

Ramon Llull: The first proto-European

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Summary. Since the seven centuries from his death in 1215, Ramon Llull has been an unavoidable figure in the history of philosophy and science. His apparently ceaseless work to connect the Islamic, Jew and Christian cultures—and, of course religions—spread the knowledge across the Mediterranean region and beyond, reaching almost every country in Europe. His attempt to connect faith and logic is in the base of his wonderful *Ars combinatoria* and, as a result, in the base of the modern computational science. Philosophers such as Cusanus, Pico della Mirandola, Bruno, Descartes, Hobbes, Leibniz, were influenced by the Lullian works. And the same can be said for architects like Juan de Herrera (architect of The Escorial) and even for kings and emperors such as Felipe II. The appearance of the first volume of *Ramon Llull. Vida i Obres*, by Pere Villalba, in 2015, published by the Elsa Peretti Foundation and the Institute for Catalan Studies (IEC), commemorated the 700th centenary of this emblematic figure of the culture both Mediterranean and universal, and allowed the access to an enormous quantity of information that had been scattered in different works, collections and libraries. [Contrib Sci 12(1):51-61 (2016)]

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Introduction

In the two-year period of 2015 and 2016, we are celebrating the 700th anniversary of the death of Ramon Llull (1235–1315/16), a man who gave literary dignity to the Catalan language in the century in which the Romance Languages were being formed.

Llull was a proto-European figure of the late Middle Ages, stitching together the edges of the Mediterranean with his tireless travels that contrasted Christians, Muslims and Jews. In the

century of the last crusades he strongly proposed interreligious dialogue of the three Abrahamic monotheisms. And with the extraordinary imagination of his combinatorial wheels that must have drawn from the complete knowledge that was not separated from salvation, he is a man of our time. In his autobiography he says that he was inspired by God to build this system of concentric wheels to write the “*llibre que fos el millor del món*”¹ (the best book in the world). And, in the *Ars brevis*, he specifies in

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Fig. 1. Life of Ramon Llull from *Breviculum*.

what that *Ars* consists of, i.e., to write the book that is “*totale*” (complete), the book that should allay any anxieties, uncertainties, and desire for knowledge or salvation. He says in the prologue that “*Subiectum huius Artis est respondere de omnibus quaestionibus*”² (The subject of this Art is to answer to all the questions).

Llull was a “secular intellectual who deployed his philosophical, scientific and diplomatic actions in many European countries of the Mediterranean” (Fig. 1). This is how Pere Villalba presents him in his impressive work entitled *Ramon Llull, vida i obres*. A secular thinker with close to 280 works, which touch on all areas of knowledge from literature to theology, medicine, and law, written in Catalan and Latin (those manuscripts written in Arabic have not been found). He was trained at the court of the Aragonese King Jaume I, the Conqueror, (1208–1276) and would then remain connected to

his son, Jaume II (1242–1311), who would become King of Mallorca and Montpellier. But Llull would expand the cultural and political borders of the Aragonese monarchy which, with the Catholic *Reconquista* of almost all of Spain in 1229—after 500 years of Arabic rule—, would leave the immense problem of the coexistence of the two cultures, Christian and Arabic. If we remember that the enclave of Granada would remain under Arabic rule until 1492, we can imagine the weight of the problem of the relationship between the two cultures would have in the centuries that followed the *Reconquista*. To this was added, as an element of complicated enrichment, that of the extremely cultured Jewish culture that contributed so much, in the libraries of Cordoba, in an extraordinary synergy of work with Islamic glossators and translators, to the spread of the Greek roots of the culture of the entire West.

Perhaps it is worth recalling that the diverse Jewish world that developed the Kabbalah in the year 1000³, with its techniques of permutation and combination. these techniques saviors of the labyrinthine risks that Babelic knowledge, tempted by omniscience, contained—, probably offered Llull elements to build his *Ars combinatoria*, which responded to needs that were encyclopedic and panoptic. The magnificent tradition of the Porphyrian trees (Fig. 2), taken from the Joachimites, and through this means conveyed to the Franciscans, might easily have offered Llull ideas for endless variations on the theme. Llull’s concentric wheels also allowed for another interpretation: that of heuristic knowledge and discovery. With minimal alphabets, letters, numbers or God *dignitates*, one can build a virtually infinite meaningful universe. Along this interpretive line, which Llull certainly was proud of, I believe that we can relate to the concentric wheels that Jewish Kabbalism has produced in some documents, next to the eccentric wheels of the Sephiroth.⁴

¹ In the *Vita Coetanea* by Llull, different versions exist, a Catalan and a Latin one. But even of the Catalan one there are several versions. The one shown is Villalba’s version. The Latin version, in its complete sentence, reads: “*quod ipse facturus esset postea unum librum, meliorem de mundo, contra errores infidelium*”. Cf. Llull Database, on line.

