

# THE ART OF RAMON LULL

An Approach to it through Lull's Theory of the Elements

By Frances A. Yates

The long life of Ramon Lull (1232 to *circa* 1316) spans one of the most highly systematized periods of Western thought, the great thirteenth century which saw the development of scholasticism out of the re-discovered Aristotle. Though he stands apart from the main currents of scholasticism, Lull shared to the full the major drives of his age, its intense piety combined with rigorous method. Believing that he had had revealed to him an essential truth—or rather a method of demonstrating essential truth—he poured forth throughout his life, with incredible energy, a vast number of works many of which are expositions of, or related in some way to, his central systems.

The modern student of the Art of Lull is daunted by the difficulty of the subject, the vastness of the material, and—what is worst of all—by the inaccessibility of the material. Most libraries of any size contain one of the sixteenth- or early seventeenth-century editions of the *Ars Brevis*, with which are often bound a version of the *Ars Magna* and commentaries by Renaissance Lullists.<sup>1</sup> These abbreviated versions of the Art represent only a tiny fraction of Lull's output on the system which he believed had been divinely revealed to him and to the elaboration and propagation of which he devoted his whole life. Lullists who used the printed editions probably supplemented them from manuscript material. There indeed exists in the Bibliotheca Ambrosiana a copy of an early printed edition of the *Ars Brevis* bound with manuscripts.<sup>2</sup>

The eighteenth-century edition of the works of Lull, published at Mainz and edited by Ivo Salzinger, still remains the only one in which all the various versions of the Art are printed, with their complicated diagrams reproduced in the plates.<sup>3</sup> This rare edition can only be consulted in the great libraries. And moreover it was never completed as Salzinger planned it. In the first volume he published a "Revelatio Secretorum Artis" in which he quoted from certain of Lull's works which he regarded as essential for the understanding of the Art. These works were not published in the Mainz edition (two volumes of which never appeared) and some of them have not

I am indebted to Mr. R. Pring-Mill, who read this article in proof, for much valuable criticism.

<sup>1</sup> For the editions of the *Ars brevis* see the admirable bibliography of the printed works of Lull by E. Rogent and E. Duràn, *Bibliografía de les impressions lullianes*, Barcelona, 1927 (index under *Art breu*). Also J. Avinyó, *Les obres autèntiques del Beat Ramon Lull*, Barcelona, 1935, no. 121.

The editions most commonly found are those in Lull's *Opera* published by L. Zetzner at Strasbourg in 1598, 1609, 1617, which contain the *Ars brevis*, the spurious *De auditu Kabbalístico*, and the *Ars magna generalis ultima*.

<sup>2</sup> Bibl. Ambrosiana Y. 21. Sup. See Avinyó, p. 212.

<sup>3</sup> R. Lull, *Opera Omnia*, Mainz, 1721-42, in eight volumes numbered I-VI and IX, X (volumes VII and VIII were never published). Vol. I contains the *Ars Magna et Major* (not quite the same work as the *Ars Magna* in the Zetzner editions) and the *Ars Universalis*; Vols. III and IV contain the *Ars demonstrativa* and works related to it; Vol. V, the *Ars inventiva veritatis*.

Salzinger died after editing the first three volumes. On the Mainz edition and its vicissitudes see A. Gottron, *L'edicio maguntina de Ramon Lull*, Barcelona, 1915; Anton P. Bruck, "Der Mainzer Lullismus im 18. Jahrhundert" in *Festschrift für August Reatz*, Mainz, 1949, p. 314 ff.

been published yet. Thus even the Mainz edition is frustrating for the student of the Art.

A splendid edition of the works of Lull, begun in 1901 and restarted in 1905, is still in process of publication at Palma.<sup>1</sup> This edition aims, very understandably, at presenting Lull as a great Catalan writer and thinker. It prints the Catalan version, where this exists, rather than the Latin version of his works, and it has so far concentrated—though with some exceptions—on his more purely literary works rather than on those directly concerned with the Art.<sup>2</sup> Unfortunately the Palma edition is not easy to come by in this country; even the British Museum does not possess the complete set.

A surprisingly large number of Lull's works, amongst them not a few of vital importance for the Art, are still unpublished. The richest collections of manuscripts are in Rome, Milan, Paris, Munich, Innichen, and Venice.

