical manuscript, entitled *Remedia et vires medicamentorum*, see F. Baldassarri, *Seeking Intellectual Evidence in Sciences: The Role of Botany in Descartes' Therapeutics*, in J.A.T. Lancaster and R. Raiswell (eds.), *Evidence in the Age of the New Sciences*, Springer, Cham 2018, pp. 47-75.

7 Descartes to Chanut, 15 June 1646, AT IV 441-442.

with Vincent Aucante's *La philosophie médicale de Descartes*; and, more recently, the works of Franco Meschini, Delphine Antoine-Mahut, and Gideon Manning have shaped the role and importance of medicine in Descartes's philosophy⁸. However, questions and problems remain. One among others concerns the role medicine ultimately played in Descartes's philosophy, as historians have tended to separate Descartes's medicine from his metaphysical or more philosophical enterprises.

While I deal with a few problematic issues in a volume entirely devoted to Cartesian medicine⁹, in this article I aim to focus on the role medicine played in Descartes's philosophy, not just according to the author's claims, but according to the role he assigned to medicine in his writings. For example, while in 1637 he claimed to be able to develop a complete medicine to treat all diseases (of the mind and the body), the medical text

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- 8 An incomplete bibliography on Descartes's medical studies includes: G.A. Lindeboom, *Descartes and Medicine*, Rodopi, Amsterdam 1979; R.B. Carter, *Descartes' Medical Philosophy: The Organic Solution to the Mind-Body Problem*, The Johns Hopkins University Press, Baltimore 1983; A. Bitbol-Hespériès, *Le principe de vie chez Descartes*, Vrin, Paris 1990; F. Trevisani, *Descartes in Germania. La ricezione del cartesianesimo nella Facoltà filosofia e medica di Duisburg (1652-1703)*, FrancoAngeli, Milano 1992; Th. Verbeek (ed.), *Descartes et Regus, Autour de l'explication de l'esprit humain*, Rodopi, Amsterdam 1993; F. Duchesneau, *Le modèle du vivant de Descartes à Leibniz*, Vrin, Paris 1998; F.A. Meschini, *Neurofisiologia cartesiana*, Olschki, Firenze 1998; A. Bitbol-Hespériès, *Cartesian Physiology*, in S. Gaukroger, J. Schuster, and J. Sutton (eds.), *Descartes' Natural Philosophy*, Routledge, New York and London 2000, pp. 349-382; Th. Fuchs, *The Mechanization of the Heart: Harvey&Descartes*, trans. by M. Grene, The University of Rochester Press, Rochester 2001; D. Des Chene, *Spirits&Clocks: Machine and Organism in Descartes*, Cornell University Press, Ithaca 2001; V. Aucante, *La philosophie médicale de Descartes*, PUF, Paris 2006; F.A. Meschini, *Materiali per una storia della medicina cartesiana. Dottrine, testi, contesti e lessico*, Mimesis, Milano 2015; E. Scribano, *Macchine con la mente. Fisiologia e metafisica tra Cartesio e Spinoza*, Carocci, Roma 2015; D. Antoine-Mahut, S. Gaukroger (eds.), *Descartes' Treatise on Man and its Reception*, Springer, Cham 2016; R. Andraut, *La raison des corps. Mécanisme et sciences médicales*, Vrin, Paris 2016; G. Manning, *Descartes and Medicine*, in S. Nadler, T.M. Schmaltz, D. Antoine-Mahut (eds.), *The Oxford Handbook to Descartes and Cartesianism*, Oxford University Press, Oxford 2020, pp. 157-177; G. Belgioioso, V. Carraud (eds.), *Les Passions de l'âme et leur réception philosophique*, Brépols, Turnhout 2020; F. Baldassarri, *Il metodo al tavolo anatomico. Descartes e la medicina*, Aracne, Roma 2021.
- 9 F. Baldassarri, "Introduction: Lights & Shadows in Descartes's Medicine", in F. Baldassarri (ed.), *Descartes and Medicine: A System with Obscurities and Lights, and its Reception*, forthcoming.

he was referring to, today known as *L'Homme*, contains only a physiology of sensation, and no therapeutics at all. Yet, this lacuna cannot be solved by claiming that he concentrated on theoretical medicine, leaving aside any practice and anatomy, for even his physiology appears incomplete. The reason is twofold. On the one hand, he needed more observation to achieve his physiology; on the other hand, there are philosophical issues, as he restricted the focus of the medical sections he included in his writings to a precise philosophical design.

In this article, I discuss this latter point. As I deal with the ways he used medicine in his text, I do not concentrate on the physiological observations collected, for instance, in the Latin bio-medical manuscripts, namely the *Primae Cogitationes circa generationem animalium* and the *Excerpta anatomica*. While he performed dissections, observations, and experiments over the years, he then drew (or deduced) some knowledge from these observations, and used this medical knowledge to buttress or confirm some philosophical issues of his programme. Thus, I leave aside the first aspect, which mostly concerns a reconstruction that falls within a history of science or history of medicine, whereas I aim to focus on the second issue, which reveals a philosophical usage of medicine, giving medicine a more precise role. As Gideon Manning has recently claimed, medicine appears at the core of Descartes's natural philosophical programme, and "can be used to illuminate the character of Descartes's physics (or natural philosophy) [...], metaphysics, unified view of knowledge and method, and his reception, among other prominent topics in Descartes studies"¹⁰. Indeed, Descartes's usages of his medical knowledge clearly reveals such a design.