² *Raimondo Lullo, Arte breve*, edited by A.Musco and M.Romano, Milano, Bompiani 2002, p.84

³ Of equal interest—it seems so to the author—is the iconographic material reported by Giulio Busi in his *Kabbalah visiva*, Torino, Einaudi 2005. On page 45 some of the concentric wheels are reproduced (Paris Bibliothèque Nationale, ms hébr.825, cc.213v-214r), defined as “wheels of the three and four alphabets”. The wheel of the three alphabets is identical to the fourth figure of the *Ars Lulliana*, which served as an unlimited multiplication of combinations. The other figure, which of the four alphabets, instead recalls the reading that Bruno will give to the Lullian wheels. Bruno even hypothesizes about the mechanical translatability of languages among themselves. See G.Bruno, *Corpus iconographicum*, edited by Mino Gabriele, Milano, Adelphi 2001. Contributions of great wealth to the understanding of this complex phenomenon also include G.Busi, *Simboli del pensiero ebraico*, Torino, Einaudi 1999; Moshe Idel, *Mistici messianici*, Milano, Adelphi 2004.

⁴ Cf. G.Busi, *Kabbalah* cit.. The argument of a possible connection Llull-Kabbalah for the system of concentric wheels, was also presented by H.J. Hames in *The Art of Conversion*, Leiden 2000. Regarding Hames’ interpretation, Busi would still show reservations: Cf. Busi, *Pico della Mirandola*, Torino, Einaudi 2004, p.XXIV, note n.45. Much more in tune with what is being said here is the research of Moshe Idel on Golem, the most fantastic figure of Jewish imagination, which from magic passes to artificial anthropoid, recovering the side of computationalism. Cf. M.Idel, *Il Golem. L’antropoide artificiale nelle tradizioni magiche e mistiche dell’ebraismo*, Torino, Einaudi 2006. Idel strengthens Hames’ hypothesis that the concentric circles appear in Jewish Kabbalism not long before Llull’s works on the *ars combinatoria*. Cf. M.Idel, *Ramon Lull and Ecstatic Kabbalah*. *Journal of the Warburg and Courtland Institutes*, LI (1988):170-174.

(1058–1111), disciple of Ibn-Sīnā (latinized Avicenna) (980–1037), with a work written in Arabic, *Logica del Gatzell* (1271), which sounds like an imitation. Perhaps Llull saw in the prolific and cultured Arab writer what he was beginning to think could be for the Christian world: an *arbor porphyriana* of complete knowledge.

Nonetheless, to measure the significance of this extraordinary Mallorcan thinker we must go beyond his death. During his lifetime he enjoyed a good reputation not only for his ties to the Aragonese royal family, but also for his indomitable aim to pursue the task of preacher, of evangelist. But it would be simplistic to think that he only focused on those who were redeemable. He even positioned himself, with the same strength of his deep convictions, and without fear, before the most powerful on earth, popes and kings, repeatedly presenting them with his plans for a training school for missionaries—where they would learn the languages. The redeemer who is unable to make himself understood is not credible. The redeemable must be able to understand the language of those who seek him, of his redeemer. Llull dedicated a significant part of his works to language and universal communication. The *Ars combinatoria*, which is part of the foundation of many of his works, is not just a contraption. The game of the concentric wheels that move to produce a virtually infinite combination of symbols, signs and numbers is a technique that Llull most likely learned from the cultured Jewish environment of Catalonia and Provence. To Llull, the combinatorial wheels could be used for a complete reading of the world. The symbols that Llull would use in his wheels were the *dignitates Dei* (God's dignities). From their combi-

nation, we proceed to the construction (an ontological and metaphysical one, to some degree) of the world and therefore of knowledge. Nothing must remain unknowable. It is precisely for this bizarre encyclopaedism that Llull did enthrall following centuries and even at the beginning of 1600 his epistemology was placed, next to that of Aristotle and Pierre de la Ramée, at the foundation that would enable the understanding of the modern Copernican revolution.⁶

Llull was careful to record at the bottom of many of his manuscripts the list of works already written, knowing how easily and nonchalantly the great masters often appropriated the writings of monks who through the constant work of translators and glossators were able to form a culture and write books of great length and originality. Despite this caution, after his death many manuscripts appeared with his signature, but by authors who exploited the dominant cultural climate in Europe: a rich and complex Neoplatonism, with strong veins of magical-alchemy. Some of these manuscripts had enormous popularity and spread widely, thus giving the figure of Llull—already rich for his many interests—the additional characteristics of an alchemist magician, someone sensitive to esoteric grandeur.⁷ This contamination of actual works and pseudo works of Llull would go on over the centuries before the philological scientific criteria began to present a more plausible attribution to Lull of his writings. What certainly contributed to formalizing this contamination was the release in Argentoratum (Strasbourg), in 1598, of the book by Lazarus Zetzner (1551–1616), *Raymundi Lullii Opera*. This enormous volume of about a thousand pages contains 10 works by Llull (later on it would be discovered that 4 of these

