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## Anatomy and Cognition in Ramon Llull

### Abstract

In response to the anatomical descriptions provided in the work on the soul composed by Ramon Llull, namely, the *New Book concerning the Rational Soul*, this paper will delve into the history of anatomy in order to determine precisely what role seems to have been performed by such descriptions within the medieval *scientia de anima*. Analysis of this kind enables one to arrive at an understanding of a doctrine which is relatively unitary as regards the brain's anatomy, this latter, in line with Galenic theory, being conceived as the highest organ. Starting out from this doctrinal context, we intend to indicate the specificity of Llull's own doctrine and to explain such specificity in terms of its correlation with his theories of knowledge and of man.

**Keywords:** History of anatomy; Ramon Llull; internal senses; Galenism.

**Ancient and Medieval authors:** Ramon Llull; Aristotle; Galen; Avicenna; Descartes.

### Anatomia e cognição em Ramon Llull

#### Resumo

A partir da descrição anatômica presente no livro sobre a alma composto por Raimundo Lúlio, nomeadamente o *Novo livro da alma racional*, este artigo irá mergulhar esquematicamente na história da anatomia para determinar o papel destas descrições na ciência da alma medieval. Esta análise

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permite compreender uma doutrina relativamente unitária da anatomia do cérebro, concebido como o órgão mais elevado desde a teoria de Galeno. A partir deste contexto teórico, tentamos analisar as diferenças apresentadas no texto de Lúlio e explicá-las a partir da sua teoria do conhecimento e do homem.

**Palavras-chave:** História da anatomia; sentidos internos, galenismo; alma.

**Autores antigos e medievais:** Raimundo Lúlio; Galeno; Avicena; Aristóteles; Descartes.

## 1. Introduction

The Aristotelian corpus deals with an appreciable variety of areas of investigation, areas which, from the point of view of contemporary knowledge, have become visibly subject to specialisation. His work *On the Soul* raises a different set of difficulties, which point directly to the question of philosophical inquiry concerning the mind-body relation. The determination of the soul's essential functions and of how the activities thereof might be performed, the relationship between the soul and its parts, as well as between the soul and the body, are all subjects addressed, commonly and at length, during the Middle ages. They are considered from a range of perspectives, since they bear relation not only to biology, the psychology of the emotions and cognition, but also to theology, in the latter case, at least, on the assumption that the rational soul be conceived as the immortal and divine part of the soul-body composite, known as the human being.

The nature of the soul-body relation is difficult to conceive of for the reason that evidence points to the existence of a bi-directional causality. Thoughts produced by our rational powers are capable of arousing actions within the body. The body in turn, however, plays a fundamental role in our thoughts, and in our ways of seeing the world, as well as in our personality. Neurology is becoming increasingly precise when it comes to localising in physical terms functions classically attributed to the soul. It is clear to us that certain brain injuries can provoke major changes in personality, and even the dissolution thereof.

In this sense, Aristotle's conception of the soul does not contradict the facts, at least where his doctrine falls within the framework of an analysis of natural entities: the soul is form of the animated body. Thus the body constitutes the substrate of the soul, and in the absence of the former the soul cannot exist.

## 2. Ancient anatomy and Arabic developments

Ancient studies on the body and the functions thereof form the basis of natural science and the discipline of medicine during the Middle ages<sup>1</sup>, not only within the Aristotelian corpus but also in the writings of other relevant Greek thinkers. In fact, despite the wide influence of that corpus and the doctrines therein, medieval anatomy was shaped by the medical approach embodied by Hippocrates, Herophilus of Chalcedon – considered to be the father of anatomy and the instigator of experimental method in medicine – and Galen, an approach which conceived the brain, rather than the heart, as Aristotle had stated<sup>2</sup>, to be the part of the body in which were to be found any coordinatory activities<sup>3</sup>. Nemesius of Emesa followed in Galen's footsteps by proposing a ventricular doctrine, according to which it was the ventricles of the brain which housed the higher activities of the mind<sup>4</sup>.

<sup>1</sup> «Les rapports entre biologie et médecine sont un thème de recherche récurrent et controversé de l'histoire et la philosophie de la médecine. Le statut particulier de la médecine, entre science, pratique et morale, est au cœur de la controverse». Chr. SINDING, «Biologie et médecine», in D. LECOURT (dir.), *Dictionnaire de la pensée médicale*, Presses Universitaires de France, Paris 2004, p. 164. Vd., among others, A. TAVARES DE SOUSA, *Curso de história da medicina. Das origens aos fins do século XVI*, Fundação Calouste Gulbenkian, Lisboa 21996.

<sup>2</sup> Cfr. Aristotle, *De partibus animalium* III, 4, 665b-667a 22-34.

<sup>3</sup> «In fact, Galen understands the parts of the soul as principles or sources (*archai*) of the physic and physiological activities. He makes use of this idea especially in the case of the ruling part of the soul, which he locates, following the Alexandrians, in the brain: 'where the source of the nerves is to be found, there too is found the ruling part of the soul' (*On the doctrines of Hippocrates and Plato* V 588 = 428, 24-5 De Lacy)», R. J. HANKINSON, *The Cambridge Companion to Galen*, Cambridge University Press, Cambridge 2009, p. 268. Galen, *De symptomatum differentiis*, in *Opera omnia*, ed. C. G. KUHN, vol. 7, section VII, pp. 55-56.

<sup>4</sup> «In short, although Galen believed the pneuma to be intimately involved with psychological functioning and although he believed much of the pneuma to be in the ventricles, nowhere did he localize different mental faculties in different ventricles». Chr. D. GREEN, «Where did the ventricular localization of mental faculties come from?», *Journal of the History of the Behavioral Sciences* 39/2 (2003) 131-142, here p. 136. In this article, Christopher Green denies Galen as the father of the ventricular doctrine, which is generally attributed to him (Cfr. J. ROCCA, «Anatomy» in *The Cambridge Companion to Galen*, cit., 249-254). Nemesius' doctrine conceived the *spiritus* as the mediator between soul and body, and this *pneuma* or *spiritus* will have central importance for discussions regarding the union of the soul with the body. According to Augustine, the *spiritus* is related to the cognitive functions that lie beyond the internal senses, whereas in Avicennian texts, the *spiritus* appears to be mostly corporeal. C. DI MARTINO, *Ratio particularis. Doctrines des sens internes d'Avicenne à Thomas d'Aquin*, Vrin, Paris 2008, pp. 140-143. The ontology of the spirit would be widely discussed during the thirteenth century, within the context of debate

It is well-known that, during the Middle Ages, the tradition of Arabic commentators—commentators, principally, of the texts of Aristotle—brought about a greater level of sophistication as regards the general understanding of «science». Where anatomy and medicine were concerned, Arabic tradition was profoundly influenced by Galenic doctrines, a fact which facilitated the development of a theorisation of the internal senses by Arabic philosophers<sup>5</sup>. These senses, whose powers were not always susceptible to delimitation or definition, had a common feature, however, namely, that the organ to which they were all attributed was located in the head<sup>6</sup>.