The peculiarity of the Lullian Art is the use of letters of the alphabet, combined on geometrical figures, for the working out of problems. The "Alphabet" (Pl. 8a) and the four basic figures (Pl. 8b, c, d, e) of the Art are given in the *Ars Brevis*. These four figures can be taken as basic, though some of the unabbreviated Arts use more letters and expand the figures. As can be seen (Pl. 8a) the "Alphabet" of the Art consists of nine letters which are given six sets of meanings. The first set are "absoluta," namely B = Bonitas; C = Magnitudo; D = Duratio; E = Potestas; F = Sapientia; G = Voluntas; H = Virtus; I = Veritas; K = Gloria. The letter A represents a trinity, namely Essentia, Unitas, Perfectio.

The second set of meanings for B to K consists of nine "relata" which group naturally into sets of three, as follows: B = Differentia, C = Concordantia, D = Contrarietas; E = Principium, F = Medium, G = Finis; H = Majoritas, I = Aequalitas, K = Minoritas. This set of meanings is followed by nine (or rather, ten) questions, and by nine subjects about which the Art is to be used, namely B = Deus, C = Angelus, D = Coelum, E = Homo, F = Imaginitiva, G = Sensitiva, H = Vegetativa, I = Elementativa, K = Instrumentativa.

As well as having these four sets of meanings—as "absoluta," "relata," questions, and subjects—the letters B to K can also mean nine virtues and nine vices.

After the "Alphabet" come the "figures" of the Art, and these are geometrical in character, or at any rate in appearance. The first (Pl. 8b) shows B to K on a circle, and all inter-connected with one another by lines within the circle. In the second (Pl. 8c) the letters on the circle are grouped in sets of three by three triangles within the circle which are labelled with the second set of meanings of B to K. The third (Pl. 8d) is part of a square divided into compartments containing combinations of B to K. The fourth (Pl. 8e) is

<sup>1</sup> R. Lull, *Obras*, ed. J. Roselló, M. Obrador and others, Palma, 1901-3; continued as R. Lull, *Obres*, ed. M. Obrador, M. Ferrà, S. Galmés, 1906, in progress.

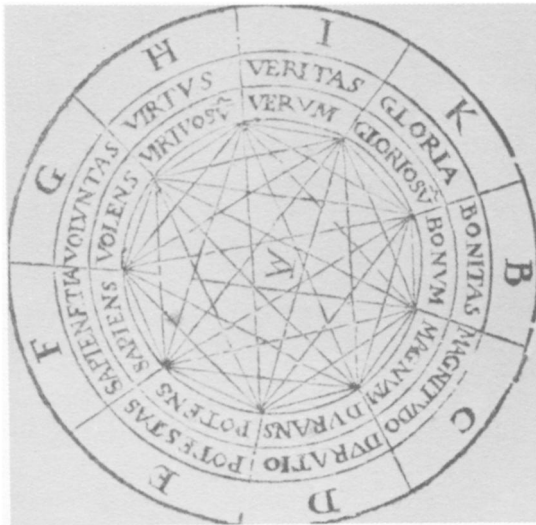
Several of the Catalan works have also been published in the series *Els Nostres Clàssics*, Barcino, Barcelona, 1927-35.

<sup>2</sup> But Vols. XI-XIII (1917-26) contain the *Arbre de sciència* (Catalan version of the *Arbor Scientiae* which is fundamental for the Art, see below, pp. 144-51); and Vol. XVI (1932) prints the *Art demonstrativa* (in the Catalan version), with the diagrams in colours.

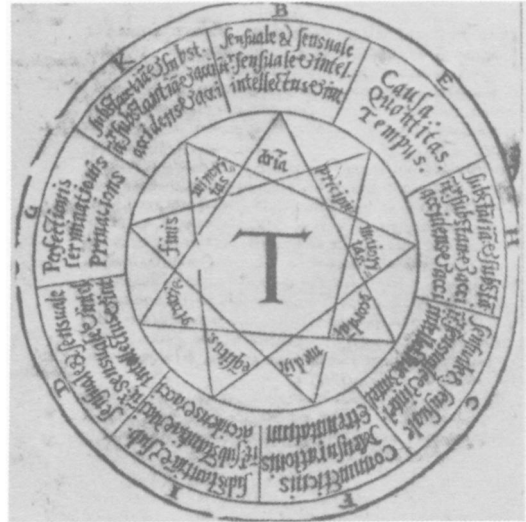
Fol. 1.  
**TABVLA AD ARTIS BREVIS**  
*Cabale tractatus & Artis Magnae primum*  
*caput pertinens.*

