



Medieval leprosy and the *metaphorical medicine* of Ramon Llull (1232-1316)¹

A lepra medieval e a *Medicina metafórica* de Ramon Llull (1232-1316) La lepra medieval y la Medicina metafórica de Ramon Llull (1232-1316)

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Abstract: A brief study of leprosy in the Middle Ages, its history, medical perception and social attitude toward manifestations of the disease. As a case study about the prevailing medical principles, we present some excerpts from *Començaments de Medicina* (c.1274-1283), *Doctrina pueril* (c. 1274-1276), *Fèlix o Libre de Maravelles* (1288-1289), and *Liber prouerbiorum* (c. 1296) by the medieval philosopher Ramon Llull (1232-1316). It presents the theoretical foundations of his Medicine: a *metaphorical art* that links the Hippocratic four elements (air, fire, earth and water) and Christian Theology using *numeric symbolism*.

Resumo: Breve estudo sobre a lepra na Idade Média, sua história, percepção médica e atitude social diante da manifestação da doença. Como estudo de caso acerca dos princípios médicos vigentes, apresentaremos alguns extratos das obras *Començaments de Medicina* (c. 1274-1283), *Doctrina pueril* (c. 1274-1276), *Fèlix o Libre de meravelles* (1288-1289) e *Liber prouerbiorum* (c. 1296) do filósofo Ramon Llull (1232-1316), que apresenta as bases teóricas de sua medicina: uma *arte metafórica* que estabelece conexões entre os quatro elementos (ar, fogo, terra e água), de base hipocrática e a teologia cristã por meio do *simbolismo numérico*.

Palavras-chave: História da Medicina – Lepra – Idade Média.

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Image 1



William of Tyre (c. 1130-1186) discovers the first symptoms of leprosy in the future King Baldwin IV (1161-1185). Manuscript from *Estoire de Eracles* - French translation of the *History*, by William of Tyre. Enluminure, c. 1250, British Library, London.

The sixth of the Latin kings of Jerusalem was the lord Baldwin IV, son of the lord King Amalric of illustrious memory⁴ and of the Countess Agnes⁵, daughter of the younger Count Jocelin of Edessa.⁶ (...) While Baldwin was still a boy, about nine years old, and while I was still Archdeacon of Tyre, King Amalric put him in my care, after asking me many times and with a promise of his favour, to teach him and to instruct him in-the liberal arts. [William probably became Baldwin's tutor in 1170] While he was in my hands, I took constant care of him, as is fitting with a king's son, and I both carefully instructed him in literary studies and also watched over the formation of his character.

It so happened that once when he was playing with some other noble boys who were with him, they began pinching one another with their fingernails on the

⁴ Amalric I, from Jerusalem.

⁵ Agnes from Courtenay.

⁶ Jocelin II (†1159), the fourth and the last Count of Edessa.



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hands and arms, as playful boys will do. The others evinced their pain with yells, but, although his playmates did not spare him, Baldwin bore the pain altogether too patiently, as if he did not feel it. When this had happened several times, it was reported to me. At first, I thought that this happened because of his endurance, not because of insensitivity. Then I called him and began to ask what was happening. At last, I discovered that about half of his right hand and arm were numb, so that he did not feel pinches or even bites there. I began to have doubts, as I recalled the words of the wise man: “It is certain that an insensate member is far from healthy and that he who does not feel sick is in danger.”⁷

I reported all this to his father. Physicians were consulted and prescribed repeated fomentations, anointing, and even poisonous drugs to improve his condition, but in vain. For, as we later understood more fully as time passed, and as we made more comprehensive observations, this was the beginning of an incurable disease. I cannot keep my eyes dry while speaking of it. For as he began to reach the age of puberty it became apparent that he was suffering from that most terrible disease, leprosy. Each day he grew more ill. The extremities and the face were most affected, so that the hearts of his faithful men were touched by compassion when they looked at him.⁸

The leper-king Baldwin IV (1161-1185) of Jerusalem died at only 24 years. In addition to leprosy, he had contracted tuberculosis, was practically blind and his face, hands and legs were disfigured. Still, he could slow the advancement of Saladin (1138-1193)⁹ and win the latest Christian victories.¹⁰ The behaviour and courage of the king-leper still impress contemporary minds.

⁷ Quote from Hippocrates (460-370 BC). Hippocratic Medicine and its Theory of the Four Humours and Elements were highly esteemed in the Middle Age, as we will see.

⁸ William of Tyre. *Historia rerum in partibus transmarinis gestarum*, XXI, 1-2.

⁹ To see more about the kingship of Baldwin IV: RUNCIMAN, Steven. *Historia de las cruzadas 2. El Reino de Jerusalén y el Oriente Franco, 1100-1187*. Madrid: Alianza Editorial S. A., 1973, p. 366-403.

¹⁰ Like the one in Tell Gezer (a.k.a. the Battle of Montgisard, in November 25, 1177): “Michael, from Syria (1126-†1199), Patriarch of the Jacobite Church, was testimony of the events. ‘Everybody’, he writes, ‘had lost hope, because the evil of Leprosy started to appear in the young king Baldwin, who grew weaker, and, since that, everybody trembled in fear. However, God, who makes His strength appear in the weak, inspired the infirm king. The rest of his troops united around him; the king descended from his mount, prostrating himself, face to the ground, and prayed while crying. The soldiers were all moved when they saw it. Everybody reached out their hands to the cross and vowed to never flee, and, if defeated, they vowed that those who flee instead of dying were to be considered as traitors and apostates. They mounted their horses and advanced against the rejoicing Turkish, because they (the Turkish) believed that victory was theirs. When the Franks saw the enemy forces, just like a sea, they granted each other the peace and asked each other forgiveness.



I. The disease among the Ancient

Leprosy – an infectious disease transmitted by a bacterial microorganism (*Mycobacterium leprae*) – is an old (and feared) disease known by mankind.¹¹ Among the Ancient, the diseases had several meanings. In general, due to the morbid apparent condition (especially when stigmatizing signs caused by deformations or visible spots were evident), diseased persons were usually associated with some kind of divine punishment and isolated, considering the risk of contagion. For example, the Jews who sought the Promised Land removed the leper from society after careful examination of the skin¹²:

When a person has on the skin of his body a swelling or an eruption or a spot, and it turns into a case of leprous disease on the skin of his body, then he shall be brought to Aaron the priest or to one of his sons the priests, and the priest shall examine the diseased area on the skin of his body. And if the hair in the diseased area has turned white and the disease appears to be deeper than the skin of his body, it is a case of leprous disease. When the priest has examined him, he shall pronounce him unclean.¹³

As a precaution, even if the examination did not show the signs of leprosy, it should be repeated after two weeks in order to observe the clinical evolution and get an accurate diagnosis.

The divine action as a cause of illness can be seen in the book of Job, whose disease was allowed by God and inflicted by Satan, who “(...) struck Job with loathsome sores from the sole of his foot to the crown of his head.”¹⁴

Then, they fought the battle. At that moment, the Lord raised a violent storm, which threw dust from the side of the Franks to the face of the Turkish. The Franks, understanding that the Lord accepted their contrition, became brave while the Turkish retreated and fled. The Franks chased the Turkish all day, killing and slaughtering them’. The Ernoul’s Chronicle, them, resume: ‘Never before, Roland or Olivier made such prowess at Roncevaux as... in that day with the help of God and of Monsignor Saint George, which was with us in combat’ “*Quote from PERNOUD, Régine. A mulher no tempo das cruzadas. Campinas, SP: Papirus, 1993, p. 143-144.*

¹¹ MARTINS, Milton de Arruda et al. *Clínica Médica: Volume 7* (Alergia e Imunologia Clínica, Doenças da Pele e Doenças Infecciosas). Barueri, SP: Editora Manole, 2009, p. 283-315.