⁶ J.H. Alsted, *Clavis artis lullianae*, Argentoratum 1609. The edition of 1633 bears the name *Sumptibus heredum Lazari Zetzneri*. But probably the edition of 1609 still bore the signature of the founder of the publishing house Lazarus Zetzner who in fact died in 1616. It is interesting to note that this book had notable success and it was re-released in a few years: in 1633 and 1651. This brings some perspective to the argument of those who believe that in the Cartesian era the “Llull” thesis was a thing of charlatans and still very marginal. Argentoratum was one of the most important and well-known publishing centers in cultured Europe and the figure of Zetzner had such intellectual prestige that he was compared to the greatest philosophers of his time. One of the schools that encouraged the marginalization of the figure and thought of Llull was certainly that of Eugenio Garin, the great historian of Renaissance philosophy, a master of the best Italian and European historians and, above all, a writer of rare elegance. It must still be recognized in Garin the rigidity of a thesis: when he embraces materialistic historicism, in which it would be foolish to blame the poor achievements of “real socialism”, he will feel compelled to confine all the ideas that, in the history of Western thought, move in opposite directions. Garin began his extraordinary career as an academic with a very interesting work on Pico della Mirandola (Firenze, Le Monnier 1937). But for his next work, this prior work of his youth then seems to him to be a concession of the irrational idealism that in some ways he was not proud of. When he chose the Cartesian rationality as the dividing line between what is useful to progress and what is an obstacle, he ended up giving a highly reductive reading of Lullism. And he projected on Descartes his discomfort about the curiosities of youth. He would write repeatedly (Cf. E. Garin, *Vita e opere di Cartesio*, Bari, Laterza 1999) that Descartes let himself be seduced by Llull, as he, Garin, was by Pico, only at the stage of his early youth. For more on the thesis of a Descartes interested in Llull even at a mature age, and substantially in all of his works, see A. Tessari, *Considerazioni sull'Ars di Ramon Llull e la Mathesis Universalis di René Descartes*, in Janus, Quaderni del Circolo Glossematico, edited by R. Galassi, Il Poligrafo, Padova 2004, pp.199-220.

⁷ One can see the continued interest Michela Pereira dedicates to this topic. Cf. in particular *The alchemical corpus attributed to Raimond Lull*, in “Warburg Institute Surveys and Texts”, vol.18. London 1989. In this field we should cite Francis Yates, *The Art of memory*, London 1966; *The Rosicrucian enlightenment*, London 1972; *The Occult Philosophy in the Elizabethan Age*, London 1979; *Lull and Bruno. Collected Essays, vol. I*, London 1982. It is clear that the teacher who more than any other has dedicated an on-going interest to Llull and Lullism, both in nonfiction and in his great novels that are known around the world, is Umberto Eco. Here we recall the essays on *Llull, Pico and Lullism* in U. Eco, *Dall'albero al labirinto*, Milano, Bompiani 2007.

were apocryphal), 3 works by Giordano Bruno (1548–1600) to comment Lull’s work, a work by Cornelius Agrippa (1486–1535), *In artem brevem Raymundi Lullii commentaria* and, finally, the *Opus aureum* by Valerio de Valeriis. The numerous reprints in later years of this particular book attest to the success of this work and a reflection of the interests that a cultured Europe had for Lull’s work. To emphasize, even in a negative sense, the criticism of Lull’s entire body of work, only two years after the publication of Zetzner’s work, Giordano Bruno, who was one of the most passionate interpreters of Lull, was burned at the stake in Campo de’ Fiori in Rome, following the sentence of heresy pronounced by the Inquisition.

Giordano Bruno and Ramon Lull

Bruno (Fig. 4) spoke of Lull, of his *ars combinatoria* and his mnemonics, in all the European courts he visited once he had left Italy, chased by accusations of heresy. In the court of Henry III of France (1551–1589), among the Calvinists of Geneva, in the court of Elizabeth I of England (1533–1603), in different German principalities and, finally, at the court of Emperor Rudolf II (1552–1612) in Prague, Bruno brought the verb, the suggestive message of Lull’s work, which was something more significant and profound than mere mnemonics. The techniques of memory had already enjoyed a long tradition since Simonides of Ceos (6th century BC) and through Cicero (107–43 BC) and Quintilian (35–100 AD) connected to Lull’s century: they were techniques based on the role of images and loci, mechanical and regulatory cognitive strategies. The need for the enhancement of memory, and the dream of mnemonics that were easy to learn, were related to political or legal activities. A series of substantially circumscribed topics had to be remembered in logical sequence, with ease. To this end, the dislocation in space of strong images, the statues of a temple, for example, could be enough support, or so it was believed, for nearly two millennia. Substantially exhaustive, these techniques were not, however, aimed at exhaustiveness or at heuristics. They were aimed at the discovery of new things. This is why, to a writer, the reading of Lullian *Ars combinatoria* as a variation of the different classical mnemonics appeared restrictive. Paolo Rossi (1923–2012) also offered his support to this reading in his own work. In 1960 he published the unforgettable and beautiful *Clavis universalis. Tecniche della memoria da Lullo a*



Fig. 4. Sculpture of Giordano Bruno at Campo de’ Fiori (Roma), made by Ettore Ferrari in 1889.