	A.	B.	C.	D.	E.	F.	G.	H.	I.	K.
ALPHABETUM feu principia huius artis sunt aut	Essentia. Virtus. Effectio.									
	Abfoluta	Bonitas.	Magnitudo.	Aeternitas (feu Duratio).	Potestas.	Sapientia.	Voluntas.	Virtus.	Veritas.	Gloria.
	T. Relata feu reipetitus.	Differentia.	Concordantia.	Contrarietas.	Principium.	Medium.	Finis.	Majoritas.	Aequalitas.	Minoritas.
	Q. Quaeftiones.	Virum?	Quid?	De quo?	Quare?	Quantum?	Quale?	Quando?	Vbi?	Quomodo? Cum quo?
	S. Subiecta.	Deus.	Angelus.	Caelum.	Homo.	Imaginatio.	Sensitiua.	Vegetatiua.	Elementatiua.	Instrumentatiua.
	V. Virtutes.	Iustitia.	Prudentia.	Fortitudo.	Temperantia.	Fides.	Spes.	Charitas.	Patentia.	Pietas.
V. Vitia.	Auauitia.	Gula.	Luxuria.	Superbia.	Acidia.	Inuidia.	Ira.	Mendacium.	Incoftantia.	

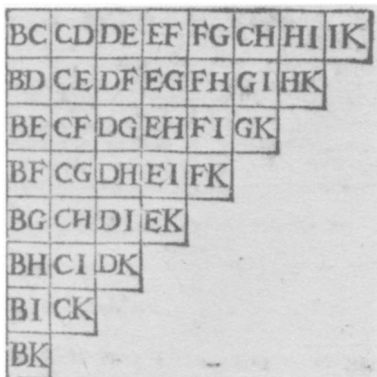
a—Alphabet of the Art (pp. 116-7, 123, 134, 138)



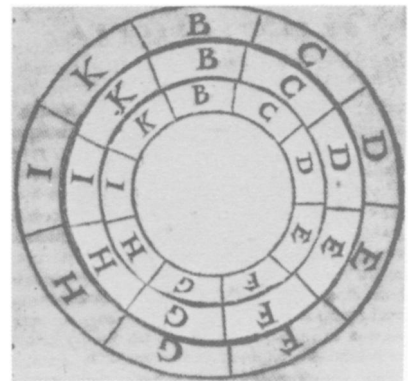
b—First Figure (p. 116)



c—Second Figure (p. 116)



d—Third Figure (p. 116)



e—Fourth Figure (the two inner circles revolve) (pp. 116-7, 123)

Figures for the *Ars brevis* of Ramon Lull, From R. Lull, *Opera*, Strasburg, 1617

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three concentric circles, all labelled B to K; the outer one is fixed but the two inner ones revolve. Lastly, the *Ars Brevis* gives, after the alphabet and the figures, a table, the "Tabula Generalis," in which combinations of the letters B to K are set out in columns. (Very much more elaborate forms of this table of combinations are given in the unabbreviated Arts.)

Treated with the utmost contempt by nineteenth-century scholars like Prantl<sup>1</sup> and Littré,<sup>2</sup> the Lullian Art has been for long relegated to the dust heap of useless speculations. Even a fervent admirer of Lull as a writer, as a mystic, and as a missionary, such as the late Allison Peers, skirts round the Art in his biography of the Doctor Illuminatus as a rather unfortunate aberration of an otherwise great man.<sup>3</sup> There are, however, signs to-day that the Lullian Art is attracting some interest as a possible distant ancestor of modern symbolic logic.<sup>4</sup>

There is no doubt that the Art is, in one of its aspects, a kind of logic, that it promised to solve problems and give answers to questions (the "questions" of the "alphabet"—see Pl. 8a—seem roughly to correspond to the Aristotelian categories) through the manipulation of the letters on the figures. Littré described the *Ars Magna* as, at bottom, nothing but "le syllogisme représenté par des diagrammes."<sup>5</sup> Lull, however, claimed that his Art was more than a logic; it was a way of finding out and "demonstrating" truth in all departments of knowledge.