¹² “As long as the disease lasts, such a person will be unclean and, being unclean, will live alone and live outside the camp.” Lv 13,46. *Bíblia de Jerusalém (Jerusalem Bible)*. São Paulo: Paulus, 2012, p. 178.

¹³ Lv 13, 2,3. *Bíblia de Jerusalém, op. cit.*, p. 177.

¹⁴ Jo, 2, 7. *Bíblia de Jerusalém, op. cit.*, p. 804.



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The sight of the disease, its signs and symptoms, punishment or curse from divine or supernatural forces, left the patient isolated and at risk. Once vulnerable, one could suffer harm and stigmatization for some hypothetical sort of moral failure that could explain the disease. In more extreme cases, the diseased person could even be persecuted as a scapegoat who would diminish social tensions.¹⁵

On the other hand, it was also noted that the diseases affected the righteous and the wicked, and they could be nothing more than a reality of human life.¹⁶ Naturalistic explanations for the diseases processes emerged along with the Hippocratic medicine, which prescribed diets and therapies to restore the balance of the human body and its original health.

In addition to the patient's social isolation (which avoided the presence of contaminated miasmas that could affect the health of all), regular check-ups were provided to verify if the evil still assailed the diseased person. Doctors and priests, moved by pity, examined and treated the patients as far as possible¹⁷ and they did not exempt themselves from the contact with patients from any social classes.¹⁸

¹⁵ Such signs of victimization could include birth defects, skin diseases stigmata, strange behavior, or simply the fact of being a foreigner; they were all predisposing factors to “mark” someone as a scapegoat, exiling him or her from society and granting relief for a community that cumulated unsupportable tension. The work of René Girard (1921-†2015) offers wide basis for such conclusions. GOLSAN, Richard J. *Mito e Teoria Mimética: uma introdução ao pensamento girardiano*. São Paulo: É Realizações, 2014, p. 97-124. Girard sees, in the Book of Job, the attempt do condemn Job by his friends when he presented grave afflictions and diseases, in a clear exposition of the scapegoat mechanism. However, God, who denies that disease was caused by a moral mistake from His faithful servant Job, breaches the cycle of violence and injustice. More at: GIRARD, René. *A Rota Antiga dos Homens Perversos*. São Paulo: Paulus, 2009.

¹⁶ Isaiah – rain over just and impious people, and God to condemn the friends of Job, because they were not telling what was adequate about God.

¹⁷ JONSEN, Albert R. *A Short History of Medical Ethics*. Oxford: Oxford University Press, 2000, p. 27-41.

¹⁸ “Into whatsoever houses I enter, I will enter to help the sick, and I will abstain from all intentional wrong-doing and harm, especially from abusing the bodies of man or woman, bond or free.” (ἐς οἰκίας δὲ ὀκόσας ἂν εἰσῶ, ἐσελεύσομαι ἐπ’ ὠφελείῃ καμνόντων, ἐκτὸς ἐὼν πάσης ἀδικίης ἐκουσίης καὶ φθορῆς, τῆς τε ἄλλης καὶ ἀφροδισίων ἔργων ἐπὶ τε γυναικείων σωμάτων καὶ ἀνδρῶν, ἐλευθέρων τε καὶ δούλων). Hippocrates. “The Oath”. In: JONES, W. H. S. (Tradutor). *Hippocrates Volume I, op. cit.*, p. 289-302.

Image 2



The devil harasses Job, exhaling fire from every orifice in his body (mouth, ears and anus). Gregory the Great (c. 540-604), *Moralia in Job*, Affligem (sec. XII). BnF, Latin 15675, folio 5v.¹⁹

¹⁹ HIPPOCRATES. Ancient Medicine. Airs, Waters, Places. Epidemics 1 and 3. The Oath. Precepts. Nutriment (translated by W. H. S. Jones). Cambridge, MA: Harvard University Press, Loeb Classical Library 147, 1923, p. 65-137. Interestingly, besides the fact that Job was scraping his wounds (which were contaminated, hence the social isolation of lepers), the exhalation of fire and the foul breath of the satanic mouth over Job reinforces the conception that contaminated airs could carry diseases. That was the so-called miasma theory, in which infectious airs could arise, for example, from the putrid matter of swamps and generate diseases among men. Other causes of diseases could include excessive exercise or poor diet. The miasmatic conception of disease was inherited by the medieval theory from the ancient Hippocratic physicians. Among the diseases credited to miasma contamination were listed leprosy [scales], the psora [ulcerated lesions with secretion] and lichen [nodular diseases]



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The theoretical foundations and the practice of medieval medicine were based upon two ancient authors: Hippocrates (c. 460-370 BC) and Galen (c. 129-200), whose authorities were only attenuated by the modern medicine, which was based on the scientific revolution and on the mechanistic conception of the human being.²⁰ Until then, Hippocratic and Galenic works were the common reference for medieval doctors, which relied on such old texts seeking the causal theory of diseases and their treatments.

Hippocrates, for example, prescribed mixtures of various substances such as goat milk, warm vinegar (*Use of Liquids*²¹) or calcium sulphate (*Gypsum*, described in *Epidemics*, Book II²²) in addition to a proper diet, for the treatment of Leprosy.

II. The disease and Christianity

Since the second century, in Christian rhetoric, the doctor's office has been compared to the redeeming work of Jesus Christ. The expression *Christus Medicus* gained strength and became well known to those who dedicated themselves to the healing of the sick, because God himself became associated to a physician, as can be seen in this intense passage of the Ecclesiastical History by Eusebius of Caesarea (275-339 c.):

παναγάθου πατρὸς μονώτατος ὑπάρχων πανάγαθος παῖς, γνώμη τῆς πατρικῆς
φιλανθρωπίας τῶν ἐν φθορᾷ κάτω που κειμένων ἡμῶν εὖ μάλα προθύμως ὑποδὸς
τὴν φύσιν, οἷά τις ἰατρῶν ἄριστος τῆς τῶν καμνόντων ἔνεκεν σωτηρίας ὄρη μὲν
δεινά, θιγγάνει δ' ἀηδέων ἐπ' ἀλλοτρίησί τε ζυμφορῆσιν ἰδίας καρποῦται λύπας,
οὐ νοσοῦντας αὐτὸ μόνον οὐδ' ἔλκεσι δεινοῖς καὶ σεσηπόσιν ἤδη τραύμασιν
πιεζομένους, ἀλλὰ καὶ ἐν νεκροῖς κειμένους ἡμᾶς ἐξ αὐτῶν μυχῶν τοῦ θανάτου
αὐτὸς ἑαυτῷ διεσώσατο, ὅτι μηδ' ἄλλω τῶν κατ' οὐρανὸν τοσοῦτον παρῆν

²⁰ Andreas Vesalius (1514-1564), with *De Humani Corporis Fabrica* (published in 1543), was one of the precursors of the modern vision of Medicine. *Andreae Vesalii bruxellensis, scholae medicorum Patavinae professoris, de Humani corporis fabrica Libri septem*, Basileae, ex officina Ioannis Oporini, June 1543.