Leibniz.⁸ It came out almost simultaneously with another fascinating book, by the Warburg scholar Francis Yates (1899–1981), *The Art of Memory*.⁹ In those years the computer had just appeared on the world stage. It is no accident that in some languages it is called an *ordinateur* or an *ordenador*. It ordered, or organized, the finite quantity of data and cards that each student had accumulated in paper form. It was a modern version of the Porphyrian tree. Yates and Rossi addressed the Lullian issue based on the knowledge that was available at the time of that machine, which was certainly already quite surprising. But it was considered a powerful machine for mechanical operations: finding a piece of data in a considerable mass of data; cataloguing stored information in different orders—one could draw up from the files or ac-

⁸ P.Rossi, *Clavis universalis. Arti della memoria da Lullo a Leibniz*, Firenze, Ricciardi 1960.

⁹ F.Yates, *The Art of Memory*, London 1966.

ording to the author, the title or a cited name. What happened then, in the history of the computer, is fairly obvious: the emergence of networks so immeasurably large to accommodate all the files that the individual researchers had at their disposal. Each network put in their finite quantities of information. But the result was that the deposit became a virtually infinite warehouse of data where it was even easier to get lost in the labyrinth. The reading that is sometimes heard of the Lullian *Ars combinatoria* today tends to be precisely this one.

Until Llull focused on bringing order to the finite data, he remained in the logic of Porphyrian tree: this was a tree that took into account all the incoming and outgoing ramifications, a warehouse that is always possible to inventory. When Llull went from the tree to the concentric wheels, and this must have happened based on the suggestions that came to him from the Kabbalistic world, he found himself (possibly without even realizing it) on a completely different epistemological horizon. The wheels, like all the alphabets of the world, were not made to create a finite number of propositions, but to produce an infinite number of them. Llull, with a purely mystical and metaphysical temperament, as well as a poet, felt that these wheels, which in Kabbalism help the Jews to try to discover the secret will of Yahweh, combining and mixing the consonants of the Hebrew alphabet, could serve, in his visionary capacity to converse with the Almighty, as a metaphor: man can become a true creator if, in the basic alphabet, has those letters, those signs that are the *dignitates Dei*. The “dignities of God” are the key to bringing man to the same plane as the Pantocrator. Man will recreate the world with the help of the names of God: he becomes a participant in a heuristic adventure. And this is the way to salvation.

The interest for this bizarre figure, this “phantasticus” that he called himself, grew due to many factors: certainly the wealth of the horizons of his immense production. What also helped was the climate of widespread Neoplatonism that became controversial with an Aristotelianism that was poorly interpreted by the Mannerist school. The paradox of this result is evident: Neoplatonism, with its poetic detachment from material reality, is placed at the baptism of the birth of modern scientific thought, while Aristotelianism, which certainly in the original Greek reading was much more attentive, in the reading of the world as perceived by our senses, was seen as an obstacle to the development of modern scientific thought. In Humanism, there was a growing push to free man from his oppressive cage that evil Aristotelians and scholars (even Thomas had to serve the misfortune

of bad students) had created. Even the Church lent a hand, in this sense, to building the evil monster of the Inquisition, with the endless succession of crimes against free men or those too weak or ill to defend themselves.

What contributed to the fame of Llull as a magician and alchemist was also the great interest of Agrippa, an extremely cultured yet bizarre person, who had dedicated writings to the occult philosophy that had a wide readership. What was curious about that Neoplatonic time is that the works of Agrippa, which came out slightly before the *De revolutionibus* of Copernicus, were almost more popular than the difficult Copernican texts, which required almost a century more of time to pass before they were accepted. The concern that led Nicolaus Copernicus (1473–1543) to not publish his *De revolutionibus* while he was alive—it was published the same year of his death—shows how much the birth of modern scientific thought had been hampered by a Church known for extravagance, excessive power and ignorance, but also a secular culture that had decided to get lost in equally extravagant fantasies of the worst/deteriorating Neoplatonism, Hermeticism, esotericism.

Consider that the birth, near the mid-15th century, of so-called Italian humanism, proclaimed the rebirth of man, at last the master of his destiny. Man the measure of the world, man the craftsman, capable of governing the world and nature. In this megalomania, even magic and alchemy were seen as positive elements that strengthened the faculties of man. And the disorder the centuries fell into, centuries that the world still sees with innocent eyes, such as the centuries of the rebirth of beauty, of man as master of the universe who will leave in the arts examples of rare beauty, shows curious contradictory situations: men of the Church who understood this innovation, still looked upon by the official Church with great distrust; think of Marin Mersenne (1588–1648), a Franciscan from Paris, that advised Descartes to not burn his letters about the motion of the Earth, but to keep them for better times. Mersenne had, just as Descartes did, lengthy correspondence with all the leading exponents of the sciences of Europe at the time. And while he advised caution to Descartes, he had no doubts about organizing the publication in Paris of the works for the newly condemned Galileo.