Thus, the *De differentia anime et spiritus*<sup>7</sup> by Qusta Ibn Luqa (9<sup>th</sup> century), reveals this same Galenic source<sup>8</sup>. In agreement with this tradition, sense and phantasy are located within the frontal ventricles. The intellect lies behind this, situated, as it is, in the middle, while memory is located in the posterior ventricle<sup>9</sup>.

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surrounding the plurality of forms, cfr. J. WILCOX, «On the Difference between the Spirit and the Soul», in G. FEDERINI VESCOVINI, V. SORGE, F. VESCOVINI (eds.), *Corpo e anima, sensi interni e intelletto dai secoli XIII-XIV ai post-cartesiani e spinoziani*, Brepols, Turnhout 2005, pp. 67-75.

<sup>5</sup> «Si la médecine arabe n'est pas seulement héritage, nous y reviendrons, elle ne s'inscrit pas moins dans une longue tradition, qui, remontant à la Grèce classique, connut des inflexions à l'époque hellénistique et se poursuit aux siècles suivants». D. JACQUART, F. MICHEAU, *La médecine arabe et l'occident médiévale*, Editions Maisonneuve et Larose, Paris 1996, p. 20; cfr. *ibidem* pp. 32-45; A. COURBAN, «Médecine arabe» (pp. 82-87) and J. PIGEAUD, «Galénisme» (pp. 509-514), in D. LECOURT (dir), *Dictionnaire de la pensée médicale*, cit. Cfr. AS well H. A. WOLFSON, «The Internal Senses in Latin, Arabic, and Hebrew Philosophic Texts», *The Harvard Theological Review*, 28/2 (1935) 69-133.

<sup>6</sup> «The doctrine of the internal senses also drew upon later Greek developments in physiology stemming from the physician Galen. Like the external senses, the internal senses require a bodily organ to perform their operations, usually identified as the brain, following Galen, or less frequently the heart, following Aristotle». D. L. BLACK, «Psychology: Soul and Intellect», in P. ADAMSON, R. C. TAYLOR, *The Cambridge Companion to Arabic Philosophy*, Cambridge University Press, Cambridge <sup>3</sup>2006, p. 313. H. A. WOLFSON, «The Internal Senses in Latin, Arabic, and Hebrew...», cit., p. 70 and note 10.

<sup>7</sup> Latin edition by J. C. WILCOX, *The Transmission and Influence of Qusta Ibn Luqa's «On the Difference Between Spirit and the Soul»*, Ph.D. thesis, City University of New York 1985.

<sup>8</sup> WILCOX, *The Transmission and Influence*, cit., pp. 50 and ff.

<sup>9</sup> «Probatur ergo per hoc quod diximus certissime, quod ille spiritus qui est in anterioribus ventriculis operatur sensus, idest visum, auditum, gustum, odoratum et tactum, et cum his operatur athagil, quam greci vocant fantasiam, et quod spiritus qui est in ventriculo medio operatur cogitationem et cognitionem atque providentiam; et spiritus qui est in posteriori ventriculo operatur motum et memoriam». WILCOX, *The Transmission and Influence*, cit., p. 165. Cfr. eadem, «On the Difference...», cit., pp. 55-77. Qusta Ibn Luqa is influenced principally by Nemesius and John of Damascus, cfr. *ibidem*, pp. 64-67.

This work, included in the curriculum of the Parisian Faculty of Arts together with the *corpus aristotelicum*, had a very notable influence upon authors such as Gundissalinus and Albert the Great, among others<sup>10</sup>.

Within this Arabic tradition, and until the Renaissance, the *Canon* of Avicenna, translated by Gerard of Cremona in the second half of the twelfth century, became the most influential medical work to affect Latin milieux<sup>11</sup>. In his inquiries concerning the soul (*Liber de anima*), Avicenna establishes a topology of the brain to which, in line with medical theory, he assigns the various internal functions thereof. According to this work, the «anterior pars cerebri» houses the faculties of sense and the powers of the imagination; the estimative faculty is located in the middle, while memory and reminiscence reside within the posterior part of the brain<sup>12</sup>. The *Canon* reveals a strong influence from the thinking of Galen and Nemesius, and Avicenna's own description of the brain's topology, included in his work on the soul, fits into the same doctrinal framework as theirs<sup>13</sup>. Avicenna related each internal function to a different level of increasing abstraction, and was able thereby to create a correlation between the physical disposition of such functions and their place within the sequence of cognition<sup>14</sup>. Averroes acted likewise when he argued for the existence of four successively linked internal senses within the process of abstraction<sup>15</sup>.

<sup>10</sup> Its Medieval diffusion and popularity is shown by the large number of conserved manuscripts, about 150, vd. WILCOX, *The Transmission and Influence*, cit., pp. 102-105.

<sup>11</sup> In the Latin milieu, it is known the presence of Avicenna's *Canon* at the *curricula* of the universities (Paris, Montpellier and Bolony) from the last decades of the XIIIth century onwards, vd. C. O'BOYLE, *The Art of Medicine: Medical Teaching at the University of Paris, 1250-1400*, Brill, Leiden/Boston/Köln 1998, pp. 6-7, 152. According to D. Jacquart, and F. Micheau, much of *Canon*'s success was due to conceiving of medicine as a rational science, thus mediating between Galen and Aristotle's doctrinal discrepancies, vd. D. JACQUART, F. MICHEAU, *La médecine arabe*, cit., pp. 79-82, 159-160; 176-179.