More precisely, in section 1 of this article I deal with the role he attributed to medicine in *L'Homme*. In section 2, I discuss its role in the *Meditationes de prima philosophia*. In section 3, I concentrate on the role of medicine in its later elaboration, in *La Description du corps humain* and in the treatise on *Les Passions de l'âme*, whose first part includes a physiological reconstruction of human nature, the only physiological text he published during his life. As a result, I highlight three different kinds of medicines in Descartes's works, which help to bridge the gap between his medical observations and his philosophical programme.

10 G. Manning, *Descartes and Medicine*, cit., p. 157.

1. *The First Medicine: Observing the World*

Several problems concern what we today call *L'Homme*, a text posthumously published in 1664 by Claude Clerselier (1614-1684), while a Latin translation of the text was published by Florent Schuyl (1619-1669) in 1662, titled *De Homine*. While Delphine Antoine-Mahut has brilliantly discussed several questions concerning *L'Homme* in her recent volume¹¹, it is important to highlight that both Clerselier and Schuyl took a crucial editorial decision, as they extracted the physiological text from its context¹². Indeed, Descartes had originally conceived it as chapter 18 of the treatise on light, and not as an autonomous text, as scholars and historians have acknowledged since then.

Although it remains difficult to deal with *L'Homme*, as the original manuscript is lost and it is unclear how much the text Clerselier published had been altered (either by Descartes or others)¹³, what is important to note is that its architecture fits its original aim. Indeed, *L'Homme* was not an autonomous text with an autonomous topic. The fuller description of the living functions he was working on in 1632 to complete the treatise on physics is an optimistic programme, despite what he wrote to Mersenne in a November or December 1632 letter¹⁴, or claimed in the summary collected in the final page of *L'Homme*¹⁵. If it is true that the first part of *L'Homme* deals with some living functions and blood circulation, Descartes's attention to these activities is rapid and unsatisfactory. In those years, he was performing observations on generation and circulation, as the notes collected in the *Excerpta anatomica* reveal. However, the explanation of *L'Homme* downplays the importance of such operations, or reduces them to an introductory role to the main contents of the text. The final aim of his description of blood circulation is to discuss the production of animal spirits from the blood. This shows what attracts Descartes more at this stage: four-fifths of the book concerns sensation and the brain. The importance of these aspects is testified to both in the November or December 1632 letter to Mersenne, where Des-

11 D. Antoine-Mahut, "The Story of *L'Homme*," in *Descartes' Treatise on Man and its Reception*, cit., pp. 1-30.

12 In 1667, Clerselier published *L'Homme* as chapter 18 of *Le Monde*, but since the first editions, readers conceived the text as detached from physics.

13 Descartes to Mersenne, 23 November 1646, AT IV 566-567; CSMK 301.

14 Descartes to Mersenne, November or December 1632, AT I 263; CSMK 40: Descartes claimed that he has "undertaken to explain all the main functions in man [and has] already written of the vital functions, such as the digestion of food, the heart beat, the distribution of nourishment, etc.," of which there is very little in *L'Homme*, but also "the five senses".

15 *L'Homme*, AT XI 201-202; G 169.

cartes claimed that he was “dissecting the heads of various animals, so that [he] can explain what imagination, memory, etc. consist in”¹⁶, and in the anatomical observations collected in the *Excerpta anatomica* (see Figure 1)¹⁷.

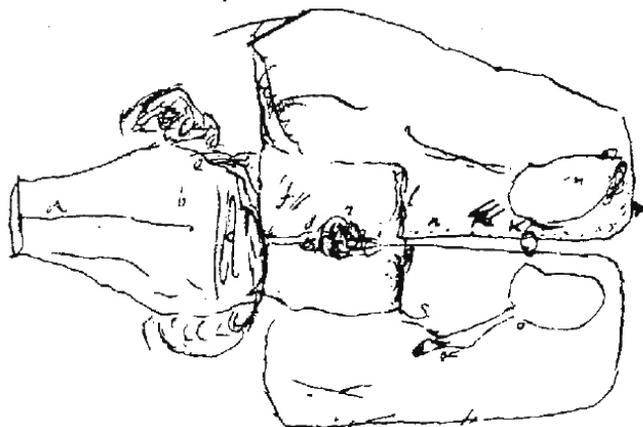


Figure 1. The representation of the anatomical dissection of a sheep, in Descartes's *Excerpta anatomica*, Appendix, Fig. 11, AT XI.