It is even worthwhile to defend the intelligence of Cardinal Robert Bellarmine (1542–1621), who should not be deprived of the moral responsibility of having signed the death sentence of Bruno with his heresy judgment. Bellarmine, a man of rare culture even in his contemporary ecclesiastical environment, perhaps sensed that history would side with Bruno, although in his works there is no hint of this. By his

behavior on the inquisitorial commission one can easily deduce, or assume, this afterthought. Indeed, he took action until the very end to offer Bruno a way to salvation, suggesting to him that he would abjure the theories that he had published after the papal condemnation of the Copernican theories. Thus he would have absolved his writing prior to the Papal prohibition.

Connecting faith and logic

After Llull's death a controversy broke out to condemn him for heresy. But at the same time academic chairs of Lullism were created at several universities. The figure of Llull was found fascinating often for opposite reasons: he wanted to establish a connection between faith and logic, gathering the best of the Arabic tradition based on that that Aristotle interpreted with extraordinary wealth of inspiration. This freedom of thinking found in Arabic thought fascinated even Thomas of Aquinas (1225–1274), who explored the averroistic theses to such a point that after his death he was condemned of Averroism, in the company of Averroes himself, by the Parisian bishop Étienne Tempier (?–1279).¹⁰ It took all the strength

and commitment of the Dominican order to rehabilitate, years later, the figure of Thomas. And they even resorted to the threat of a schism of the order. We should remember that even after their political and military defeat in 1229, the Arabic culture continued to exercise a powerful charm over not only the Hispanic world but also throughout Europe.

It was in the 15th century that a talented young scholar, Nicholas von Kues (1401–1464), made a tour of university studies that has offered a model that European universities would still be inspired by. He studied in Heidelberg, Padua, Cologne and Paris, and continued to perfect his studies in Constance and Leuven. He graduated with a degree in Law in Padua. He came into contact with teachers who allowed him to get to know the work and thinking of Llull. The young Cusanus, destined for a brilliant career in the Church that would lead up to the cardinal's purple, inspired his vast philosophical, theological and scientific production on Llull, on this never-mentioned teacher. It is known that during his time in Paris and Padua he enjoyed transcribing manuscripts by Llull. And when, in 1448, he became Bishop of Brixen (Bressanone), he collected manuscripts that today still can be found in the town of Innichen (San Candido) that was a part of the Bressanonese diocese.



Fig. 5. Royal Monastery of San Lorenzo de El Escorial. Juan de Herrera, architect.

¹⁰ Tempier on March 7th of 1277 condemned close to 219 Heterodox, Averroistic and Aristotelian propositions.

In the second half of the 15th century, Llull, who had reworked the Jewish Kabbalah, fascinated another young man. Giovanni Pico della Mirandola (1463–1494) helped to expand the legend of encyclopedic knowledge. Jewish Kabbalism sought out in the sacred text a secret knowledge that God hid behind the easy and superficial appearances, to entrust the journey of salvation to the will of man who seeks and wants and conquers his salvation. This hypothesis could find reasons for convergence with Calvinism and Lutheranism. Even the “grace” does not exclude the participation of man in winning the attention of a merciful God.

We have already said that, in the 16th century, between Agrippa and Bruno the fame of Llull had gotten complicated and loaded with sulfurous evocations. But what always dominated was the idea that man could reach faith and salvation through reason: the cognitive strategies were facing an unmanageable explosion of knowledge. Heinrich Alsted (1588–1638) had seen¹¹ in three major subjects, Aristotle (384–322 BC), Pierre de la Ramée (1515–1572) and Llull (1232–1315/16), the three fathers of epistemological strategies to order knowledge and save it from Babelism, from the labyrinths of pluralism that were less and less governable. In which of the three did Alsted see the legitimizer of the Copernican revolution? Which one was still not fully understood, but in the mid-century fixed with the characteristics of the *De revolutionibus*? It is proposed here only as a hypothesis not supported by evidence for now, but only by small clues, that Llull is the bearer of the epistemological paradigm. Bruno is presented as a man of rare cultural and philosophical sensitivity to sense that Copernicus was the new world, even if he did not have the mathematical instruments to fully grasp the Copernican revolution. And Bruno was also the man that reinterpreted and updated the computational tools of Llull to adapt them to a universe of limitlessness. Bruno thought that enriching (in his own way) the Lullian wheels, calibrated with different alphabets, would even allow for the mechanical translation from one language to another. The concept of infinity entered the great debate of modernity with Bruno’s visionary nature, which in turn used the visionary nature of Llull. What is certain is that the 17th century opened with the strong presence of the magic figure of Llull on the European stage.