<sup>12</sup> Avicenna, *Liber de anima seu Sextus de naturalibus*, ed. S. VAN RIET, Éditions Orientalistes/ Brill, Louvain/Leiden 1968, vol. 2, chap. 1, pp. 8-11.

<sup>13</sup> O'Boyle's study deals with the Ancient and Medieval medical corpus, that is, the *Ars medicinae* and, later, the *Ars commentata*, that circulated during this period, cfr. O'BOYLE, *The Art of Medicine*, cit. About this «new Galen», which included the *Canon*, see among others, L. GARCÍA BALLESTER, «Arnau de Vilanova (c. 1240-1311) y la reforma de los estudios médicos en Montpellier (1309): el Hipócrates latino y la introducción del nuevo Galeno», *Dynamis: Acta Hispanica ad Medicinae Scientiarumque Historiam Illustrandam*, 2 (1982) 97-158.

<sup>14</sup> Cfr. MARTINO, *Ratio particularis*, cit., pp. 27-29.

<sup>15</sup> Cfr. MARTINO, *Ratio particularis*, cit., pp. 48 and 59. About the differences between the two systems of abstraction, cfr. D. L. BLACK, «Psychology: Soul and Intellect», in P. ADAMSON, R. C. TAYLOR, *The Cambridge Companion*, cit., pp. 315-316.

All the above testimonies show that the Arabic view is unitary insofar as it considers the brain to be the locus of the internal sense faculties though not of their rational counterparts<sup>16</sup>.

### 3. Latin tradition

From the twelfth century onwards, discussions of the soul within a Latin setting received a great deal of novel information from the recently undertaken translations. This situation led to two principal approaches towards the doctrine of the soul. First, the Aristotelian approach, having been expanded by the reflections of Arabic philosophers, was strengthened by the institutional power attaching to it by virtue of its having been implemented within the university curriculum<sup>17</sup>. And second, an alternative to this approach still remained in the form of the traditional Augustinian position deriving from monastic milieux, a position from which shone forth a more spiritual dimension. Despite the fact that these tendencies differed in certain important respects vis-à-vis their theories of man and the soul, they both gave consideration to two distinct perspectives as regards analysis of the soul, namely, a philosophical and theological one, whose point of departure was the non-corporeality of the soul and the superiority of its virtues, and a medical one, whose point of departure was the body itself.

Augustine of Hippo himself refers to this dual theoretical approach, and this *aperçu* became a commonplace in medieval literature<sup>18</sup>. Augustine, in *De quantitate anime*, discusses the possibility of the soul's possessing certain corporeal

<sup>16</sup> Cfr. Algazel: «Et hec due, scilicet, estimativa et memorialis sunt in posteriori parte cerebri. Cogitatio vero est virtus in medio cerebri. Communis vero et imaginativa sunt in anteriore parte cerebri». Algazel, *Metaphysica* II, «De sensibus interioribus», ed. J. T. MUCKLE, S. Michael's College, Toronto 1933, p. 170. Vd. H. A. WOLFSON, «The Internal Senses in Latin, Arabic, and Hebrew...», cit., pp. 103, 109.

<sup>17</sup> «Arabic texts, therefore, contributed massively to the building up of a coherent curriculum of Aristotelian philosophy, represented by the numerous manuscripts of the *Corpus Vetus* and *Corpus Recentius*. The fact they were Arabic, and issued from Muslim lands, did not cause a problem. They were simply the best texts available». Ch. BURNETT, «Arabic into Latin: the reception of Arabic philosophy into Western Europe», in P. ADAMSON, R. C. TAYLOR, *The Cambridge Companion*, cit., p. 375.

<sup>18</sup> Cfr. Duns Scotus: «Sed ubi est situatum illud organum? De hoc est controversia inter medicos et philosophos», *Questiones super II et III De anima*, in idem, *Opera Philosophica*, ed. T. B. NOONE, Catholic University of America, Washington 2006, q. 10, pp. 82-83, cfr. ibidem, note 17, with further examples.

qualities such as extension and localisation. According to this text, the three faculties of the rational soul – will, intellect and memory – are present throughout the body rather than in a single part. In Book X of his *De Trinitate*, Augustine likewise criticises those who conceived the soul as being a corporeal substance, whether heart, blood or brain, because were the soul to be corporeal it would thus die at the death of the body<sup>19</sup>. It was of special interest to Augustine, therefore, to affirm the independence of the soul with respect to the body. Nevertheless, in his *De genesi ad litteram*, Augustine also develops a topography of the faculties *secundum medicos*<sup>20</sup>. As was the case with Galen, sensation is located frontwards, while sensual memory is situated in the middle and movement behind<sup>21</sup>. The tripartition of the brain would also become a commonplace<sup>22</sup>.

During the twelfth century, the Augustinian tradition incorporated the medical knowledge that the recent translations had provided. Indeed, certain parts of the *Liber pantegni* of Constantine the African, which drew from the same classical sources, can be found in the works of William of Conches and the Cistercian William of Saint Thierry<sup>23</sup>. The latter conceived the brain's ventricles to be the organs of the higher cognitive functions, including reason, whose ventricle was located in the middle, between the imagination and memory<sup>24</sup>. To this Augustinian tradition similarly belongs the widely read *Liber de spiritu et anima*<sup>25</sup>, wherein,

<sup>19</sup> «Hinc factum est ut quidam quererent quid corporis amplius valet in corpore, et hoc esse mentem vel omnino totam animam existimarent, itaque alii sanguinem, alii cerebrum, alii cor [...]. Eoque hi eam mortalem esse senserunt, quia sive corpus esset, siue aliqua compositio corporis, non posset utique immortaliter permanere». Augustine of Hippo, *De trinitate* X, chap. 7, 9, ed. J.-P. MIGNÉ, *Patrologia Latina* 42, Paris 1845, col. 978.

<sup>20</sup> «Deinde si non est contemnendum quod medici non tantum dicunt, verum tamen etiam probare se affirmant [...]». Augustine of Hippo, *De genesi ad litteram* VII, ed. B. MARTIN, *Biblioteca de Autores Cristianos*, Madrid 1969, chap. 13, p. 743.