"Encore vous dis-je que je possède un Art général, nouvellement donné par un don de l'Esprit, grâce auquel on peut savoir toute chose naturelle, en tant que l'entendement atteint les choses des sens; bon pour le droit, et pour la médecine, et pour toute science, et pour la théologie, laquelle m'est plus au coeur. A résoudre questions aucun art tant ne vaut, ni a détruire erreurs par raison naturelle."<sup>6</sup>

These are stupendous claims. They seem to imply that Lull believed that he had discovered, or had had revealed to him an Art of thinking which was infallible in all spheres because based on the actual structure of reality, a logic which followed the true patterns of the universe. He valued this infallible Art most for its virtue in the theological sphere, on which level he believed that it could "demonstrate" the truth of the Incarnation and the Trinity to unbelievers. But it could also work with precision in other spheres, "bon pour le droit, pour la médecine, et pour toute science."

If we look once more at the "Alphabet" (Pl. 8a) of the Art, we perceive that (as already pointed out) A is a trinity, and B to K as "absoluta" are

<sup>1</sup> C. Prantl, *Geschichte der Logik im Abendlande*, 1855, ed. of Leipzig, 1927, III, pp. 145-177.

<sup>2</sup> M.-P.-E. Littré, "Raimond Lulle" in the *Histoire littéraire de la France*, XXIX, Paris, 1885.

<sup>3</sup> E. Allison Peers, *Ramon Lull*, 1929, p. 110 ff.

<sup>4</sup> See T. and J. Carreras y Artau, *Historia de la filosofía española*, Madrid, 1939-43, I,

p. 476 ff. The first two volumes of this history of Spanish philosophy are mainly devoted to Lull and they form the most up-to-date treatment of the subject.

<sup>5</sup> *Op. cit.*, p. 75.

<sup>6</sup> French translation, quoted by Littré, *op. cit.*, p. 25, of a stanza of Lull's *Desconort*, one of his best-known poems in Catalan (in R. Lull, *Poesies*, ed. R. d'Alòs, Barcelona, 1928, p. 77).

divine attributes, or, perhaps, emanations. Moreover, B to K as “subjects” are a “ladder” (to use one of Lull’s own favourite mystical symbols) rising from the primitive elemental world (*elementativa*), through the vegetable world (*vegetativa*), the animal world (*sensitiva*), the human world (*homo*), to the celestial world (*coelum*), and thence to the angelic and divine worlds (*angelus*, *Deus*). On all these subjects the Art could be used. That is to say, the Art could range throughout the universe as conceived in the thirteenth century.

It is the purpose of the present article to tackle Lull and his Art on the “subject” *coelum*. That is to say, on the subject of “the heaven” which, for Lull, always means the twelve signs and the seven planets and a certain kind of astrology. In pursuing this limited aim we shall omit matters which the reader would expect to find treated.

This one-sidedness means that we shall not, at the end, be able to throw any clear light on the actual working of the “combinations” in the Art. We shall hope to have proved that the new approach here indicated is vitally important for its understanding. But to comprehend it fully—as I believe may eventually be possible when this hitherto ignored strand in it is taken into consideration—will involve attacks on it from the logical, mathematical, metaphysical and theological sides as well, and, above all, the use of many more of Lull’s unpublished manuscripts than the one which we here examine.

The only known treatise by Lull on astronomy is the *Tractatus Novus de Astronomia* written in 1297. This work has never been published though a good many manuscripts of it exist.<sup>1</sup> It has always been accepted as a genuine work of Lull’s and indeed it satisfies all the requirements for Lullian authenticity. It is referred to by Lull in undoubtedly genuine works by him;<sup>2</sup> it is probably the *Ars Astronomiae* mentioned in the early manuscript catalogue which is always used as a test of authenticity;<sup>3</sup> and there exist versions of it in Catalan.<sup>4</sup> Even Littré, always so ready with the damning indictment “pseudo-Lullian,” accepted the *Tractatus Novus de Astronomia* as undoubtedly genuine, though, having misinterpreted its preface, he believed it to have been written to warn princes and magistrates against astrology.<sup>5</sup>

In this preface, Lull says that he wishes “to investigate and find out new ways through which men may have knowledge of many natural secrets through which greater knowledge may be had of astronomy and its judgments.” To this he adds that he has composed this treatise “for princes and magistrates that they may know how to beware of many astronomers who deceive them with false judgments which they make from the celestial bodies.”<sup>6</sup> And he further warns against divinations from the art of geomancy.