The panopticon

Bruno, after the European tour, accepted the invitation of the

Venetian patrician Giovanni Mocenigo (1409–1485), who wanted to learn the memory techniques that Bruno—it was said so—was an expert of. Due to a misunderstanding between the two of them, which was never made clear, Bruno was subsequently referred by Mocenigo to the Venetian Inquisition tribunal. But, immediately, there was an intervention made by the King Felipe II so that Bruno could be transferred to Rome and then to Naples. The explanation was simple: Bruno, as a Neapolitan citizen, was in effect a subject of His Majesty Felipe II. But the most interesting thing is that it was not bureaucratic interests that moved the Hispanic Kingdom to steal Bruno from the Venetian court. Felipe II had very special reasons for not wanting Bruno, disciple and student of the great master Llull, to end up in the meshes of the Inquisition.

When Felipe II decided to build the Escorial (Fig. 5) he hired the most famous architect of his time, Juan Bautista de Toledo (1515–1567). At his death Juan de Herrera (1530–1597) completed the construction of the Escorial. Both architects had been trained by Felipe II in the Lullian school, as were all the ambassadors of his immense empire. What did Felipe II see in Llull? The imaginative ability to reduce the world by the coordinates of the Porphyrian trees must have seemed to Felipe II to be a key to being able to reduce the complexity of his empire to something understandable and that could be governed. The Escorial was the *panopticon* from which to rule the world. But to govern it, it was important that the ambassadors, in turn, gave their synthesis of the status of such vast territories that one can imagine were so complex and full of contradictions. And this is why the king fell in love with the Mallorcan: the man who in the century of the Crusades compared and interacted with the three monotheisms that were always fighting each other. The *reductio ad unum* of knowledge used by Llull must have appeared to Felipe II to be the keystone to not get lost in the maze of plurality. A few centuries later two great monarchs who had the same problems as Felipe II, Louis XIV (1638–1715) and Peter the Great of Russia (1672–1725), called in as a consultant the great philosopher at that time, Gottfried Leibniz (1646–1716). The same request was made to him: how can a governor govern territories with people who are so varied and speaking hundreds of different languages? The elderly Leibniz saw that it was precisely Llull who suggested the idea of an *ars characteristic* that could be used as a universal language. When he was nineteen, Leibniz had begun to write the *de Arte combinatoria* of his own, inspired by Llull. And this was the need of

¹¹ Cf. note 5.

the great monarchs of the world: to speak and to dominate the whole world through a universal language.

The demand for a foundational language, a single language, reappeared at the end of the 19th century when scientists focused on the problem of the roots of all knowledge. And it was Leibniz, the father of infinitesimal calculus,¹² who took the figure and name of Lull out of the shadows where Descartes had previously confined him to. To be able to build a disambiguated language that everyone could understand was part of the dream of Porphyrian trees, of Camillian theatres, of maps of knowledge, anxieties and problems that Lull tried to give answers to with his *Ars combinatoria*.

Herrera, who was fascinated by the Italian renaissance, left in the library of the Escorial his manuscript *Discurso de la figura cúbica, según los principios y opiniones del arte de Ramón Llull*, from 1575. It is certainly interesting to try to understand why the visionary capacity of Felipe II and his architects brought him to build a *panopticon*—a variant of the tower of Babel, of course—but that should not collapse due to the impossibility of understanding among the architects of the work. Babel collapsed due to linguistic Babel. Llull offered Felipe II the possibility of building a panopticon that would not collapse due to a linguistic Babel. 120 works by Llull in Herrera's library makes it clear that Herrera saw in Llull not just another author, but that *clavis universalis* that had to do with salvation through knowledge.

Not long before Bruno was incarcerated in Venice or perhaps in the same period in which he was about to be transferred to Rome in 1593, Felipe II sent to Rome (to underscore just how important the figure of Llull was to him) a delegation headed by Pedro Jerónimo Sánchez de Lizarazu (?–1614),¹³ with the request that the Mallorcan should be canonized. There is no documentary evidence to prove that delegation met with those who were organizing Bruno's trial.

The Cartesian criticism

In 1598, two very significant events occurred: the book by



Fig. 6. Portrait of René Descartes. Frans Hals (1582–1666). Musée du Louvre. Paris.

Zetzner was published with a juxtaposition of the works of Llull and Bruno. This book was widely read among educated men in Europe for at least two hundred years. A copy was later found in Newton's private library. This book bound the two names of Llull and Bruno together in a fatal bond. It is certain that as long as Felipe II had been alive, the request for the canonization of Llull had a great more weight. Once he died, however, the request died with him. His successor Felipe III (1578–1621) did not have the same interest as his father in the figure of the Mallorcan. Yet we know that a few years later, in 1609, Sánchez de Lizarazu published a very significant work entitled *Generalis ed admirabilis methodus artis lullianae*.¹⁴ In it, Llull was presented as someone who proposed, to the scientific culture of the newly started 17th century, a scientific method that served all disciplines, a method that certainly recalled the old dream of the *mathesis universalis*, of the *clavis universalis*, of an epistemological strategy that offered a unifying key to reading and all knowledge. Less than thirty years later Descartes published *Le discours de la*