²¹ HIPPOCRATES. *Places in Man. Glands. Fleshes. Prorrhetic 1-2. Physician. Use of Liquids. Ulcers. Haemorrhoids and Fistulas* (edited and translated by Paul Potter). Cambridge, MA: Harvard University Press, 1995, Loeb Classical Library 482, p. 326-327.

²² For white or scaly leprosy, gypsum in water; be careful not to cause ulceration (Ἄλφου καὶ λέπρης, τίτανος ἐν ὕδατι, ὡς μὴ ἐλκώσης). HIPPOCRATES. *Epidemics 2, 4-7* (edited and translated by Wesley D. Smith). Cambridge, MA: Harvard University Press, 1994, Loeb Classical Library 477, p. 74-75.



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ἰσχύος, ὡς τῆ τῶν τοσοῦτων ἀβλαβῶς διακονήσασθαι σωτηρίᾳ. μηδ' ἄλλω τῶ τῶν κατ' οὐρανὸν τοσοῦτον παρῆν ἰσχύος, ὡς τῆ τῶν τοσοῦτων ἀβλαβῶς διακονήσασθαι σωτηρίᾳ.

Because only He, as the Son which is, absolutely unique and most holy of a holy Father, by the will of God's fatherly love for men, clothed himself in a most gracious way with our nature of men who lay in deep corruption, and, as a **most excellent doctor**, seeking the salvation of the sick, see terrible things and **touches disgusting wounds** and others calamities, harvesting suffering for his own.²³ Because He saved us when we, already among the dead, **were sick** or exhausted with **terrible sores and wounds already rotting**. He himself took us off from the depths of death for Himself, for no other in Heaven has the strength to serve in the salvation of so many people without despising himself.

μόνος δ' οὖν καὶ τῆς ἡμῶν αὐτῶν βαρυπαθοῦς φθορᾶς ἐφαψάμενος, μόνος τοὺς ἡμετέρους ἀνατλάς πόνους, μόνος τὰ πρόστιμα τῶν ἡμετέρων ἀσεβημάτων περιθέμενος, οὐχ μιθηήτας, ἀλλὰ καὶ πάμπαν ἐν μνήμασι καὶ τάφοις μυσαροῦς ἦδη καὶ ὀδωδότας ἀναλαβὼν πάλαι τε καὶ νῦν σπουδῆ τῆ φιλανθρωπῶ παρὰ πᾶσαν τὴν οὐτινος οὖν ἡμῶν τε αὐτῶν ἐλπίδα σῶζει τε καὶ τῶν τοῦ πατρὸς ἀγαθῶν ἀφθονίαν μεταδίδωσιν, ὁ ζωοποιός, ὁ φωταγωγός, ὁ μέγας ἡμῶν ἱατρός καὶ βασιλεὺς καὶ κύριος, ὁ Χριστὸς τοῦ θεοῦ.

Then, He alone touched our very serious corruption, He alone bore our sufferings, He alone carried the penalties of our iniquities.²⁴ And He did not raise us when we were half-dead, but when we laid heinously and completely corrupted in tombs and graves. Now, as before, with His loving concern for men, against the hope of the world and, therefore, our hope, He continues to save us and make us share in the abundance of our Father's property. He, the life giving, the one who brought the light, **our great doctor**, King and Lord, the Christ of God. HE, X, 4, 11-12.²⁵

²³ Quote from Hippocrates (*De flatibus*, I).

²⁴ Is 53, 4-5. *Biblia de Jerusalém, op. cit.*

²⁵ EUSEBIO DE CESAREA. *Historia Ecclesiastica II* (texto, versión española, introducción y notas por Argimiro Velasco-Delgado, O.P.). Madrid: Biblioteca de Autores Cristianos (BAC), MCMXCVII, p. 601-602.

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Image 3



Initial letter “C” (from Cleric) detail: clerics with leprosy being blessed by a bishop. The Church was the only institution with social concerns (in this case, medical, for protection). It is reasonable to think that clergyman acquired leprosy because of their direct contact with the disease while treating the lepers. Encyclopaedia *Omne Bonum* (London, c. 1360-1375), James le Palmer (c. 1326-1375). The British Library, c6541-07, Royal 6 and VI, folio 301.

Dionysius, Bishop of Alexandria (248-264), informs us that the Christian people...

... displayed unrestricted love and loyalty, without sparing themselves, always caring for the neighbour. Without minding the danger, they cared for the sick, attended to all their needs, treating them in Christ (...). Many, while caring and curing others, transferred their deaths to themselves and died in their places.²⁶

²⁶ JONSEN, Albert R. ‘Medieval Medicine: Fifth to Fourteenth Centuries CE’. In: JONSEN, Albert R. *Op. cit.*



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In contrast, at the first sign of leprosy, the pagans walked away even from their loved ones. The emperor Julian the Apostate (330-363), acknowledged: “Those wicked Galileans help not only their poor, but also our poor”. Cassiodorus (485-585), father of the Western monasticism, gave instructions for the care of the sick and included a bibliography of medical texts for the use of monk-doctors and nurses.²⁷

The fact is that, in the times called High Middle Ages, with the advent of Christianity and its notions of *Caritas* and assistance to the weaker, there were profound changes in the known world, not only in its worldview, but also at the structural level. One of the most remarkable aspect of those times is the emergence of hospitals, institutions unknown in the ancient world that were formally recognized by the emperor Justinian (482-565).²⁸

Since its inception, the hospital provided diagnosis and therapy assistance, and even had specialized sections (one of the first was the area of ophthalmology).²⁹

As the new worldview spread in the West and medieval society began to grow again after the end of the last barbarian raids in the eleventh century, medicine was positively affected: the ideal of *Caritas* assumed paramount importance and the concept of *infirmus* (sick) extended to the socially disfavoured. From the twelfth century, the doctrine of *infirmus* (disease) has become gradually separated from *paupertas* (poverty), which meant that there was a greater concern with the physical well-being. The Church managed the (few) medical places: hospices (*Hospitalia*), baths, infirmaries, and pharmacies (such as the Benedictine Abbey of St. Gall, founded in the ninth century). We highlight the baths, an important therapeutic element, followed by the spread of pharmacology and botany textbooks.³⁰

²⁷ *Ibid.*

²⁸ *Ibid.*

²⁹ “But the assistance to several gathered patients and the identification of a class of poor patients or, in any case, the needy and worthy of public assistance, is a novelty that has important repercussions for the professionalization of Medicine, which finds in the hospital a possibility of stable employment and an opportunity for social advancement.”, CONFORTI, Maria. “Corpo, Saúde e Doença no cristianismo”. In: ECO, Umberto (org.). *Idade Média I. Bárbaros, Cristãos e Muçulmanos*. Alfragide, Portugal: D. Quixote, 2014, p. 384-385.