The focus on sensation is meaningful, especially as he mostly concentrated on vision, a topic related to light. As Descartes wrote to Vatier in 1638, “the treatise which contains the whole body of my physics is named *On Light*”¹⁸. This concerns not only *Le Monde*, in which light plays a major role, but also the final chapter of this text, namely *L'Homme*. As brilliantly claimed by Gabriel Alban-Zapata, the addition of the chapter on the human being does not concern man as the inhabitant of an imagined world, and for this reason, does not provide an explanation of all its functions, but is a description of man as the spectator of it. This reinforces the unified structure of Descartes's early

16 Descartes to Mersenne, November or December 1632, AT I 263; CSMK 40.

17 *Excerpta anatomica*, AT XI 579-582.

18 Descartes to Vatier, 22 February 1638, AT I 562; CSMK 87. Cfr. the report of Leibniz in AT X 209: “Il y a encor un traité *de la lumiere*. Voila son titre. Mais le titre meme est ce que Mons. Des Cartes appelle son *Monde*, ou *Meditations physiques*, faites, comme le *Metaphysiques*, d'un style familier, quoyque elle(s) ne disent en substance que ce qui est dans ses *principes philosophiques*.”

work¹⁹. Indeed, Descartes's mechanization of living activities is functional to his explanation of vision, to which he devoted the entire description of man as a spectator of the world, whose mechanization is described by means of light²⁰.

This unity is confirmed by Descartes himself in Chapter 13 of *Le Monde*, where he wrote that "the men of this new world will be of such a nature that, when their eyes are pushed in this fashion, they have a sensation very similar to that which we have of light, as I shall explain more fully below"²¹. As it appears, the subject of *L'Homme* must deal with vision, that is, the sensation of light. Indeed, in *L'Homme* he writes that "there still remains the sense of vision, which I must explain a little more precisely than the others because it is more central to my subject"²². And then he adds that vision depends "on two nerves [whose] role is to report to the brain the different actions of the parts of the *second element*, which, following what we said earlier, will enable the soul, when united with this machine, to conceive the different ideas of colours and light"²³.

If one reads Chapter 13 of *Le Monde* and this latter text together, as Alban-Zapata suggests, the unity of *Le Monde* and *L'Homme* is evident. The first text concerns the movement of the second element, as light is a specific case of the interaction of particles of matter composing bodies by following the rules of nature. The second text concerns the sensation one experiences from this movement, namely vision. As in *Le Monde* the rules of motion and collision apply indifferently to aerial, light, or earthy particles, in *L'Homme* Descartes claimed a unity between touch and vision – something he importantly repeated in *La Dioptrique* (1637).

Yet, there is something beyond the unity of these two texts. The physiological explanation of vision plays a philosophical role. Indeed, Descartes built *Le Monde* on a mathematical supposition, and the construction or invention of nature in the text is purely intellectual, as it is an act of imagination²⁴. In *L'Homme*, by claiming that through vision one perceives light as it was described in *Le Monde*, Descartes is not only describing the physiology

19 G. Alban-Zapata, *Light and Man: An Anomaly in the Treatise on Light?*, in *Descartes' Treatise on Man and its Reception*, cit., pp. 155-174. Cfr. *Discours de la Méthode*, V, AT VI 42: "et enfin de l'Homme, à cause qu'il en est le spectateur."

20 Descartes to Mersenne, 15 April 1630, AT I 137. Cfr. *Discours de la Méthode*, V, AT VI 42; CSM I 132: "I undertook merely to expound quite fully what I understood about light..."

21 *Le Monde*, 13, AT XI 97; G 62.

22 *L'Homme*, AT XI 151; G 124.

23 *Ibidem*.

24 Cfr. Th. Verbeek, *The Invention of Nature. Descartes and Regius*, in *Descartes' Natural Philosophy*, cit., pp. 149-166. G. Stabile, *L'idea di natura nella scienza*

of sensation, but makes it confirm his physics. Accordingly, physiology helps combine the world imagined (physics) with the world one sees, that is the actual world. The hypothesis of physics (namely, *la fable du monde*) is connected to the hypothesis of physiology. While the former is entirely grounded on imagination, intended as an operation of the intellect, the latter is grounded on a comparison between the human body and the animal-machine – one should keep in mind that comparison is a methodological operation²⁵. In this sense, although the laws of nature have a mathematical certainty, their application to nature remains obscure, and only imagination could help devise it at this stage through a hypothesis. In contrast, comparison helps visualize some knowledge and experience confirms the certainty of physiology.

As a spectator of nature, man observes the actual world and certifies that it is like the world imagined in *Le Monde*, therefore confirming the mechanical laws of nature ruling it. This point is philosophically crucial, as Descartes used physiology, which is grounded on the comparison and on the anatomical observation of bodies²⁶, to boost his physics. While he had devised this latter by means of pure reason, reducing nature to a mathematical equation, he felt then compelled to reintroduce observation as a tool to support his reasoning. The last section of *L'Homme* entirely concerns the brain, consisting of the mental representation of the world, as one acquires scientific knowledge.