¹² It is very interesting that Llull dedicated so much attention to the classic topic of the squaring of the circle, a road that will bring Leibniz and Newton to calculus. The Brepols versions were about to come out, in the collection of the *Corpus Christianorum Continuatio Mediaevalis*, the *Geometria Nova* by Llull edited by Carla Compagno, a scholar who worked for years at the Raimundus Lullus Institut di Freiburg. And it is precisely in this work that the fascinating topic of squaring the circle appears. Together with Ulli Roth, Compagno has always edited for the CCCM the *Arbor Philosophiae*, the *De leviat et ponderositate elemento rum and the Desolatio Raimundi*, Turnhout, Brepols 2011. Compagno, in his research, developed the line that Eco and Pereira have opened for an evaluation or a re-evaluation of some elements of the magical-alchemy culture that for a long time were only read in a reductively negative way.

¹³ Alberto Pavanato, *Generalis et Admirabilis Methodus: Pedro Jerónimo Sánchez de Lizarazu and Lullism in Spain at the beginning of the XVII century*, Master's degree thesis, 2009, Padova. In this soon to be published work there is a lot of information about the complex figure of Lizarazu.

¹⁴ Sánchez de Lizarazu, *Generalis et admirabilis methodus ad omnes scientias facilius et citius addiscendas: in qua Eximi et piissimi Doctoris Raimundi Lulij Ars brevis explicatur*, Tarassona, 1613.

méthode, in which he proposed that exact project. The Cartesian book came out in 1637, four years after the second condemnation of Galileo. Descartes was terrified that the Inquisition might reach him. “If they have burned Galileo’s letters and put him in prison, with the abjuration obligation, he—Descartes added in a letter to Mersenne—who was a personal friend of the Pope, what will they do to me, not even a friend of the Pope?” In this *Discours*, in which the need to align oneself with the Church and against the Copernican theories is a dominant theme, Descartes proposed, in a sort of autobiography, dialoguing with God. In this apocalyptic scenario in which “I” and “God” face each other, God appears 50 times and the “I” of Descartes appears 500 times, such was his opinion of his hypertrophic ego.

But the most curious thing of all was the only one who succeeded in piercing this ostracism, out of any other co-protagonist of the Cartesian adventure, was Llull. Descartes, in order to present his method, said that it did not resemble Llull’s method, which “teaches to speak without judgment of the things that are not understood instead of learning them”.¹⁵ Now if this was Llull’s method, and since Llull had been dead for some 300 years, why did Descartes need to grant him the honor of being mentioned, an honor that he did not even allow Galileo? There is only one answer: Llull came from the European culture of the 1600s presented as one of the paradigms of cognitive strategies of great scope. And Descartes feared that the ghost of Llull could undermine his dream of giving his name to the century. He showed the same bitterness against Galileo as well.

After the second condemnation of Galileo in 1633, Descartes (Fig. 6) had written to Mersenne that, if Galileo’s worldview collapsed, due to the attacks of the Inquisition, all of his philosophical system would collapse as well.¹⁶ Forgetting that he had written this letter, five years later, again writing to Mersenne who had asked how his philosophy related to Galileo, Descartes—who suspected that Mersenne imagined an inferiority to Galileo—, wrote an obscene letter against Galileo, stating that he had had found nothing in Galileo’s books “that give me envy, nor almost anything that I would like to make my own”.

It should not be a surprise that throughout all his life, and not only in his younger years—as Eugenio Garin (1909–2004) wrote—, Descartes had been haunted by the philo-

sophical presence of Llull. The same word, “method”, which Descartes used for his important work in 1637, a word of great interest that comes from the Greek “methodus”, was presented as a new word that would open a new period for philosophy and science. During all of Latin times the word “methodus” never appeared except for a few times in Marco Vitruvio (ca.75–ca.15 BC) and in Claudio Claudiano (ca.370–ca.405). The Romans did not know the value of the Greek term “methodos”. Their equivalent, measurement, ratio, *via*, did not achieve the strength of the Greek term *μέθοδος* (*metà-odòs*). Not even the word *τεχνος* (*techna*), which leans toward artifice, cunning, trick. For many centuries it was thought that Descartes, with the rediscovery of this word, had inserted his words into the most meaningful Greek philosophical tradition. Which is why for some it is very significant that in Sánchez’s book, which had the Habsburg court behind it, the word “methodus” was used to define the *ars lulliana*. There are no reports that Descartes had heard of this book, and he may never even have held a text by Llull in his hands. We do know, from his correspondence, that he requested information from Isaac Beeckman (1588–1637) about Llull and his system, always suspecting that he was a charlatan or that it was a method for charlatans. Actually, even in his works of maturity, in the very concept of *mathesis universalis*, in the articulation of his method contained in the *Discourse*, in the *Regulae ad directionem ingenii*, Descartes always had to deal with this embarrassing “stone guest” that filled the stage with his absence.