³⁰ “From the perspective of baths and body cleansing, the West has seen a fantastic regression in centuries XV-XVIII. Baths, a distant heritage of Rome, were usual across Medieval Europe. There were private baths, and very large audiences with its steam cabins, their



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Although leprosy was known since ancient times, as we have seen, it has spread only after the crusades. It was hitherto almost unheard of in the West. Almost. The spread of the disease created a new way of thinking, socially and religiously about the suffering of the body.³¹ Leper colonies emerged (due to the perception that the leper was an impure being), and were the direct predecessors of the lazarettos or *leprosaria* (specific hospitals for lepers). From the end of the eleventh century to the fourteenth century, for example, at least 320 *leprosaria* existed in England.³²

With the common attitude of refusing care and contact with the leper, the Church's humanitarian attitude became of particular importance, disseminating the concept of love for the neighbour, and became the only institutional place that welcomed not only the leper, but also the infirm, the rejected, and the outcasts. Moreover, at the same time period happened the spread of Arab medical treatises (Hunayn ibn Ishaq [809-873], Abu al-Qasim al-Zahrawi [936-1013] and especially Avicenna [980-1037] and Constantine the African [1015-1087]), bringing texts that became fundamental to the study of medicine in the West, even if they kept an excessive emphasis on their theoretical aspects.³³

bathtubs and nursing beds, or large pools and promiscuity of naked bodies, mixed men and women. People met there as commonly as in the Church, and these bath establishments were intended for all classes; they were even subjected to manorial rights, such as mills, forges and distribution of beverages were. As for the wealthiest houses, all had their bathrooms in the basement, consisting of a greenhouse and wooden vats, usually, with staves in the manner of casks (...) In the sixteenth century, public baths became scarce, almost disappeared (...) gradually, bathing became a medication, it was no longer a hygienic habit.” – BRAUDEL, Fernand. *Civilização Material, Economia e Capitalismo. Séculos XV-XVIII. As Estruturas do Cotidiano: o possível e o impossível*. São Paulo: Martins Fontes, 1995, p. 296-301.

³¹ BORDIN, Giorgio; BUSSAGLI, Marco; D'AMBROSIO, Laura Polo. *Le Livre D'Or du Corps Humain. Anatomie et Symboles*. Paris: Éditions Hazan, 2015.

³² “Although numbers are notoriously hard to determine, and foundation dates remain even more elusive, a bare minimum of 320 *leprosaria* were established in England between the close of the eleventh century and the Dissolution, most being in existence well before 1350. This means that between one quarter and one fifth of all known English medieval hospitals, including almshouses, were initially intended for lepers, sometimes along with other types of patients.” – RAWCLIFFE, Carole. *Leprosy in Medieval England*. Suffolk, UK: The Boydell Press, 2006, p. 107-108.

³³ CONFORTI, Maria. “Medicina e doença no Ocidente nos séculos XI e XII”. In: ECO, Umberto (org.). *Idade Média II. Catedrais, cavaleiros e cidades*. Alfragide, Portugal: D. Quixote, 2014, p. 304-305.

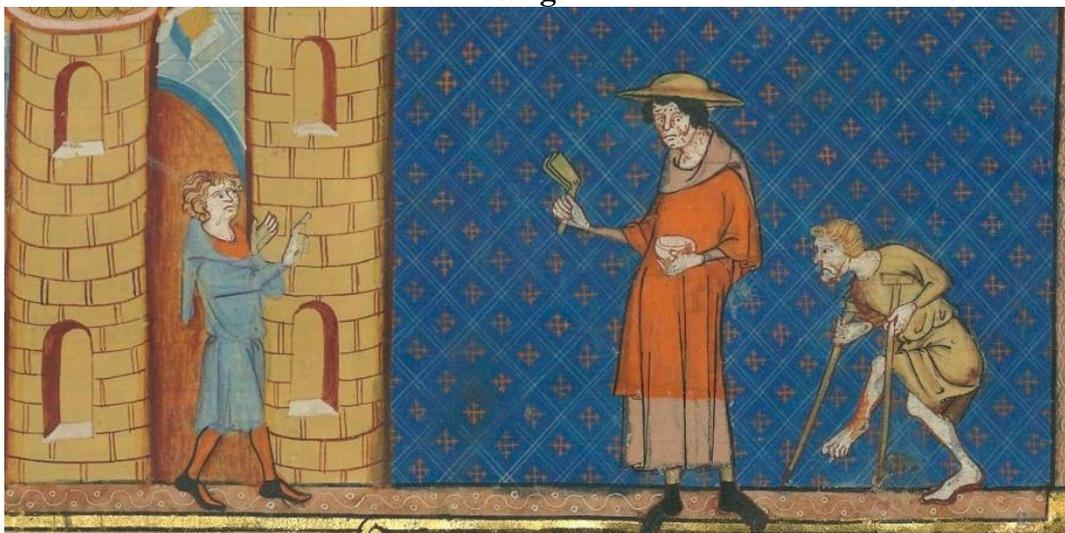
Image 4



At the entrance of the city's main gate, the bourgeois refuses to receive a leper and a wounded (the first one, with leprosy and with wounds on his face, plays an instrument to announce his coming, a custom of the time; the second, just behind, has a visible wound in his left leg). The social rejection of disease contrasted sharply with the welcome of the Church, who founded the hospitals, nursing homes and *leprosaria* due to the Christian virtue of *Caritas*. The increased body size of the leper compared to the bourgeois in the city's entry indicates the social importance of the patient for the Christian worldview. Vincent of Beauvais (c. 1184-1264), *Speculum historiale* (century manuscript. XIV). Bibliothèque de l'Arsenal, folio 373r.³⁴

³⁴ Gallica. Bibliothèque Numérique. Internet,
<http://gallica.bnf.fr/ark:/12148/btv1b7100627v/f751>.

Image 5



Detail of the *folio 373r* from the work *Speculum historiale* of Vincent de Beauvais (c. 1184-1264). Here one can see more clearly the prominent situation of the leper character, and his suffering (in his bulging eyes). The wounded man behind seems to try to take advantage of the possible entry of the leper in the city and tries to join with him. However, the bourgeois (resident of the burgh) refusal, manifested in his body posture (with his hands in front of him to prevent the patient's walk), thwarts the expectations of both.³⁵

With the spread of educational system and the foundation of medical schools within universities (Montpellier, Paris, Parma, Bologna, Padua – in Salerno, Florence and Aragon, including even the existence of women engaged in the craft of healing, calling themselves *medicae*) in the thirteenth century, theoretical studies grounded in the current philosophical theory that understood the human body as part of a cosmological structure, were developed.

A Greek tradition reinforced by Arab medical textbooks. The philosopher Ramon Llull (1231-1316) is one example of those times.

III. The numerical symbolism in Ramon Lull's (1232-1316) *metaphorical medicine*

1. Medicina es sciencia de conjuyer so qui es natural a conservar natura e a retornar-la en so que esser solia en lo cors animat. Hon, aquesta sciencia ha, fil. III. comensaments: lo primer es natural, segon es i[n]natural, ters es contra natura.

³⁵ RAMON LLULL. *Doctrina pueril* (edició crítica de Joan Santanach i Suñol). Palma: Patronat Ramon Llull, Nova Edició de les Obres de Ramon Llull VII, 2005, p. 204.



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2. Lo primer comensament se departex en .VII. parts: elaments, complecions, humors, membres, vertuts, operacions, sperit. Lo segon comensament es departir en .VI. parts: alenar, exarsitar – so es, trebayar e repozar –, menyar e boure, dormir e vetlar, umplir e buid[ar] – so es, que a vegades manuc e beva hom molt, e a vegades p[o]ch –; lo derrer es dels accidents de anima, so es, goyg e tristicia. Lo ters comensament es depar[ti]t en .III. parts: malautia, occasió de malautia, accident.³⁶

1. Medicine is the science that unites what is natural to conserve the nature and return it to its previous state in the animated body. Therefore, my son, this science has three principles. The first (principle) is natural, the second is unnatural and the third is against nature.