The first medicine of Descartes mostly concerns the physiology of a few living functions, especially sensation and the nervous system. Yet, while he proposed a reduction of the living body to the machine, this medicine uncovers a sort of preliminary remarks to a question that remains largely uncharted. In this sense, Descartes ultimately appeared less interested in developing a more exhaustive interpretation of medicine or a more clear mechanization of the living functions, but used his medical knowledge to confirm the laws of physics and the way one knows nature. Accordingly, medicine served to confirm the structure of his natural philosophy, and the system of human knowledge. Since our brain is constructed in a precise way, one knows nature in that way, and therefore nature is as we know it in the mind, that is, the rational construction of *Le Monde*.

del Seicento, in D. Giovannozzi, M. Veneziani (eds.), *Natura. XII Colloquio internazionale*, Olschki, Firenze 2008, pp. 331-352.

- 25 Cfr. M. Savini, *Comparatio vel ratiocinatio. Statuto e funzione del concetto di comparatio/comparaison nel pensiero di R. Descartes*, in F. Marrone (ed.), *de-
sCartes et desLettres. Epistolari e filosofia nell'età cartesiana*, Le Monnier, Firenze 2008, pp. 132-169. J.-L. Marion, *Ordre et relation. Sur la situation aristoté-
licienne des Règles V et VI*, in "Archives de Philosophie", 37, 1974, pp. 234-274.
- 26 *L'Homme*, AT XI 120-121; G 99-100.

2. The Second Medicine: Metaphysical Pathologies

In the 1641 *Meditationes de prima philosophia*, Descartes presented several pathological cases within the text. Recently, both Emanuela Scribano and Franco Aurelio Meschini have devoted some attention to this issue²⁷. Apparently, the presence of pathological cases appears at odds with the topic of the text, which focuses on the definition of the ‘I’ and metaphysical certainty in knowledge. While the text concerns the certainty and the perfection of human nature, Descartes raised the pathological cases as suitable examples to test this certainty. In the First Meditation, he wrote about madness and madmen, something that attracted some attention by philosophers in the last century²⁸. In the last Meditation, he discussed the case of amputees and dropsy. Although different, both cases contain something essential for the metaphysical foundation of science²⁹.

Yet, Descartes expounded both cases in a medical fashion. Let us start with madness. In the First Meditation, Descartes wrote that the “brains [of madmen] are so damaged by the persistent vapours of melancholia [that they firmly maintain they are kings when they are paupers [...]]. But these people are insane”³⁰. Descartes reduced madness to a physical condition of the brain, as the vapours of black bile affect the brains of madmen, causing their disease. As madmen believe that “they are dressed in purple when they are naked, or that their heads are made of earthenware, or that they are pumpkins, or made of glass”³¹, what impairs the reason is a malfunction of the body according to Descartes. Similarly, in the *Regulae ad directionem ingenii*, he claimed that something that affects the body could affect knowledge, “as [occurs to] someone who has jaundice [who,] owing to the yel-

27 See E. Scribano, *Descartes on Error and Madness*, in “Rivista di storia della filosofia”, 4, 2016, pp. 599-613. E. Scribano, *Science contra the Meditations: The Existence of Material Things*, in “The European Legacy”, 27/3-4, 2022, pp. 348-360. F.A. Meschini, *Malattie e metafisica. La prova patologica*, in *Descartes and Medicine: A System with Obscurities and Lights, and its Reception*, cit.

28 Besides the debate between Jacques Derrida and Michel Foucault, see, the more recent, J.-M. Beyssade, *Mais quoi ce sont des fous? Sur un passage controversé de la Première Méditation*, in J.-M. Beyssade, *Descartes au fil de l’ordre*, PUF, Paris, 2001. D. Kambouchner, *Descartes: Un monde sans fous? Des Méditations métaphysiques au Traité de L’Homme*, “Dix-Septième siècle”, 247/2, 2010, pp. 213-222.

29 Cfr. F. Alquié, *Le philosophe et le fou*, in J.-R. Armogathe, G. Belgioioso (eds.), *Descartes metafisico. Interpretazioni del Novecento*, Istituto della Enciclopedia Italiana, Roma 1994, pp. 107-116.

30 *Meditationes de prima philosophia*, I, AT VII 19; CSM II 13.

31 *Ibidem*.

low tinge of his eyes, he thinks everything is coloured yellow; or again [...] when someone's imagination is impaired (as it is in melancholy), and [one] thinks that its disordered images represent real things"³². In both cases, a disorder in the body concurs in the ill-construction of knowledge, therefore affecting thinking. In the case of jaundice, it mostly concerns sensation, while in the case of melancholy and madness, it concerns the imagination and thinking.

However, Descartes detached it from the power of the mind, and reduced these problems to an affliction of the body. In the Fourth Replies to Antoine Arnauld (1612-1694), Descartes stressed, against the claim that "the power of thought [*vis cogitandi*] is dormant in infants and extinguished in madmen", that it is "not 'extinguished' but 'disturbed'" as "thought is often impeded by bodily organs"³³. While in certain cases, such as childhood, a too strict connection to the body results in erroneous knowledge, the case of madmen or other diseases is an extreme example of such a condition, in which an ill-functioning body influences and alters thinking. This is an important passage, as it demonstrates that the mind has no autonomy from the body, although it remains consistent to itself. Indeed, while the brain (i.e., the body) might be affected by a disease, and this might reflect on reasoning, this does not reflect on the capacity for reasoning, which "exists whole and complete in each of us"³⁴.