Lynn Thorndike has pointed out that the examination of the treatise

<sup>1</sup> The following study of it is largely based on Paris, lat. 17, 827. This manuscript belonged to the library of the Parisian Franciscans in 1717 and was probably written in the sixteenth century.

Other manuscripts of the work which I have examined will be found listed and discussed in Appendix II, pp. 169-71 below.

<sup>2</sup> For instance, in the *Quaestiones atrabatenses*.

See Lynn Thorndike, *History of Magic and Experimental Science*, Colombia, IV, 1934, p. 8.

<sup>3</sup> Paris, lat. 15, 450, fol. 89. On this manuscript see Appendix III, p. 172 below.

<sup>4</sup> One of these is in the British Museum, Additional 16, 434.

<sup>5</sup> *Op. cit.*, p. 309.

<sup>6</sup> Paris, lat. 17, 827, fol. 2.

shows that "it is only of certain astrologers and diviners who deceive princes by false judgments that Raymond would have royalty beware. He writes his book not because 'astronomy' (i.e. astrology) is false but because it is so difficult that often judgments made by the art turn out to be false, and because he wishes to investigate and discover new methods by which men can have greater knowledge of 'astronomy' and its judgments."<sup>1</sup>

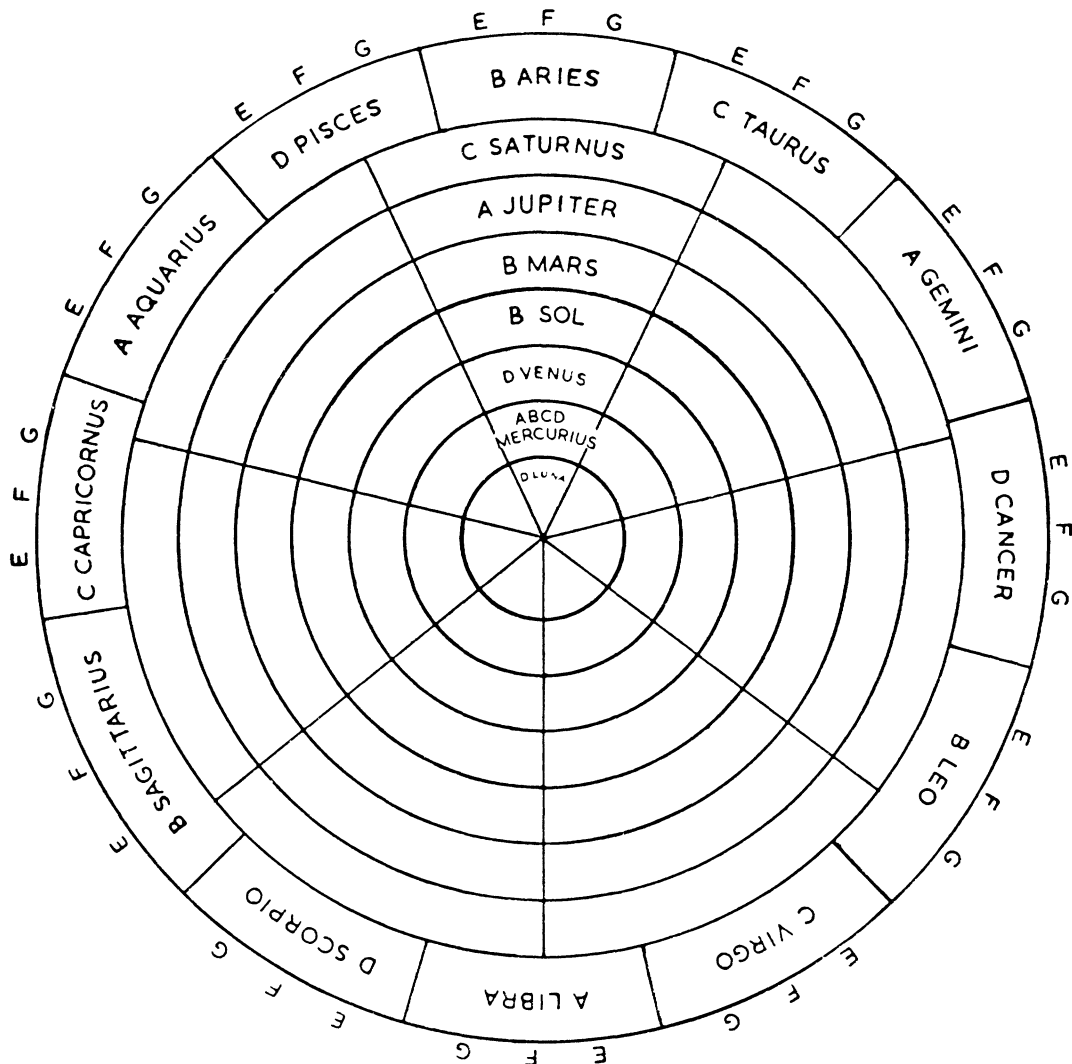


Fig. 1

As in his famous "Arts," Lull uses in this work an "alphabet"—a series of letters to which he assigns certain meanings—and a "figure." But here the alphabet and the figure are explicitly used to work out problems in astrology.

<sup>1</sup> Thorndike, *op. cit.*, II, p. 868.

Figure 1 shows eight concentric circles.<sup>1</sup> On the outermost one are written the names of the 12 signs of the zodiac. The seven inner ones follow the order of the planetary spheres and on each is written the name of the planet which it represents. The outer circle, with the zodiac, is fixed and stationary, but the seven inner ones revolve. It is obvious that this simple device enables conjunctions of planets in signs to be easily read off. (Aries with Saturn; move the outermost planet circle so that Saturn is under Aries. Aries with Saturn and Jupiter; move the next planet circle so that Jupiter comes under Saturn in Aries; and so on.)

Each of the signs and each of the planets is labelled with a letter, either A, B, C, or D; with the exception of Mercury who is labelled with all four, ABCD.<sup>2</sup>