<sup>21</sup> «Ideo tres tanquam ventriculi cerebri demonstrantur: unus anterior ad faciem, a quo sensus omni; alter posterior ad cervicem, a quo motus omnis: tertius inter utrumque, in quo memoriam vigere demonstrant...». *Ibidem*, chap. 18 p. 748.

<sup>22</sup> Cfr. O'BOYLE, *The Art of Medicine*, cit., pp. 124-125.

<sup>23</sup> Cfr. D. JACQUART, «Les emprunts de Guillaume de Conches aux théories médicales», in B. OBRIST, I. CAIAZZO (eds.), *Guillaume de Conches : Philosophie et science au XII<sup>e</sup> siècle*, Sismel-Edizioni del Galluzzo, Firenze 2011, pp. 95-109; R. PERETÓ RIVAS, *La antropología cisterciense del siglo XII*, Eunsa, Pamplona 2008, pp. 69-116; O'BOYLE, *The Art of Medicine*, cit., p. 101.

<sup>24</sup> Cfr. William of Saint-Thierry, *De natura corporis et anime*, in PERETÓ RIVAS, *La antropología cisterciense*, cit., p. 80 and note 44.

<sup>25</sup> Pseudo-Augustine, *De spiritu et anima*, ed. J.-P. MIGNÉ, *Patrologia Latina* 40, Paris 1870. This work was widely quoted by Latin authors, probably as a result of its attribution to Augustine himself, until Thomas Aquinas dismissed this possibility, attributing it instead to a Cistercian

despite its being asserted that the soul was present throughout the body, it was also argued that such presence was «intensius tamen in corde et in cerebro, quemadmodum Deus precipue dicitur esse in coelo...»<sup>26</sup>.

Further testimony to the Augustinian view was contributed by Philip the Chancellor. In his *Summa de bono* (1220-1230), the Chancellor affirms an accidental communication between the rational soul and the soul *per se* via the sensitive soul, situated in the brain. As a result of such communication can one explain, by extension, the localisation of the rational soul within this specific part of the body:

Quod autem consuevit dici quod anima rationalis sedem habet in cerebro, unde et phisici distinguunt cellas in capite, dicitur hoc quia apparent ibi nobiliores operationes eius, sicut et dicitur de Deo quod dum anima est in corpore, non fit nisi mediante ymaginatione. [...] Et cum ymaginatio non fiat nisi mediante sensu communi, apparet animam esse in sensu communi. Et cum sensus communis non fiat nisi mediantibus sensibus particularibus, apparet per eundem modum quod anima rationalis sit in sensibus particularibus, et ita per totum; sed hoc accidit ei<sup>27</sup>.

During the first half of the thirteenth century, the university milieu favoured the proliferation of commentaries upon Aristotle's book, deeply influenced as this was by the Avicennian view of the soul. Many Latin authors who formed part of this context continued to distinguish between the medical and the philosophical point of view. Such is the case with a commentary which has been preserved upon the *De anima* (c. 1245) by an unknown author. Interested as he is by physiological descriptions, this author situates the cognitive functions within the brain, among which functions the rational faculty finds its seat in the middle of that organ:

Si autem sint apprehensive, diversificantur sic secundum medicos. [...] Item, dicunt quod huiusmodi pellicule involventes cerebrum tres faciunt cellulas et concavitates. Una est a parte anteriori capitis, et in illa sunt sensus positi [...]; et ab illa cellula protenduntur nerui a singula organa sensuum, per quos fiunt influencie ad singula organa sensuum [...]. Cellula autem secunda est in media parte capitis, et in illa parte est virtus intellectiva. In parte autem posteriori est cellula tertia, in qua sunt memoria et reminiscentia, que conservant species, sicut

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author (*Questio Unica de Anima*, art. 12, a. 1), and thereby minimised its value. The Cistercian monk Alcher of Clairvaux, steeped as he was in Augustinian ontology, is considered to be the most probable author of this work.

<sup>26</sup> Pseudo-Augustine, *De spiritu et anima*, cit., p. 794.

<sup>27</sup> Philip the Chancellor, *Summa de bono*, ed. N. Wicki, Franke, Berne 1985, vol. I, q. 8, p. 289.

thesaurus in abscondito reponitur et non in aperto. Aliter autem distinguunt philosophi virtutes apprehensivas<sup>28</sup>.

When considering the same topic, however, other works give voice to the opposite opinion. Peter of Spain, for instance, in his *Scientia libri de anima* (c. 1240), explicitly rejects the possibility of the body's adequation to the soul, as well as the attribution of organs to rational functions. The reason is clear: the degeneration of the organ, and its weakness and ontological imperfection, as a fleshly entity, must needs corrupt the virtue of the intellect:

Non erit aliquam [partem] sibi propriam assignare ut in cordis ac cerebri situ patet. [...] Corporeis vero mediis eius substantia non indiget. [...]. Et corrumpitur virtus dependens et perit in corruptione et interitu organi, sed omnes intellective illese existunt cum anime fundamento a corpore separande<sup>29</sup>.

This and other texts provide testimony to the philosophical difficulty of the subject matter, attributable in the main to the consequences which can derive from an intimate relation between the soul and a corporeal entity.

It is precisely this intimate relation between body and soul that Ramon Llull presents in his book on the subject of the soul, and the position he adopts is one of justifying the attribution of organs to the rational aspects of the human composite: the human soul, despite its spiritual nature, has need of the body in order to perform its actions and achieve its necessary goals.

## 4. Ramon Llull

### 4.1. The organs of the rational soul

In the context of medieval and earlier discussions of the soul, the *Liber novus de anima rationali*<sup>30</sup>, written at the end of the thirteenth century, strikes the

<sup>28</sup> Anonymus, *Lectura in librum de anima: a quodam discipulo reportata*, ed. R. A. GAUTHIER, Collegii S. Bonaventure Ad Claras Aquas, Grottaferrata 1985, p. 440. The text follows this way: «sic igitur manifestum est quomodo differunt omnes tres virtutes sensitive: sunt enim omnes cum sensu communi, et idem habentes organum, et differunt solum secundum rationem et in modo considerandi obiectum. Omnes autem huius virtutes: intellectus, ratio prudentia, opinio universalis, virtus scitiva et reminiscencia sunt virtutes intellective, et sunt eadem secundum substantiam, differentes solum secundum rationem».