2. The **first principle** is divided into seven parts: elements, constitutions, humours, members, virtues, operations and spirit. The **second principle** is divided into six parts: to breath, to exercise – work and rest –, to eat and to drink, to sleep and to wake up, to fill and to empty: sometimes the man eats and drinks too much, sometimes too little. The latter (of the six principles) is the soul's accidents, that is, the joy and the sadness. The **third principle** is divided into three parts: the disease, the occasion for the disease and the accident.³⁷

The philosopher Ramon Llull (1232-1316) explains to his son what is medicine in a very simple way with his work “Doctrine for children” (*Doctrina pueril*, c. 1274-1276), based on his knowledge of the matter. However, to explain the medical works of Ramon Llull is not an easy task.³⁸

In order to understand the way the philosopher addresses this issue, it is necessary to make a brief cultural contextualization. So what medicine was like in the thirteenth century?

³⁶ RAMON LLULL. 2005, *op. cit.*, p. 204.

³⁷ RAMON LLULL. *Doctrina para crianças* (c. 1274-1276) (trad. Ricardo da Costa e Grupo de Pesquisas Medievais da UFES III [Felipe Dias de Souza, Revson Ost e Tatyana Nunes Lemos]). Alicante: e-Editorial IVITRA, 2010, p. 63.

³⁸ There are three mainly medical works from Llull: *Ars compendiosa medicinae* (Montpellier [?], c. 1285-1287), *De leuitate et ponderositate elementorum* (Naples, 1294) – ordered by physicians from Naples –, *Liber de regionibus sanitatis et infirmitatis* (Montpellier, December of 1303). There is another work, which is considered apocryphal: *De modo applicandi nouam logicam ad scientiam iuris et medicinae* (Genoa [?], 1303 [?]). Check source: DOMÍNGUEZ, Fernando. “Works”. In: FIDORA, Alexander, and RUBIO (ed.). *RAIMUNDUS LULLUS, An Introduction to his Life, Works and Thought*. Turnhout: Brepols & Publihers, 2008, p. 144-184.



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of balancing the potencies (innate principles) of the body: the *elementativa*, the *vegetativa* and the *sensitiva*:

1. Medicine is an aid for health.
2. Medicine is the art of healing the sick body.
3. By its nature, the medicine is a philosophy.
4. The physician should note what is in excess and what is missing.
5. The doctor strives to harmonize the contrary constitutions.
6. The doctor disposes, the nature works.
7. The subject of medicine is health.
8. Medicine does not look for money or for glory.
9. The subject of medicine is composed by elemental (*elementativa*), vegetative (*vegetativa*) and sensitive (*sensitiva*) potencies.
10. The one who does not know the principles does not know his actions.
11. The patient's body asks for the help of its own nature.
12. The body health taken the elements passes through the *vegetativa* to the *sensitiva* potencies.
13. The wise doctor prescribes healthy fruits to assist the *vegetativa*.
14. If the diseased person can eat fruits instead of bread, it is because the *vegetativa* prefers the one thing that is naturally similar to itself instead of what is artificial.
15. For the patient's *vegetativa*, fruits are more preferable than meat.
16. The *sensitiva*'s diseases depend on the *vegetativa*'s diseases.
17. The meat feeds more than the fruit because of its triple virtue.
18. *Sensitiva* has the virtue of "elementaring", vegetating and feeling.
19. The disease searches for the health by means of the *elementativa*, *vegetativa* and *sensitiva*.
20. The health escapes from the disease with the potency in which its virtue reached greater recovery.³⁹

In a similar way, the classical Greek theory of the four elements (air, earth, fire, water) and their qualities (heat, dryness, moisture and cold), provided a basis for medicine and for what we now call biology, physics and chemistry.

The elements relied on their qualities. Each element had two of them: one active, the other passive. The air – which was hot and humid – in opposition to the earth – which was dry and cool – concurred with the fire – warm and dry – for its warmth; the water – wet and cold –, in its moistness, concurred with the air, and, being cold, concurred with the earth, but was opposed to the fire.

³⁹ RAMON LLULL. *El Libro de los Proverbios* (ed. Sebastián García Palou). Madrid: Miraguano S. A. Ediciones, 2011, p. 389-390.



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– Lord hermit, Felix said, by which nature men grow old?

The hermit replied that a disciple did that same question to his master once, who showed him a watercourse with an old mill aged by the water passing by.

– Dear friend, said the hermit, the man's body is a vessel in which one element enters and exits continuously into another. In addition, in the man's body happens the transmutation of one thing into another, as well as bread, wine, water and any other food that man receives and transmutes into blood and human flesh. Moreover, by the resistance that one thing exerts into another, happens the corruption, which inclines men to grow old.

– Into the man's body, enter the fire and the air. Through the air passes the fire, which heats the water, and the water opposes the fire and let it into the earth. Therefore, the fire is mortified, through air, water and earth. The same happens with the other elements, which goes, one into each other, mortifying themselves, and, by this mortification, man becomes old, lazy, weak and heavy.⁴²

All kinds of western medicine (Christian, Jewish and Muslim) were based on this theory. The main document was the Aristotelian Work *On the Generation and Corruption* (which most ancient copies date from the Carolingian period), specially the Book II.⁴³ What the doctor had to know was how a particular disease had tipped the temperamental harmony of the patient (also called constitutional imbalance).

The prescriptions were normally based on plants. Therefore, the physician should understand what was the elemental level of those plants (which was called vegetal medicine).

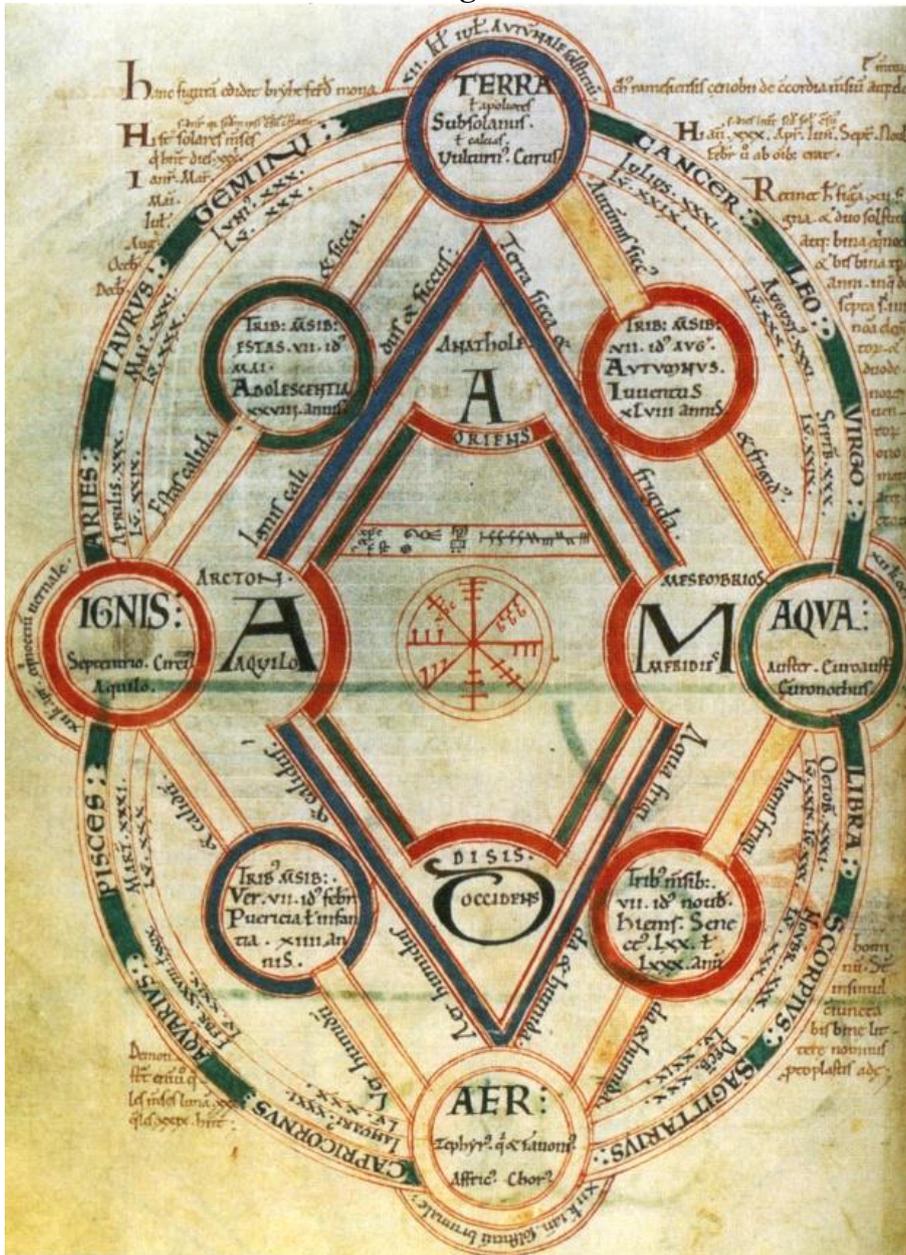
⁴² RAIMUNDO LÚLIO. *Félix ou O Livro das Maravilhas*. Parte II (apres. e trad.: Ricardo da Costa). São Paulo: Editora Escala, *Coleção Grandes Obras do Pensamento Universal – 96*, 2009, p. 53-54.