This is important, because Descartes reduced madness to a question of brain modification, that is, to a physiological condition. In the *Meditationes*, Descartes claimed that the pathology of madness depends on the presence of vapours in the brain. A physiological investigation of the brain is in *L'Homme*, where he presented its physiology and functioning. A crucial passage is the one concerning the brain during sleeping: while it is detached from the body, the animal spirits move within itself, and in consequence dreams have little connection with reality, according to Descartes (see Figure 2)³⁵. This is similar to madness or senselessness, two conditions disconnected from reality. Later in *La Dioptrique*, Descartes equated madness to sleeping, as pointed out by Scribano³⁶. In both cases, there is a detachment of the mind from the body. A crucial physiological difference arises. While in sleeping, this detachment is naturally produced

32 *Regulae ad directionem ingenii*, XII, AT X 423; CSM I 47.

33 *Meditationes de prima philosophia, Quartae Responiones*, AT VII 228; CSM II 160. One should note that this was a very traditional claim.

34 *Discours de la Méthode*, I, AT VI 2; CSM I 112.

35 *L'Homme*, AT XI 197-198; G 165.

36 *La Dioptrique*, AT VI 141; CSM I 172.

and forces the animal spirits to move in circles, in madness this is caused by the presence of vapours. These latter are the pathological version of the animal spirits and produced an ill condition of the brain.

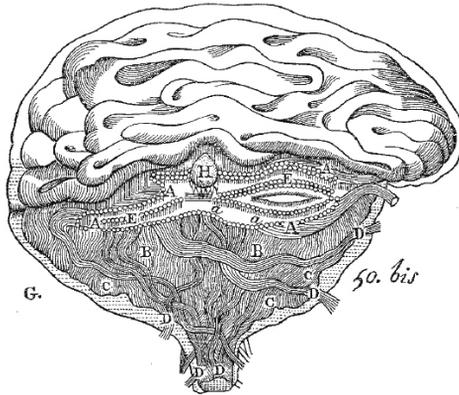


Figure 2. The representation of a sleeping brain in Descartes's *L'Homme*, AT XI 197.

The difference is significant. Moreover, sleeping plays a therapeutic role on the brain, whose “substance [...] has the opportunity to nourish and repair itself, being moistened by the blood”³⁷, during sleeping. In contrast, the absence of sleeping could damage the brain, as it “can be weakened, and by an excess of sleeping [the brain] grows heavy like the one of whom is senseless or stupid”³⁸. From a physiological point of view, madness uncovers an extreme and anomalous condition of the brain. While sleeping helps the brain restore itself through being moistened by the blood, in madness vapours suffocate the matter of the brain, and prevent any moisturizing.

Despite the differences, in *La Dioptrique* (and later in the *Meditationes*) Descartes evoked madness to confirm the actual functioning of perception, imagination, and knowledge. By means of a damaged state, he therefore provided the perimeter for the well-functioning of the brain, thus allowing for grounding knowledge on the certainty of the mind. Indeed, one should not follow the example of madmen, as he clearly stated in the First Meditation.

37 *L'Homme*, AT XI 198; G 166.

38 Ivi, 200; G 168.

Nevertheless, this use of abnormal cases resurfaces in the Last Meditation, when Descartes reintroduced the notion of the body and discussed the composite. In the Sixth Meditation, Descartes claimed sensation to be the “guide to ‘what is beneficial or harmful for the composite of which the mind is a part’”³⁹. This confirms how the composite works. At this point, he introduced abnormal cases to buttress his argumentation. Disorders such as amputation and dropsy are examples of an ill condition that affects knowledge. Yet, this occurs not because of any damage to the mind, but because the system of knowledge works despite amputation or dropsy. In this sense, Descartes used these cases to confirm the functioning of sensation and the certainty of knowledge, whose order is always the same and is not shaken by a disease. Although error remains possible, especially if illness damages sensation (or emotions), this error does not reside in human nature, but only in the presence of a disease⁴⁰. Even a badly made body “observes all the laws of its nature [even] if tells the wrong time”, and a human body affected by dropsy is “just as natural as the body’s being stimulated by a similar dryness of the throat to take a drink when there is no such illness and the drink is beneficial”⁴¹. Despite pathologies, Descartes used these cases to confirm human nature.

He specified the characteristics and well-functioning of human nature by means of some extreme or abnormal conditions, using pathology as an extension of physiology. The difference resides in the fact that we know that one body is ill or deviating from its nature. This definition is, however, an extrinsic “denomination, which depends on my thoughts; it is quite extrinsic to the things to which it is applied”⁴². In this sense, only the mind as an external thing could know the ill condition of the composite. This confirms another feature of his metaphysics, namely, that certainty resides within the mind, although this latter could be affected by the body.