<sup>29</sup> Peter of Spain, *Scientia libri de anima*, ed. M. ALONSO ALONSO, Consejo superior de investigaciones científicas, Madrid 1941, p. 366.

<sup>30</sup> Critical edition in C. LÓPEZ ALCALDE, *Liber novus de anima rationali* de Ramon Llull. Edición

reader as being original and distinctively ‘Lullian’, when compared with other commentaries and books concerning the soul of either earlier or similar date. It nevertheless represents, in fact, Llull’s tribute to the well-established textual tradition of scholasticism described above. We have pointed out in a previous article the coincidence therewith of various questions and topics he addresses<sup>31</sup>.

According to Llull, the soul is both form and spiritual substance. Its rational activity is performed by its three higher faculties, and the relation between its unity and its multiplicity is akin to the way in which God is both One and Trine. In this connection, Ramon Llull follows Augustinian doctrine, which asserts the same value and the same transcendent quality for intellect, will and memory<sup>32</sup>.

This transcendent nature of the soul, however, must needs have dealings with a body, in order to compose the unity of the human being. The body, in fact, is an instrument which enables the soul to perform its actions. As is customary, this instrument is composed of parts which perform specific functions:

Habet anima in corpore organa et instrumenta in quibus suas movet potentias, sicut cor, quod est organum voluntatis, et cerebrum frontis intellectus, et cerebrum occipitis memorie. Et in medio amborum anima movet imaginativam ad imaginandum obiecta imaginabilia<sup>33</sup>.

Regarding the attribution of organs to the soul, Llull’s position is clear: rational faculties, like sensitive ones, need an instrument to carry out their actions.

Llull agrees on the other hand, however, with the general Augustinian view according to which the soul and its spiritual qualities are likewise present in every part of the body<sup>34</sup>. Both aspects are compatible, according to Llull: the body is

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crítica y estudio, PhD thesis, UAB, Barcelona 2012, on-line access: <http://www.tdx.cat/handle/10803/98398>.

<sup>31</sup> C. LÓPEZ ALCALDE, «El *Liber novvs de anima rationali* de Ramon Llull dentro del discurso psicológico del siglo XIII», *Revista Española de Filosofía Medieval*, 18 (2011) 81-94.

<sup>32</sup> C. LÓPEZ ALCALDE, «Ontología del alma y facultades de conocimiento. Alma, cuerpo y conocimiento en la obra psicológica de Ramon Llull», *Anuario Filosófico. Ramón Llull: un filósofo en la frontera (monográfico)*, 49/1 (2016) 73-95.

<sup>33</sup> Ramon Llull, *Liber novvs de anima rationali*, cit., II, IV, 6.

<sup>34</sup> «Quia anima per se ipsam divisibilitatem, extensitatem et quantitatem corporalem non habet, est tota in qualibet corporis parte, quia sua bonitas naturalis non est nisi una, et per totam est substantiam. Oportet ergo ipsam esse per totum corpus, et si erat in una parte et non in alia, esset anima in una parte et non in alia, et si de bonitate naturali anime esset una pars in capite et alia in corde, esset anima naturaliter divisibilis et habens corporalem extensionem. Est ergo anima secundum sui naturam tota in qualibet parte corporis et non tota secundum corporis naturam». *Ibidem*, II, III, q. 2.

an organism, wherein all its parts have a specialisation or are more skilful in one particular activity rather than another. Such differences can be explained, therefore, in quantitative terms:

Substantia anime est per totum corpus et hoc idem de omnibus suis partibus, sed quia habet necesse organa determinata suis potentiis et actibus, habet maiorem virtutem in uno membro corporis quam in alio, sicut sensus communis, qui maiorem habet virtutem in manu quam in pede<sup>35</sup>.

The example is simple and intuitive: the hand is more active (*habet maiorem virtutem*) than the foot and is thus more important as an organ<sup>36</sup>.

#### **4.2. The spatial anteriority of the intellect and the median position of the imagination**

If we look back at the first passage cited from the *Liber novus de anima rationali*, we note the specification of two different organic centres, namely, the heart and the brain, which, as we briefly tried to show, had already been the subject of considerable attention in ancient literature. According to Llull, the heart is nominated as the organ of the will, while the brain becomes the locus of the cognitive faculties, wherein are situated the internal faculties pertaining to sense (i.e. the *sensus communis* and the imagination) as well as the rational powers (i.e. intellect and memory).

All of these faculties within the brain correspond to a position of either spatial anteriority or posteriority. Surprisingly enough, however, Llull places the intellect within the former; in front, that is, of the imagination:

Habet anima in corpore organa et instrumenta in quibus suas movet potentias, sicut cor, quod est organum voluntatis, et cerebrum frontis intellectus, et cerebrum occipitis memorie. Et in medio amborum anima movet imaginativam [...]<sup>37</sup>.

As we have already seen, such placement is uncommon. When related to its position within the brain, intellection is customarily sited in the middle, rather than at the front thereof, as Llull, in effect, proposes here.

<sup>35</sup> Ibidem, VIII, I, q. 10.

<sup>36</sup> Aristotle considered the hand as the «organum organorum», cfr. *De anima* III, 8, 432a 1-2.

<sup>37</sup> Cfr. note 32.

The passage just cited is not alone in discussing this matter. There are, in fact, three *questiones* devoted to the brain's physiology, the first of which considers the intellect; the second, memory; and the third, the imagination. Llull answers the question of «why the front brain has been provided as an organ to the intellect» thus:

Nulla potentia est ita nec tantum investigativa sicut intellectus, quoniam ipse est qui causat differentias inter species. Et quia imaginatio attingit sensum et intellectus attingit sensum in imaginatione, et frontis cerebrum participat in illo loco in quo fit maior collectio sensum particularium, sicut in capite sursum supra nasum intus iuxta supercilia, in quo est unum centrum ubi congregatur centrum audiendi, videndi, odorandi et gustandi, propter hoc competit sibi melius illud cerebrum per organum quam aliqua alia pars corporis<sup>38</sup>.