⁴³ ARISTÓTELES. *Sobre a geração e a corrupção* (trad. e notas de Francisco Chorão). Lisboa: Imprensa Nacional-Casa da Moeda, 2009.

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Image 8



Medieval Enluminure of an English manuscript from the end of the eleventh century, which displays the relation among the four elements, its qualities, the Zodiacal signs and the phases of life.

It was thought that the intensity of different qualities varied among herbal substances. In addition, the physician also had to determine the astronomical map of the patient, because it was believed that the stars, for their own elemental nature, influenced the elemental creatures (medical astrology). This



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theory (called *complexio*, *krasis*, or temperament) was normally taught in medical schools. Finally, the perception of symptoms varied according to gender, age, climate and diet.⁴⁴

Llull travelled several times to Montpellier (one of the three main medical centres in the Kingdom of Majorca, and one of the most prestigious in Europe) and probably learned there much of what he knew of medicine. So what were the most pressing medical issues in that time? To find a theoretical basis for medicine to organize the myriad of medical information (traditional and empirical) was one of them – and was almost consensus that the key to this search was in the theory of the elements (and their qualities, humours and degrees). Other issue was to quantify these data on one theory, so that a doctor could handle these elements and use them when evaluating the clinical status of a patient.

The philosopher addressed these issues by two ways: showing how his philosophical system (he called Art) could be applied to medicine, and using the medical theory in his philosophical and analogical reasoning.⁴⁵ The result was his first medical-philosophical treatise: *The Principles of Medicine* (*Començaments de Medicina*), a work written in Majorca between 1274 and 1283.⁴⁶

III.2. *The Principles of Medicine* (*Començaments de Medicina*, c. 1274-1283)

Composed in Majorca, the text *Principles of Medicine* is one of the four medical works written by the philosopher Ramon Llull. His goal was to demonstrate that his philosophical system could be applied to the study of any matter, as a theoretical system able to systematize the scattered medical knowledge into a single logical collection. Or, as he puts it, to make the student (especially the poor one)⁴⁷ know the universal principles that would help him discovering the

⁴⁴ SIRAISSI, Nancy. “A Faculdade de Medicina”. In: DE RIDDER-SYMOENS, Hilde (coord.). *Uma História da Universidade na Europa. Volume I: As Universidades na Idade Média*. Lisboa: Imprensa Nacional-Casa da Moeda, 1996, p. 382-383.

⁴⁵ BONNER, Antoni. “Introducció”. In: *Obres Selectes de Ramon Llull (1232-1316)*. Volum II (ed., introd. i notes de Antoni Bonner). Mallorca: Editorial Moll, 1989, p. 397-405.

⁴⁶ DOMÍNGUEZ, Fernando. “Works”. In: FIDORA, Alexander, and RUBIO (ed.). *RAIMUNDUS LULLUS, An Introduction to his Life, Works and Thought*, op. cit., p. 144.

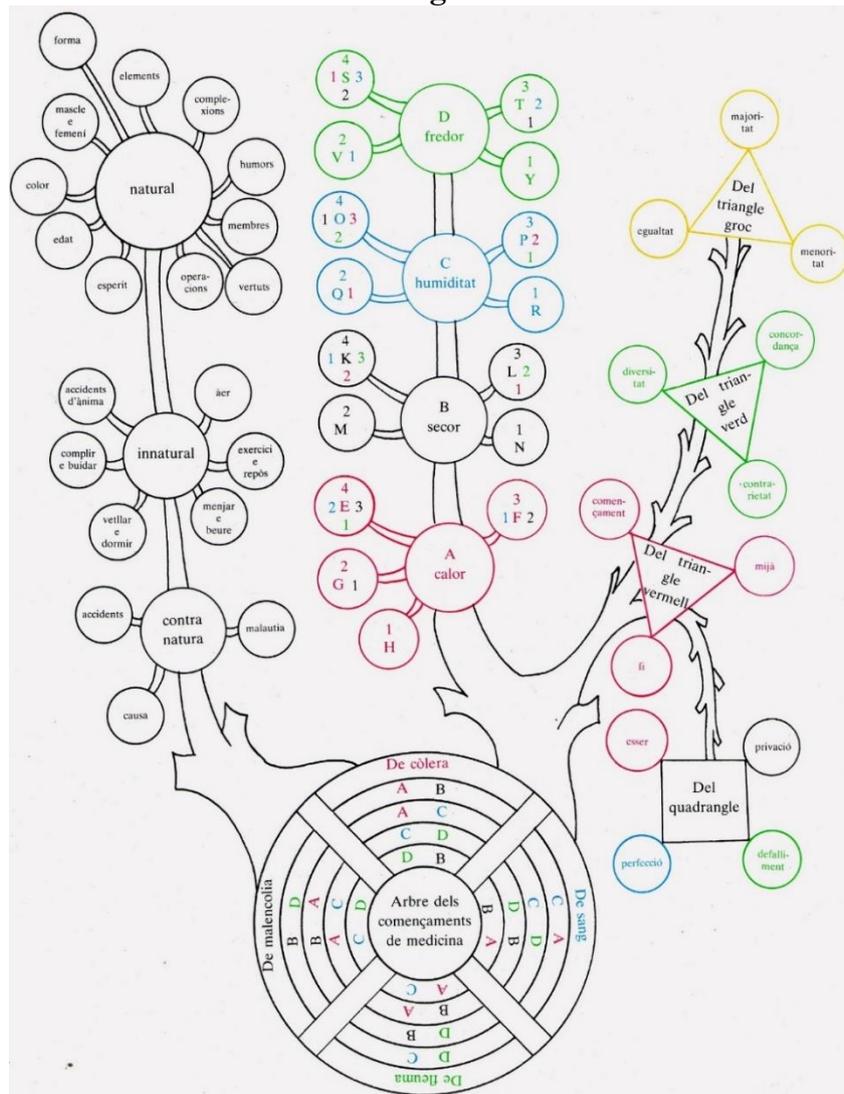
⁴⁷ “...this Art is abbreviated so that, in a short time, the effort of the poor students who poorly strive to continue the study of medicine can be shortened.” RAMON LLULL.