The assigning of these letters is based on a beautifully simple principle. ABCD represent the four elements; A = Air; B = Fire; C = Earth; D = Water. In the physical theory of the Middle Ages, which was, of course, descended from classical antiquity, each of the terrestrial elements was supposed to have two qualities; air, warm and moist; fire, hot and dry; earth, dry and cold; water, cold and moist. ABCD have these meanings. But these letters also represent the signs and planets in accordance with their affinities with the terrestrial elements. Astrology teaches that the twelve signs are grouped in four elemental triplicities, or groups of three. In the figure, the signs of the air triplicity are labelled A; those of fire, B; those of earth, C; those of water, D. (If all the A's, B's, C's, and D's of the outer zodiacal circle are joined by triangles, one has the four triplicities of the signs.) Astrology teaches that the planets are also apportioned among the elements: Saturn is earthy, therefore in Lull's notation he is C; Jupiter, airy, an A; Mars and Sol, fiery, therefore both B's; Venus and Luna, watery, both D's. Mercury has no predominant elemental affinity of his own, but is "convertible" to those of other celestial bodies through their influence. Hence, Mercury is labelled ABCD.

The following are, therefore, the meanings of A, B, C, and D:

A	Aer	Gemini, Libra, Aquarius	Jupiter	Humidus et calidus
B	Ignis	Aries, Leo, Sagittarius	Mars, Sol	Calidus et siccus
C	Terra	Taurus, Virgo, Capricornus	Saturnus	Siccus et frigidus
D	Aqua	Cancer, Scorpio, Pisces	Venus, Luna	Frigidus et humidus
		ABCD	Mercurius	

This notation is assigned to the signs and planets in the first section of the

<sup>1</sup> There is no figure in Paris, lat. 17, 827. The one illustrated is based on the revolving figures in B.M. Additional 16, 434; in Collegio Sant Isidoro (Rome) 1/108; and in Paris, lat. 17, 822 (non-revolving). These all correspond, except that there is a mistake in the figure in the British Museum manuscript and that the figure in the Collegio Sant Isidoro manuscript writes the planet names only once on their respective circles (in the others the names of all the seven planets are written on

each circle). As the arrangement given in the Sant Isidoro manuscript seems the best and clearest for working the figure, it is adopted here. The figure is set with all the planets in Aries.