Through pilgrimages in the European courts, Bruno, a few years before the Cartesian adventure, had even reached the court of Emperor Rudolf II of Prague, who, upon hearing about Lullian techniques, showed great interest in Bruno and gave him a pension. But the reason for so much interest may have been that when he was ten-years old, Rudolf II had gone to study with his uncle Felipe II at the Escorial and there it would have been impossible for him to have *not* breathed in the Lullism that filled the imagination of his uncle and his uncle’s architects. He remained at the Escorial for some ten years. To debunk the claim that Descartes knew nothing, directly or indirectly, about the presence of Llull in the culture of his time, are not only the repeated editions of Zetzner that have been mentioned previously,

¹⁵ R.Descartes, *Oeuvres*, Adam-Tannery, vol.VI, p.17 : “*a parler sans iugement, de celles (choses) qu’on ignore, qu’a les apprendre*”.

¹⁶ Ivi, vol.I, pp.270-271. Speaking of the condemnation of Galileo’s system, specifying that if this system “*est faux, tous les fondemens de ma Philosophie le sont aussi, car il se demonstre par eux evidemmen*”. Letter from Descartes to Mersenne, end of November 1633.

but also the fact that in Paris, in the years in which Descartes wrote the *Discourse*, the two most significant works by Llull on the *ars combinatoria* were published.

Conclusion

The weight of authority of Descartes has left a negative mark on the figure of Llull. A few years before the *Discourse* even Francis Bacon (1561–1626) spoke negatively against Llull¹⁷ but with the same arguments that his *Novum Organum* rejected mathematics. His prejudice against “mathematical calculation”, wrongly considered evocative of Aristotelian metaphysics, makes for a strange father of the modern scientific method. And even in the defense of inductive empiricism Francis was behind his namesake Roger Bacon (1214–1294) who, almost three centuries before him, together with the calculators from Oxford, had anticipated the scientific and formal approach in the construction of knowledge.

An important trace of Llull’s computationalism can be found in one of the greatest philosophers of the 17th century, Thomas Hobbes (1588–1679). Even for him—as for Leibniz—the dispute, the verbal controversy, should be able to be reduced to the famous *calculemus*. Even language should have a correspondence of name/noun-thing for which even reasoning becomes an adding or subtracting of terms that are somewhat homogenous.¹⁸

Umberto Eco and Federico Faggin, who appear in Villalba’s *tabula gratulatoria* at the beginning of the book, measure the vastness of the Lullian visionary horizon. Eco has a passionate eye on a resourceful Middle Ages, in which the first

attempts to organize knowledge often led to paralysis of the labyrinth or a Babelic collapse. In his latest work, a book on the history of philosophy in which he tells the story of Ramon Llull, the phantasticus creator of the *ars combinatorial*, has courageously brought Llull to young Italian high school students. But the Mallorcan, who perhaps dreamed of converting Muslims and Jews to Christianity with the power of reasoning that had to mechanically lead to a solution, was, at the end of his life, ironically the opposite. He studied Arabic to speak to Muslims, he studied the texts of learned Muslims, he tasted the magic of Sufi mysticism, and in the end, he was called the “christianus arabicus”.

The Llull “*fantasista*”, the dreamer, who for centuries was not understood and derided as the inventor of a computationalism that was to reduce man to a machine, perhaps echoes the imagination of Federico Faggin, the inventor of the first microprocessor. But—says Faggin—every machine that can help man in the course of his life has to “stay in its place.”¹⁹ It should not invade our lives. It will never become our awareness. Within the increasingly uncontrollable memories we could put more and more things: our memories, our fantasies, everything we have done and thought in our lives. That which perhaps we in the flesh have forgotten today is more and more opaque and it is there, within that memory, in a memory stick, in a USB. But we are the ones who carry the memory stick in our pocket. Maybe the book that is “the best in the world”, that Llull dreamed about, has not yet been written. Maybe there is still another question that has not yet been answered. ■

Competing interest. None declared.

¹⁷ F. Bacon, *De dignitate et aumeni scientiarum*, 1623. Latin translation of an earlier draft in English: *Of the Proficiency and Advancement of Learning, Divine and Human*, 1605. Speaking of Llull he says that his method is a method of deception because it gives man the illusion of knowing even that which he does not know. It was the same concern that Bacon had about mathematics: it gives you security even in the biggest calculations that had never been known before. In this view even Galileo was strongly suspected: to mathematically see the stars before one can see them physically.

¹⁸ Cf. Joseph M.Bochenski, *La logica formale. La logica matematica*, Torino, Einaudi 1982, Of Llull he says that he is the first who can claim the idea of a mechanical process that is quite general. And those who follow up on this dream of a universal science of all the sciences are Pascal, Hobbes, Leibniz up to Boole, Peirce and the logicians.

¹⁹ Federico Faggin, interview by G.A.Stella, *Corriere della sera*, October 9th 2014, p.39.