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specific issues, reaching the universals ascending from the specific issues and, in turn, establishing the universals from the specifics.⁴⁸

Image 9



The Tree of Medicine Principles according to the Palma Manuscript, Bibl. Publ., 1029, folio 23V.⁴⁹

“Començaments de Medicina”. In: *Obres Selectes de Ramon Llull (1232-1316). Volum II* (ed., introd. i notes de Antoni Bonner), *op. cit.*, cap. 5, p. 417.

⁴⁸ “...the universal principles are the demonstrations and principles of the specific principles...” RAMON LLULL. “Començaments de Medicina”. In: *Obres Selectes de Ramon Llull (1232-1316). Volum II* (ed., introd. i notes de Antoni Bonner), *op. cit.*, cap. 5, p. 417.

⁴⁹ Published in *Obres Selectes de Ramon Llull (1232-1316). Volum II* (ed., introd. i notes de Antoni Bonner). Mallorca: Editorial Moll, 1989, p. 410.



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As can be seen in the *Tree of Medicine's Principles tree* (**image 9**), the medical conceptual bases are anchored in the four humours (choleric, sanguine, phlegmatic and melancholic), with their possible combinations (**A** = heat; **B** = dryness; **C** = moisture, and **D** = cold). From this “root” are born two “branches”:

1) The branch of “principles of medicine as narrated by the ancient”⁵⁰ (to the left), which is divided in turn into three parts: **natural** (with its “leaves” *form, elements, constitutions, humours, members, virtues, operations, spirit, age, colour, male and female*), **unnatural** (with its “leaves” *air, exercise and rest, eat and drink, rest and sleep, fill and empty, accidents of the soul*) and **against the nature** (with its “leaves” *accidents, disease and causes*);

2) The branch of his Art (“a novelty discovered to be exposed both artificial and metaphorically”)⁵¹, at the centre of the **image 9**, divided into two parts: the first for the elements and the second one, which was divided into triangles and quadrangles of his *Abbreviated Art to Find the Truth* (with the degrees of fevers and medicinal herbs).

The philosopher divides the work just like the branches of this tree, and devotes a good part of its content to the combination of elements and degrees of fever in the application of the universal principles of his *Art* – beginning, middle and end, difference, concordance and opposition, majority, minority and equality (Chapters II-IV). The chapter V is devoted to the degrees of fever (when he quotes Avicenna and Mateu Plateari, which was a well-known doctor of the School of Salerno).⁵²

Chapter VI was about the generation and the corruption. Chapter VII was about the fevers. Chapter VIII, the types of urine. Chapter IX, the pulses (the physicians took the pulse of their patients). Everything always according to the four humours theory. For example, there was a choleric urine (red), a sanguine

⁵⁰ RAMON LLULL. “Començaments de Medicina”. In: *Obres Selectes de Ramon Llull (1232-1316). Volum II* (ed., introd. i notes de Antoni Bonner), *op. cit.*, cap. 1, p. 412.

⁵¹ *Ibid.*

⁵² BADIA, Lola. “La Ciència a l’obra de Ramon Llull”. In: VERNET, Joan, i PARÉS, Ramon (ed.). *La Ciència en la Història dels Països Catalans*, ed. Joan Vernet i Ramon Parés, I. Dels àrabs al renaixement. Barcelona-València: Institut d’Estudis Catalans, Universitat de València, 2004, p. 403-442. Internet, http://www.narpan.net/documents/ciencia_llull_lola.htm.



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urine (red and dense), a phlegmatic urine (dense and white) and a melancholic urine (white and crystalline).⁵³

However, as the urine exam is not accurate, Llull does a warning at the end of the chapter:

Moltes de vegades s'esdevé que la urina per alguns accidents no demostra veritat de la malautia, e per açò deus recórrer al pols e a la color que l'home ha en sa cara e en sos ulls e per sa persona, per tal que no sies enganat per la urina qui sots una color amaga la malautia.

Urine often does not show the truth of a disease because of some accidents. Therefore, you should resort to the wrist and the colour that man has on his face, in his eyes and on his person, so you shall not be fooled by a urine that, under one colour, hides the disease.⁵⁴

III.3. *Metaphorical Medicine* Ramon Llull

The last section of the *Principles of Medicine* (X) is entitled "Of Metaphor".⁵⁵ Llull explains:

1. Metàfora és significant una cosa per altra, així con lo malaute qui és pres de mort, e és fred, e desija fredor, e encerca en lo lit con la pusca atrobar sintent. On adoncs t'és significat que lo sentiment de fredor és destruït per gran abundància de calor, e per açò natura en lo desig que lo malaute ha de atrobar fredor, significa que volria recobrar lo sentiment que ha perdut, ço és a saber, la fredor que'l malaute ha, la qual no sent.

2. Con la febra ve ab fred, e lo malaute desija calor, e és cald per la febra, adoncs metafòricament lo malaute desija calor contra fredor, jassia que haja més de A que de D. On son desig significa que la calor natural se corromp e que D entra en A corrompent la calor natural; e per açò lo malaute sent D e no sent A, e desija A contra D.

⁵³ RAMON LLULL. "Començaments de Medicina". In: *Obres Selectes de Ramon Llull (1232-1316). Volum II* (ed., introd. i notes de Antoni Bonner), *op. cit.*, cap. 8, p. 479-482.

⁵⁴ *Ibid.*, cap. 8, p. 482.

⁵⁵ Based upon the excelente work of: GISBERT, Eugènia. "Metaforice loquendo: de l'analogia a la metàfora em els *Començaments de medicina* de Ramon Llull". In: *Studia Lulliana XLIV. Internet*, http://ibdigital.uib.es/greenstone/collect/studiaLullianaVolums/index/assoc/Studia_Lulliana/Vol_044.dir/Studia_Lulliana_Vol_044.pdf. Palma de Mallorca: Maioricensis Schola Lullistica, 2004, n. 100, p. 17-52.



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1. The metaphor is the meaning of one thing seen in another, as the patient, which is close to death, becomes cold, and desires the warmth and search for it in his bed. Therefore, this means that the cold feeling is destroyed by the abundance of heat and therefore the nature of the existing hope of getting cold means that the patient wishes to regain the lost sensation, that is, the cold that the patient has but does not feel.

2. With the fever comes the cold and the patient desires heat and is heated by the fever. Metaphorically, the patient wants the heat against the cold to have more of A (heat) than D (cold). Therefore, his desire means that the natural heat has been corrupted and that D goes into A and corrupts the natural heat. Therefore, the patient feels D and not A, and wants A against D.⁵⁶

The tenth chapter is the more surprising one because of its typically medieval perspective, since it is based upon the analogical way of thinking, a common way used by those thinkers when developing their arguments.⁵⁷ This can be easily seen in the excerpt below, a kind of medical-analogic meditation about the structure of the human body as a physical representation of Christian theology:

3. Per los set dies de la setmana e per les set planetes te són significats los set punts en los quals se departeix A qui és en 4 grau; e per los set punts de A, e per los tres de B, e los dos de C, e la un de D en la E, te són significats los dotze apòstols e Jesu Crist, qui és cap d'ells; enaixí con lo setè punt simple, qui és forma als dotze punts en E, o en K, o en O, o en S. E per lo setè punt simple, que no entra en composició ab los altres punts, t'és significat lo setè dia, que Deus reposà, lo qual és forma als sis dies de la setmana enaixí con lo setè punt simple de A, qui és forma als sis punts qui's mesclen ab B C D.