According to Llull, owing to the role it plays in human inquiry, intellectual functions are assigned to the front brain, which overlaps with (*participat in*) the place at which the senses converge. This shared physical location enables one to conclude that the intellectual faculties should already be implicated in sensation. The activity of the senses, therefore, which are by nature passive, specifically derives from the intellect, which is in essence active.

Imagination and memory, in consequence, are ascribed to the other two principal parts of the brain. The first of these is thus sited in the middle thereof:

Secundum quod prediximus, unus locus est qui communior est sensibus particularibus quam aliquis alius locus corporis, et ille participat cum cerebro anteriori et posteriori; et in medio loco est organum imaginationis, ut intellectus imaginari possit species corporales et memoria simili modo. Et hoc non esset in ita bona dispositione, si ipsum organum imaginationis non participasset cum illo loco communiori, quem prediximus<sup>39</sup>.

Imagination appears to have its own organ possessed of extension and situated close to the other faculties of the brain. It has to be accessible to the intellect, for sure, in order to create corporeal species, and it likewise has to be accessible to memory, situated as this is at its rear: the recollection of memories is possible given the contact the faculty of memory has with the imagination, whence it extracts its species:

Sicut intellectus et ignis conveniunt per concordantiam luminis corporalis et luminis spiritualis, sic memoria et terra concordant per modum conservationis corporalis et spiritualis,

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<sup>38</sup> Ibidem, IV, II, q. 5.

<sup>39</sup> Ibidem, IV, II, q. 7.

quoniam terra conservat species corporales et ipsas reddit soli et agenti naturali quod ipsas generat et innovat, et memoria reddit ipsas fantasticas species intellectui et ipsas conservat. Et propter hoc, quia reddit species corporales intellectui per imaginationem, datum est cerebrum posterius memorie<sup>40</sup>.

The common sense (*sensus communis*) and the imagination, physically linked as these are, function as spiritual sites for reception and storage, sites attendant upon the action of the intellect and of memory, which, in order to create or recall any species, have recourse thereto<sup>41</sup>.

This physical anteriority of the intellect, a point at variance with the anatomical descriptions provided by other writers, is nevertheless entirely consistent with the cognitive and epistemological system the Majorcan thinker wished to construct, just as Avicenna and Averroes' own descriptions of the brain had been in relating this organ to human anatomy and cognitive faculties, as well as to levels of abstraction<sup>42</sup>. The *Liber novus de anima rationali* by Ramon Llull reclaims the faculties of sense as the necessary condition for obtaining human knowledge<sup>43</sup>. Such knowledge, however, has the actions of the intellect as its point of departure:

Quando intellectus incipit intelligere, incipit in se ipso et in sua natura, sicut homo volens facere cameram, qui incipit primo in habitatione, que est finis camere, sicut clavus, qui est finis martelli. Et incipiendo intellectus in sua natura interius, inquirat exterius similitudines cum quibus possit habere interiores, sicut per sensum, cum quo perquirat colores, verba, saporem et cetera, et de illis multiplicat species quas accipit in imaginatione, et ab imaginatione accipit in se ipso<sup>44</sup>.

<sup>40</sup> Ibidem, IV, II, q. 6.

<sup>41</sup> This interpretation of common sense and imagination is restricted to the passages cited in connection with anatomical description. The difficulties inherent in defining the role of these faculties and in assessing the contribution thereof to the epistemological process are nevertheless well known, not only in respect of Llull's own view but of the entire tradition also. On Llull's concept of imagination, cfr. for instance C. AOS BRACO, «La imaginación en el sistema de Ramón Llull», *EL*, 23 (1979) 155-183; A. VEGA ESQUERRA, «La imaginación religiosa en Ramon Llull: una teoría de la oración contemplativa», *Mirabilia*, 5 (2005).

<sup>42</sup> Cfr. notes 14 and 15.

<sup>43</sup> «In quantum anima non potest habere operationes interius absque specierum extrinsecarum multiplicatione, oportet quod extra habeat passiones quas imprimat intus, sicut passionem per videre vel per alium sensum imprimat in imaginatione, et de imaginatione in intelligibilitate intus, in qua intellectivum intelligibilitatem extrinsecam intelligit et considerat et iudicium facit». Ramon Llull, *Liber novus de anima*, cit., IX, II, q. 3.

<sup>44</sup> Ibidem, IX, I, q. 1.

The intellect is conceived as man's principal guide on the path towards knowledge. Its internal and prior activity seeks similarities within the external world which enable the soul to obtain knowledge of its own nature, which is unable to generate scientific knowledge from its own initiative<sup>45</sup>.

The intellect, therefore, is like a light which illuminates the outer realms in order to obtain species, and such power of illumination can only work if the organ associated therewith is sited in a position of anteriority, namely, in the vanguard as far as all the other cognitive functions are concerned.

### 4.3 The will

At a distance from the brain and the parts thereof stood the will, situated, as this was, in the heart. Llull placed this rational faculty at the centre of man's force for life, in accordance with classical physiological traditions<sup>46</sup>.

Ramon Llull explains why the will is not located in the same place as the other rational functions:

Cor est fons sanguinis, qui est complexionis aeris, et sanguis est illa pars que citius convertitur in aliam speciem quam aliqua alia pars corporis; et quia voluntas magis propere attingit suum obiectum quam memoria et intellectus, propter hoc datum est sibi cor per instrumentum<sup>47</sup>.

The heart naturally conducts the vital fluid to where it is needed, and the same can be said of the will. The will, independently of the other higher faculties, is able to develop its action in an immediate and autonomous way, as regards either the intellect or memory. Its physical distance is a warranty, therefore, of its radical freedom.

<sup>45</sup> C. LÓPEZ ALCALDE, «The Foundations of Analogical Thinking in Llull's Epistemology», in J. HIGUERA (ed.), *Opera Lulliana: a Mirror of Medieval Philosophy, Knowledge, Contemplation, and Lullism, Contributions to the Lullian Section in the SIEPM Congress-Freising, August 20-25, 2012*, (Supplementa Lulliana 5) Brepols, Turnhout 2015, 41-52.