In sum, Descartes used medicine to confirm his metaphysics, as pathologies certify the normal status of the composite. In the First Meditation, madness serves to acknowledge the certainty of the mind (although a lack

39 G. Manning, *Descartes' Healthy Machines and the Human Exception*, in D. Garber, S. Roux (eds.), *The Mechanization of Natural Philosophy*, Springer, Boston 2013, pp. 237-262, here p. 248.

40 *Meditationes de prima philosophia*, VI, AT VII 84; CSM II 58: “perhaps it may be said that they go wrong because their nature is disordered, but this does not remove the difficulty. A sick man is no less one of God’s creatures than a healthy one, and it seems no less a contradiction to suppose that he has received from God a nature which deceives him.”

41 *Ibidem*.

42 Ivi, 85; CSM II 59.

of autonomy results); while in the last Meditation, where this autonomy is discussed by means of the composite, amputees and dropsical people reveal the unity of the composite and its errors as a source to verify and restore its nature. Neither the certainty of reason, nor human nature is ultimately damaged by these cases. Pathologies thus serve Descartes to prove human nature, the mind-body composite, and the role of the mind as a source of certainty. Pathologies (as an extension of physiology) delineate the perimeter of the *Meditationes*, and “suggest a way of reading his metaphysics”⁴³, providing a crucial framework to verify the composite and understand human nature in its totality.

In the end, the *Meditationes* concludes with some important words:

since the pressure of things to be done does not always allow us to stop and make such a meticulous check, it must be admitted that in this human life we are often liable to make mistakes about particular things, and we must acknowledge the weakness of our nature.⁴⁴

Yet, the physiological study of human nature helps understand the Cartesian proof of the existence of the body, therefore surfacing as an important touchstone to complete the metaphysical path. At the same time, while discussing pathologies, Descartes used abnormal conditions to make clear that even the weakest cases of human nature cannot ultimately eliminate the capacities of the mind, that is the ground of his metaphysics⁴⁵. Still, a few philosophical questions remain.

3. *The Third Medicine: A Physiology of Human Composite and Passions*

While in 1633 Descartes’s first use of medicine is a physiology of sensation which he used to verify physics – to prove that the laws of nature are correct – and in 1641 Descartes’s second use of medicine conceives of madness, dropsy, amputations as the touchstone for normality, as he confirmed the nature of the composite and the certainty of intellectual knowledge; a third use of medicine surfaces in his late years. In 1648, Des-

43 E. Scribano, *Descartes on Error and Madness*, cit., p. 611.

44 Ivi, AT VII 90; CSM II 62.

45 On this point, see J.-L. Marion, *Sur la pensée passive de Descartes*, PUF, Paris 2013. English translation: J.-L. Marion, *On Descartes’ Passive Thought: The Myth of Cartesian Dualism*, translated by C.M. Gschwandtner, The University of Chicago Press, Chicago&London 2018.

cartes was indeed composing another medical text, namely, *La Description du corps humain*⁴⁶, as he planned to provide a mechanical explanation of nutrition, generation and bodily formation, ultimately covering some untreated physiological features. However, he left this text unfinished, while in those same years he decided to include a section on physiology in *Les Passions de l'âme*, published in 1649.

Although no clear connection between *La Description* and *Les Passions* could be uncovered⁴⁷, it is important to note a contemporaneity between these two decisions⁴⁸. It might be coincidental, especially as the two texts have diverse perspectives, but it is significant that he conceived of the explanation of passions as a more central subject within his philosophical enterprise, and likely in continuation (if not even as a solution) of the issues left open in the *Meditationes*.

While the *Meditationes* closes with a claim about the weakness of human nature, the *Passions* offers a description of the ways to regulate emotional disorders and restore the human nature, exploring the mind-body composite. Such a connection between passions and metaphysics makes his treatise on the passions different from the works of his contemporaries on the subject⁴⁹.

The path is known. After reading the *Meditationes*, Princess Elisabeth inquired Descartes about the interaction between the mind and the body in 1643. In his reply, Descartes claimed that, together with “the power [that] the soul has to move the body, the body [has the power] to act on the soul, in causing its sensations and passions”⁵⁰. Since that moment, the two discussed passions, melancholy, and possible therapeutics, and their epistolary exchange eventually resulted in the 1649 treatise, but the ground for

46 Cfr. Descartes to Newcastle, October 1645, AT IV 329; Descartes to Elisabeth, 6 October 1645, AT IV 310; Descartes to Elisabeth, 31 January 1648, AT V 112; Descartes to X***, 1648-1649, AT V 261. See *Colloquium with Burman*, AT V 170-171.

47 One should however note Annie Bitbol-Hespériès's attempt on this point, see A. Bitbol-Hespériès, *The Primacy of L'Homme in the 1664 Parisian Edition by Clercelier*, in *Descartes' Treatise on Man and its Reception*, cit., pp. 33-48.

48 The rich correspondence with the Princess Elisabeth of Bohemia reveals Descartes's enterprises, as he discussed with the Princess both his treatise on animals and a discussion of the passions, see F.A. Meschini, *Les Passions de l'âme, un testo stratificato: l'influenza di Elisabetta...*, in *Les Passions de l'âme et leur réception philosophique*, cit., pp. 101-136.