3. The seven days of the week and the seven planets represent the seven points in which A divides itself, which exists in fourth grade. And the seven points of A, the three of B, the two of C, and the one of D and E signify the twelve apostles and Jesus Christ, their leader, just like the seventh single point form the twelve points in E, or in K, or on O, or in S. The seventh single point, which does not participate in the composition of the other points, signifies the seventh day in which God rested, and forms the six days of the week as the seventh

⁵⁶ RAMON LLULL. "Començaments de Medicina". In: *Obres Selectes de Ramon Llull (1232-1316). Volum II* (ed., introd. i notes de Antoni Bonner), *op. cit.*, cap. 10, p. 485.

⁵⁷ FRANCO JÚNIOR, Hilário. "Similibus simile cognoscitur. O pensamento analógico medieval". In: *Medievalista online* 13, 2013. Internet, <http://medievalista.revues.org/344>.



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single point of A is the form of the six points, which mix themselves with B, C and D.⁵⁸

The analogies between the body's operations and the structure of the Cosmos continue throughout the chapter. For example, when we see the flowers and leaves that sprout from the trees when spring comes, we know that it is necessary to do the bloodlettings and take baths often in addition to drink and eat little, so that the passage of a substance into another through A, B, C and D can happen without any hindrance (Dist. X, 12.).

We know that the man who eats too much, drinks too much and does too much sex with his wife cannot live a long life when we see that the horse who runs too much tires very quickly, or the master mason who hastens himself does not work as well as he would if he worked with some rest (Dist. X, 13). Alternatively, when we see how the water feeds and multiplies the plants, we know that, in the same way, the blood feeds the bodies of animals (Dist. X 18).⁵⁹

The philosopher then concludes his work:

Molts d'altres començaments poríem recontar segons esta art metafòrica, mas cor havem a parlar dels Començaments de Teologia, e de Dret, e de Natures, cové que donem fi a los *Començaments de medicina*, los quals són acabats ab ajuda e ab benedicció de nostre Senyor Déus. Amen.

We could tell many other principles according this metaphorical art, but as we have already dealt with the Principles of Theology, Law and Natures, it is proper that we finish the *Principles of Medicine*, which were concluded with the help and the blessing of our Lord God. Amen.⁶⁰

Conclusion

2. Los metges qui sanen lo cors, veem que·l sanen de dues maneres: l'una és com lo sanen de la malaltia que ha dintre si, e aquella cura veem, Sènyer, que fan ab bevendes e ab aixarops, e ab letovaris e ab dietes; l'autra cura és com los metges sanen lo cors de la malaltia qui apar en la superficients del cors. On, aquesta

⁵⁸ RAMON LLULL. "Començaments de Medicina". In: *Obres Selectes de Ramon Llull (1232-1316). Volum II* (ed., introd. i notes de Antoni Bonner), *op. cit.*, cap. 10, p. 485-486.

⁵⁹ RAMON LLULL. "Començaments de Medicina". In: *Obres Selectes de Ramon Llull (1232-1316). Volum II* (ed., introd. i notes de Antoni Bonner), *op. cit.*, cap. 10, p. 488-490.

⁶⁰ *Ibid.*, p. 496.



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curam veem que fan los metges ab foc, e ab engüents, e ab empastres, e ab pólvores e herbes.

2. We see that the doctors who heal the body do so in two ways. One is when they cure the disease that is within you, and we see that they make this cure, oh Lord, with potions, syrups, *letovar*⁶¹ and diets. The other way of healing happens when the doctors heal the body of the disease that appears on its surface. We see that doctors do this healing with fire, with ointments and plasters, powders and herbs.⁶²

Despite the precarious practical knowledge related to medicine, in part derived from the excessive respect with which medieval scholars learned from the classic treaties (besides the fact that the Greek texts were ratified by Islamic medicine, more developed then than the Christian), medieval society devised new forms of social assistance that led to the creation of hospitals, pharmacology and the notion of institutional medical care for the sick and helpless (besides the very figure of the doctor trained in a specialized university course), in the same historical period, thanks to the spread of Christianity and especially to charitable practices of the Church.

Looking at the Medicine of that time, we certainly suffer as we note how rudimentary and imperfect the diagnosis and treatments of the diseases were; and smiled with amusement with the theoretical connections among medicine, philosophy and astronomy (as presented with the small case study Ramon Llull).

However, if we are to truly understand the past, with all its paradoxes and disparities, we must think of the flow of time as a process. A flow which is not linear, as many have imagined, but has a series of strokes, sometimes uncertain, with improvements and setbacks, with distinct times in the same time and with perceptions that intersected in the multiplicity of human existence. In any case, without the medieval contribution, we would not have the medical schools, nor the trained doctors, or the hospitals and the notion of public and social welfare.

⁶¹ A *letovari* (from late Latin *electuariu*) was a medical composition, one sort of syrup in the form of a pasty mixture of honey and powder, which was orally ingested. *GGL*, vol. III, 1984, p. 218.

⁶² RAMON LLULL. “Libre de contemplació”. *In: Obres essencials II*. Barcelona: Editorial Selecta, 1960, p. 347.

Image 10



On the left, Elzeário of Sabran (1285-1323, Baron of Ansouis, Count of Ariano, Irpino, and Franciscan tertiary and mystic) cures three thankful lepers. The small piece of marble (43.5 x 38.5 x 12 cm) was carved around 1373 to decorate the base of the saint's tomb (canonized by Pope Urban V, 1310-1370), in the Franciscan church of his homeland in Apt, Provence-Alps-Côte d'Azur, Vaucluse.

In conclusion, we end up with a small passage from the Book of Contemplation, in which the philosopher notes, with a critical eye considering the diagnostic mistakes, the social mobility that medicine provided to its students.

10. ¡Oh vós, sènyer Déus, d'on davalla gràcia e benedicció als vostres pobles! Los metges del cors veem, Sènyer, qui van bé vestits e bé encavalcats, e veem que ajusten riqueses e tresors, dels grans engans que fan a lurs malautes, los quals enganen en totes maneres; car ells se gaben de conèixer la malautia, la qual no coneixen; e ells allonguen, Sènyer, als malautes lurs malauties per tal que major loguer n'hagen; e'ls donen, Sènyer, als malautes aixarops e lletovaris e altres



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coses, per tal car han lur part en lo guany que fan los especiaires en les coses que venen als malaltes.

10. Oh, You, Lord, source of grace and blessing to Your people! We see that the physicians of the body, oh Lord, walk well dressed and well mounted on horses, and they gather riches and treasures thanks to the great mistakes that they inflict upon their patients, who they deceive in every way, for they boast themselves to know the disease that they do not know. In addition, they extend, oh Lord, the disease in the patients, so they have more profit. Moreover, they give the sick, oh Lord, syrups, *letovaris* and other things, so they have one part of the share that the specialists have in the stuff that they sell to the patients.⁶³

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⁶³ RAMON LLULL. “Libre de contemplació”. In: *Obres essencials II*. Barcelona: Editorial Selecta, 1960, p. 347.



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