<sup>46</sup> Cf. *De spiritu et anima*, cit., p. 795. In *De motu cordis* (written before 1210), Alfred of Sareshel following Aristotle, asserted the superiority of the heart: «Primus et continuus anime actus vita est. Hec cordis motu efficitur». Alfred of Sareshel, *De motu cordis*, ed. C. BÆUMKER, Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters, Münster 1923, Ch. 8, p. 30; «Cor igitur anime domicilium est». Ibidem, p. 33; «Totius ergo sensibilitatis cor principium est. Non ergo a capite sensum ducit». Ibidem, Ch. 16, p. 94. Cf. J. WILCOX, «On the Difference...», cit., p. 76.

<sup>47</sup> Ramon Llull, *Liber novus de anima*, cit., IV, II, q. 4.

Such consideration of the autonomy and immediacy of the heart's actions is closely related to a predominant spiritual and mystical position which conceives of the heart as the centre of the faculty of love<sup>48</sup>. Love is indeed the fastest way of approaching an object, but Llull, moreover, proposed that it was also the starting point of scientific knowledge.

Certainly, it is in this sense that we can interpret a passage from Llull's *Llibre d'amic e amat* [*The Book of the Lover and the Beloved*], one of the most important works of western spirituality<sup>49</sup>. There Llull distinguishes between the organ and its action, to love:

Dignes, foll, qual cosa fo enans, o ton cor o amor?

Respon e dix que en un temps foren son cor e amor; cor, si no ho fossen, lo cor no fora creat a amar ni amor no fora creada a cogitar<sup>50</sup>.

This passage underlines the significance of the heart, the value of which is not reduced to its capacity to love and feel affection<sup>51</sup>. To will is also the first step in the *via cogitativa*, that is, the path towards scientific knowledge<sup>52</sup>. The will, therefore, can operate along two pathways to the object: the first a direct, namely, the mystical, path; the second, a mediate path using the senses and one's rational apparatus, beginning with the *notitia* and leading to *cogitatio*, as Augustine himself had conceived<sup>53</sup>. In our opinion, it cannot be said that this last

<sup>48</sup> Cf. (Études Carmélitaines), *Le cœur*, Desclée De Brouwer, Paris 1950.

<sup>49</sup> «Llull's book [*Llibre d'amic e amat*] attained such popularity that it has been called the second-greatest devotional book in the Western World, second only to the Imitation of Christ». H. D. EGAN, *An Anthology of Christian Mysticism*, Liturgical Press, Collegeville 21996, p. 285.

<sup>50</sup> Ramon Llull, *Llibre d'amic e amat*, en *Blaquerna*, ed. A. SOLER, J. SANTANACH, NEORL VIII, p. 445, 344-346.

<sup>51</sup> With love and because of love, the heart is also the place of sighs and tears: «Plorava l'amic ab les rais d'amor, qui son fontanes d'on nexen, en los uyls de l'amic, làgremes e pors; car l'amor amifica l'cor de l'amic, e lo cor puja l'aigua als uyls, ui ploren per la amaficació del cor qui suspira per amor». Ramon Llull, *Arbre de filosofia d'amor*, ed. S. GALMÉS, ORL XVIII, p. 147.

<sup>52</sup> M.-D. Chenu has alerted us to this dual approach within medieval thought to the functions of the heart: «Si donc [...] nous considérons les classifications qu'ont élaborées les médiévaux, nous observons que tous ont tenté de surmonter l'irréductible et nécessaire distinction entre facultés cognitives et facultés affectives». M.-D. CHENU, «Les catégories affectives dans le langage de l'école», in *Le cœur*, cit., p. 126.

<sup>53</sup> Cfr. the definition of *cogitatio* in Llull's *Logica nova*: «cogitatio est actus anime, cum quo anima movet potentias inferiores ad actus earum, quia per cogitationem imaginatio se habet ad obiectum imaginabile, et sensitiva ad sensibile». Ramon Llull, *Logica nova*, ed. W. EULER, ROL

path, which involves love, body and intellect, was less important regarding the former in Llull's doctrine, when Llull in a work such as the *Art amativa* insists on the necessity of both knowledge and love<sup>54</sup>.

On this reading, the *Ars* can be considered a third (path) way, one based upon the certainty provided by a mystical experience of God which arises in Ramon Llull's heart:

Verum dum ipse mente lugubri hoc devolveret, ecce –nesciebat ipse quomodo, sed scit Deus,– intravit cor eius vehemens ac implens quoddam dictamen mentis, quod ipse facturus esset postea unum librum, meliorem de mundo, contra errorem infidelium<sup>55</sup>.

### 5. Modernity of the above discussions and final remarks

Discussions concerning the organs of cognition had a long and widespread tradition, which reached present times via the conduit of modern philosophy. René Descartes himself, just like Ramon Llull, and despite his explicit rejection to the Majorcan thinker<sup>56</sup>, asserts the attribution of a physical instrument to the soul, thus bringing renown to the pineal gland as the place at which soul and body meet<sup>57</sup>. And Descartes, again just like Llull, sees no contradiction in arguing for

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XXIII, p. 95, 489-492, and G. VERBEKE, «Pensée et discernement chez saint Augustin. Quelques réflexions sur le sens du terme 'cogitare'», in *D'Aristote à Thomas d'Aquin. Antécédents de la pensée moderne. Recueil d'articles*, University Press, Leuven 1990, pp. 413-434. Cf. also E. BERMON, *Le Cogito dans la pensée de Saint Augustin*, Vrin, Paris 2001.

<sup>54</sup> Cf. many passages of the *Art amativa*, for instance this one: «per que compilam esta Art amativa en la qual se dona es mostra amancia, axí com en la Art inventiva sciencia: car enaxí com sciencia es intitulada sots enteniment, enaxí amancia es intitulada sots volentat; e car amancia es defectiva sens sciencia, e sciencia sens amancia, per açò en esta amancia prenem los començaments de la Art inventiva, e la manera daquella sciencia seguim en esta compilació». Ramon Llull, *Art amativa*, ed. S. GALMÉS, ORL XVII, p. 4.

<sup>55</sup> Ramon Llull, *Vita coetanea*, ed. H. HARADA, ROL VIII, p. 275, 56-60.