49 Cfr. D. Kambouchner, *L'homme des passions: Commentaires sur Descartes*, 2 vols, Albin Michel, Paris 1995; C. Talon-Hugon, *Descartes ou les passions rêvées par la raison. Essai sur la théorie des passions de Descartes et de quelques-uns de ses contemporaines*, Vrin, Paris 2002.

50 Descartes to Elisabeth, 21 May 1643, AT III 665; Shapiro 65.

understanding passions lies in metaphysics, that is, on the difference and union between an incorporeal mind with a corporeal body. The passions are the manifestation of such a union⁵¹.

While delving into passions and emotions, Descartes highlighted a significant connection with physiology. In the letter of the 6th of October 1645, Descartes claimed that examining “the passions [...] will be easier [for Elisabeth], [since she had] taken the trouble to read the treatise [he] sketched out before concerning the nature of animals, [and therefore she] knows already how [he] conceive[s] diverse impressions to be formed in their brain”⁵². He is speaking of a shorter draft of the treatise, collecting the matter they have discussed in the previous correspondence. However, when in April 1646 Elisabeth claimed the “involving physics” is obscure to the reader, she referred to the physiology of the human body that encapsulates Descartes’s theory of passions. Accordingly, it is not so clear “how one can know the diverse moments of the blood which cause the five primitive passions [and] how is it possible to observe the difference in the beating of the pulse, the digestion of meats, and other changes of the body that serve in discovering the nature of these movements”⁵³.

In this sense, in criticising Descartes’s connections between the blood motions and the passions, that is, the physiological construction of the human body, Elisabeth suggested to him a clearer path to complete the treatise on the passions, namely, to explore *en physicien* the movements of the fluids causing the passions. This suggestion is reflected in the structure of the treatise⁵⁴, whose first part contains a physiological description of the living body, and whose second part describes the role of the disposition of organs, as well as the presence and movement of fluids, blood, and animal spirits in the production of the passions⁵⁵. As a result, Descartes explored the role

51 The philosophical relationship between Elisabeth and Descartes has recently attracted serious attention from scholars. On Elisabeth’s materialist interpretation of the mind body union, see L. Alanen, *The Soul’s Extension: Elisabeth’s Solution to Descartes’s Mind-Body Problem*, in S. Ebbersmeyer and S. Hutton (eds.), *Elisabeth of Bohemia (1618-1680): A Philosopher in her Historical Context*, Springer, Cham 2021, pp. 145-161.

52 Descartes to Elisabeth, 6 October 1645, AT IV 310; Shapiro 118.

53 Elisabeth to Descartes, 25 April 1646, AT IV 404; Shapiro 133.

54 The claim to have discussed the passions *en physicien* is in the Answer to the Second Letter, AT XI 326. Cfr. G. Mori, *Descartes Incognito: la ‘Préface’ des Passions de l’âme*, “Dix-septième siècle”, 277/4, 2017, pp. 685-700.

55 Cfr. *Les Passions de l’âme*, I, art. 27, AT XI 349; CSM I 338-339; II, art 96, AT XI 401; CSM I 362-363. One should however note that in the third part of the *Passions*, the key to free from the passions is generosity, which has very little to do

of the body in the production of the passions by means of his physiology, detailing the movements of the animal spirits and blood, and providing an account of the formation of the animal spirits and the role of temperaments in mechanistic terms. Following Elisabeth's comment, Descartes grounded his explanation of the passions in a physiological system, connecting medicine to the metaphysical roots of his philosophy once again.

Grounded in metaphysics, the knowledge of the human composite acquires a scientific certainty, as one experiences it through emotions and passions. Yet, what makes it entirely intelligible is the physiological construction of the human body, something that Descartes included in the text upon the suggestion of Elisabeth, and on which he had worked over the years. As a result, although he did not venture to describe man, nor to provide any therapies to treat the passions (besides the vague recommendations he wrote to Elisabeth against lent fever, and the final claim that generosity will help to set one free from the slavery of the passions)⁵⁶, Descartes restored human nature to its normal state by means of his physiology. Embedded within it, the *Passions* are a concluding page to the *Meditationes*.

What in the latter text had remained problematic is dealt with in the *Passions*, by means of a medicine of the composite, that is, the third medicine of Descartes's philosophical enterprise.

Conclusions

Descartes's engagement with medicine was complex and broad. Thanks to his Latin bio-medical manuscripts, it is today possible to evaluate the extension of his physiological enterprise, ranging from embryology to therapeutics, investigating digestion and nutrition, as well as sensation, blood circulation, the movements of nerves and muscles, and the structure of the brain. A clear mechanization of the human and ani-

with physiology. On this point, see Kambouchner, *L'homme des passions*, and P.R. Frierson, *Learning to Love: From Egoism to Generosity in Descartes*, "Journal of the History of Philosophy", 40/3 2002, pp. 313-338; D.J. Brown, *Descartes and the Passioante Mind*, Cambridge University Press, Cambridge 2006; S. Brassfield, *Never Let the Passions Be Your Guide: Descartes and the Role of the Passions*, "British Journal for the History of Philosophy", 20/3, 2012, pp. 459-477.