<sup>56</sup> Descartes' rejection to Ramon Llull in the *Discours de la méthode* it is well-known (*Œuvres de Descartes*, ed. C. ADAM et P. TANNERY. 12 vols., Cerf, Paris 1897-1913, vol. VI (1902), p. 17). Nevertheless, currently many scholars claim the influence of the *Ars* on Descartes' philosophical thinking and mathematical theories, cf. J. BERTRAN I GÜELL, *Influencias lulianas en el sistema de Descartes*, Talleres tipográficos Galve, Barcelona 1930; W. SHEA, *The Magic of Numbers and Motion: The Scientific Career of Rene Descartes*, Science History Publications, Canton (Mass.) 1991; A. GUY, «Razón y fe en Llull y Descartes», *ST*, 32 (1992) 59-79. Vd. in this volume the article dedicated to this specific subject by J. P. dos SANTOS RAMOS, *Ars de Llull e o desenvolvimento do espírito filosófico de Descartes*.

<sup>57</sup> Cf. DESCARTES, *Les passions de l'âme*, Vrin, Paris 1966, art. 31, p. 89: «En examinant la chose

the presence of the soul throughout the body<sup>58</sup> at the same time as maintaining the existence of a particular organ *en laquelle l'ame exerce immediatement ses fonctions*<sup>59</sup>:

Mais pour entendre plus parfaitement toutes ces choses, il est besoin de sçavoir que l'ame est veritablement jointe à tout le corps, et qu'on ne peut pas proprement dire qu'elle soit en quelcune de ses parties, à l'exclusion des autres [...]. Il est besoin aussi de sçavoir que bien l'ame soit jointe à tout le corps, il y a neantmoins en luy quelque partie, en laquelle elle exerce ses fonctions plus particulièrement que'en toutes les autres<sup>60</sup>.

A significant parallel can be noted between both conceptions, therefore, a parallel which clearly reveals that much of Descartes philosophy is in debt -

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avec soin, il me semble avoir évidemment reconnu que la partie du corps en laquelle l'âme exerce immediatement ses fonctions n'est nullemente le cœur; ni ausi tout le cerveau, mais seulement la plus interieure de ses parties, qui est une certaine glande fort petite, située dans le milieu de sa substance».

<sup>58</sup> Ibidem, art. 30, p. 88. This and other passages reveal the hylemorphism of Descartes' conception, according to P. Hoffman: «In these passages Descartes is alluding to and endorsing the Scholastic view that the mind or soul exists whole in the whole body and whole in each of its parts. Since that view is part and parcel of the Scholastic hylemorphic conception of the relation between the soul and body, Descartes's endorsement of it counts as significant evidence that he endorses a hylemorphic conception of the human being». P. HOFFMAN, «The Union and Interaction of Mind and Body», in J. BROUGHTON, J. CARRIERO (eds.), *A Companion to Descartes*, Blackwell Publishing, Malden/Oxford/Carlton 2008, pp. 392-393: Cfr. Alain de Libera who, analysing Peter Olivi's hylemorphism, compares Olivi and Descartes' doctrines, concluding as follows: «Cela étant, tout Olivi ne se retrouve pas en Descartes. Ce dernier abandonne à la fois l'hylémorphisme, les formes substantielles et la pluralité des âmes, le Franciscain, non : sa conception de l'union de l'âme et du corps reste hylémorphique». A. DE LIBERA, «Formes assistantes et formes inhérentes. Sur l'union de l'âme et du corps, du moyen âge à l'âge classique», *AHDLMA*, 81 (2014) 208.

<sup>59</sup> DESCARTES, *Les passions de l'âme*, cit., art. 31, p. 89.

<sup>60</sup> Ibidem, art. 30 and 31, pp. 88, 89. Unlike Llull, Descartes located the soul in a small part of the brain whereas our medieval thinker situated the soul within the entire brain. This difference is, in fact, related to Llull's more inclusive view of the soul: «Descartes agreed with his predecessors in according reason and will a special status. But he claimed to be able to account for all vegetative and sensitive phenomena mechanistically, leaving only consciousness, intellection and volition proper to the soul or mind». Á. OKSENBERG RORTY, «Descartes on thinking with the body», in J. COTTINGHAM, *The Cambridge Companion to Descartes*, Cambridge University Press, New York 1992 p. 344. Cfr. St. GAUKROGER, *Descartes*, cit., p. 402: «Second, in article 47 he uses the doctrine of the pineal gland being the seat of the soul to undermine the prevalent account of the passions in terms of a conflict between higher and lower parts of the soul [...]. The conflicts that we experience are, then, conflicts between the soul and the body».

particularly in respect of its conception of soul and body - to medieval discussions and classical doctrines<sup>61</sup>.

Descartes' descriptions on the soul and its relation with corporeal organs aim at underlining the importance of the classical medical doctrines in the History of the psychological tradition beyond the Middle Ages. As it has been shown, anatomical descriptions were customarily closely related not only to perspectives on the soul but to epistemological doctrines as well.

Ramon Llull's own anatomical descriptions, moreover, were intimately concerned with his anthropological conception. Indeed, despite his affirming the pre-eminence of the rational soul, he also emphasises the dignity of the human body, in particular by indicating the body's positive and necessary role as regards the performance of the will's, intellect's and memory's proper actions<sup>62</sup>. In conclusion, Llull's approach to anatomy is the symptom of his remarkably consistent theory of man.

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<sup>61</sup> According to Gaukroger: «Descartes undertook extensive anatomical investigation from the early 1630s to the late 1640s, and this work shows him to have been thorough and careful observer, although not an innovator; and indeed, he tells Marsenne that he has assumed nothing in anatomy which is not generally accepted. The physiology of *L'Homme* is even more derivative, and it is based on three main sources: Hippocratic and specially Galenic treatises, Scholastic writers on medicine and commentaries on the biological writings of Plato and Aristotle, including Coimbra commentaries, and biological and medical writers from the mid-sixteenth century onwards». St. GAUKROGER, *Descartes. An Intellectual Biography*, Clarendon Press, Oxford 1995, p. 270.

<sup>62</sup> «La constante admiración luliana por la nobleza intrínseca de la persona humana es una lógica consecuencia del reconocimiento del esencial carácter racional del compuesto humano». F. DOMÍNGUEZ REBOIRAS, «Introducción» a Ramon Llull, *Liber de homine*, ed. F. DOMÍNGUEZ REBOIRAS, ROL XXI, p. 121. For Llull's anthropology, cfr. *ibidem*, pp. 121-134.