56 On the limitations of Descartes's medicine of the passions, see F. Baldassarri, *Santorio, Regius, and Descartes: The Quantification and Mechanization of the Passions in Seventeenth-Century Medicine*, in J. Barry, F. Bigotti (eds.), *Santorio Santorio and the Emergence of Quantified Medicine, 1614-1790*, Springer, Cham 2022, pp. 165-190.

mal body surfaces, to which mechanics Descartes compared the life of plants and the formation of inert bodies. Additionally, he performed both anatomical observations and experimental investigations on living nature, although he ultimately failed to include a section on living bodies, animals and plants, and one on the human being in his entire physics, namely, the *Principia philosophiae* (1644). However, medicine played another role for Descartes, not just as a scientific venture, but also as a philosophical undertaking.

In this article, leaving aside the rhetorical claims of the *Discours* and of the *Lettre-Préface*, I have tried to highlight the philosophical role of medicine in Descartes, by discussing three diverse phases of his philosophical programme. In his work, Descartes used this discipline in three diverse ways to confirm or buttress his philosophical programme. The first is the physiology of sensation of *L'Homme*. The second is the pathology contained in the *Meditationes*. The third is the physiology of the composite in the treatise on *Passions*.

In the first case, Descartes used the physiology of sensation and vision to acquire an empirical confirmation of the world as rationally conceived in his physics. Accordingly, the physiology of the animal-machine reflects the one of human bodies, therefore making them equal, as the same rules work for both the animal-machine and the human body. Yet, in suggesting the former as the spectator of nature, Descartes claimed that the same laws of nature work in the formation of bodies as well as in their sensations. This is a crucial point, as it makes certain that what the animal-machine sees is the world as imagined, but it emerges that the world as imagined corresponds to the actual world, given the identity between the animal-machine and human beings.

In the second case, Descartes used several pathological cases, extreme conditions such as madness, dropsy, amputation, and so on, to buttress his metaphysics. For paradoxical as it may appear, these abnormal conditions help reveal human normality, the complexities of the composite, and the fact that the mind can be affected by the body, but never utterly damaged. Despite the complex relationship with the body, cognition—considered in itself—remains certain. In this sense, pathology served Descartes to confirm his metaphysics.

In the third case, Descartes used physiology to ground the explanation of the passions, which are the manifestation of the mind-body composite. In explaining the interactions between the disposition of organs, the movements of bodily fluids, the activities of the brain, and the constructions of diverse passions (which in some cases lead either to fevers,

diseases, or melancholy), Descartes provided a physiological ground to describe the composite, filling a lacuna in the *Meditationes*, and restoring the human condition.

In all these cases, Descartes elaborated on his physiological observations and reflections to uphold and validate his philosophical project. This path repeats Martial Gueroult's suggestion that "medicine was above all and first of all conceived by Descartes as a development of *physique pure*. It analyzes the structures and movements of living bodies by reducing them to pure machine, in which everything is explained by the mechanical laws of the material world. [...] But such a conception appears inadequate," and Descartes "elevate[d] to a medicine of the substantial composite [...], and his admission of his partial failure with medicine [relied on] the increasing conviction that purely mechanistic conceptions were not sufficient to elaborate medicine, since the human body was not simply pure extension, but also a psychophysical substance"⁵⁷. Yet, this did not occur as the result of a failure of Descartes's mechanization of physiology, as he pursued diverse philosophical aims that importantly benefitted from his medical (mostly physiological) knowledge. At the same time, this combination of medicine and philosophy appears meaningful in Descartes.

In sum, Descartes's medical enterprise reveals two main features. The first is the elaboration of the functioning of the human body through anatomical observations and physiological experimentation, whose accomplishment (i.e., an entire mechanization of the human body) is matter of debate. The second enterprise concerns the application of physiology to his philosophy, namely his physics, metaphysics, and the study of the mind-body composite. This latter unearths three diverse usages of medicine in Descartes's philosophy, as he applied his medical (and especially his physiological) knowledge to confirm or complete his philosophical project where lacunae surface. As a result, medicine acquired a significant architectural role in Descartes's philosophy, making the mere anatomical investigation or the comparison between animal bodies and machines a point of departure for a more crucial role, ultimately unfolding a philosophical medicine.

57 M. Gueroult, *Descartes selon l'ordre des raisons*, Vrin, Paris 1968, vol. 2, pp. 247-248; English translation is from M. Gueroult, *Descartes' Philosophy Interpreted According to the Order of Reasons*, transl. by R. Ariew, University of Minnesota Press, Minneapolis 1984-1985, vol. 2, pp. 198-199. I agree with Claude Romano's interpretation that this sentence is too hard against Descartes's medicine. See C. Romano, *Les trois médecines de Descartes*, "Dix-septième siècle", 217/4, 2002, pp. 675-696, p. 676.