<sup>2</sup> The letters E F G on the figure mark the three ten-degree divisions of each sign. In the following abbreviated account of the method of the *Tractatus*, I have omitted the discussion of these letters.

first part of the *Tractatus* which is on what Lull calls “the old principles of astronomy” (*de antiquis principiis Astronomiae*).<sup>1</sup> These principles are the 12 signs and the 7 planets which he lists in order, giving for each one the usual astrological information about it (though he says that he has selected from that information only what seems to him true). Under “Aries,” for example, we are told that this sign is diurnal, mobile, masculine, has Mars for its planet, is of the complexion of fire and therefore relates to the choleric temperament in man, that it rules man’s head, and the regions of Persia and Babylonia. It transmits its characteristics to those born under it who are likely to be choleric, masculine, mobile, unless such characteristics are modified by planetary influences. Under “Saturn,” to take an example from the planet list, we learn that this planet is diurnal, masculine, bad, has lead for its metal, the Sabbath for its day, is of the earthy complexion, and those born under it are melancholics. To repeat any more of such characteristics of the signs and planets from this lengthy first part on the “old principles of astronomy” would be to repeat matter which can be learned from astrological text-books.

To the “old principles” he is applying a new method, or a new notation. In the case of each sign and planet he begins by specifying its elemental “complexio” and by assigning to it the appropriate letter by which it will be designated in his method. I take again “Aries” and “Saturn” as examples and quote the opening words of Lull’s treatment of them:

*Aries* est signum cui complexio ignis attribuitur qui calidus est et siccus cuius scilicet ignis complexio significatur per B in hoc Tractatu . . .<sup>2</sup>

*Saturnus* est de complexione terrae quae significatur per C et est masculinus, diurnus et malus . . .<sup>3</sup>

In his opening treatment of the “principles,” Lull lays down the “alphabet” of his art by assigning A, B, C, or D to each sign and planet according to its elemental “complexio” (as outlined above), except in the case of Mercury which “per se complexionem non habet.”

Astrological theory involves, of course, that not only the complexion of man (choleric, sanguine, melancholic, or phlegmatic) depends on stellar influences, but that all things in nature—stones, metals, plants, animals—must be grouped in accordance with these influences. Lull notices these groupings in his list of the “principles,” dwelling on which metals, plants, or animals belong to which star. It follows from this—though a point not actually mentioned in the list—that it would be possible to speak of a “B complexion” man, metal, plant, animal, and so on—that is of a man, metal, plant, or animal in which the B, or fiery, element, predominated because under the influence of a B star.

Since all things in the sublunar world are composed of the four elements and since these elements depend on the stars, one can work out “fortunes,” or *judicia*, that is one can do astrology, by studying the elemental combinations in any given conjunction of planets in a sign. The Figure (Fig. 1) enables

<sup>1</sup> Paris, lat. 17827, fol. 3 ff.

<sup>3</sup> Fol. 6v.

<sup>2</sup> Fol. 3.



one to read these off immediately in terms of A, B, C, and D. For example, Saturn in Aries = BC; Saturn and Jupiter in Aries = BCA. And so on.

In order to do astrology by this method, one must understand the principles of what Lull calls "devictio," or the principles governing the fortunes of A, B, C, and D in their various combinations. This depends roughly on majority. If, for example, Sol and Venus are in Cancer you have DBD, a combination in which D wins over B. Or, as Lull puts it, "Cum Cancer Sol et Venus sunt insimul tunc faciunt istum figurum scilicet b.d.d. et b est devictus et d regnat."<sup>1</sup> But what happens in a combination like BCA = Saturn and Jupiter in Aries?

To work the niceties of "devictio" one must grasp the distinction between what Lull calls the "proper" and the "appropriated" qualities of the elements.<sup>2</sup> In B, which is *calidus et siccus*, heat is the "proper" quality and dryness the "appropriated" quality. Similarly in A (*humidus et calidus*), in C (*siccus et frigidus*), in D (*frigidus et humidus*) the first-mentioned quality is the "proper" one, the second the "appropriated" one. The proper quality is stronger than the appropriated one, and has the power of drawing over to its side (so to speak) an appropriated quality of the same nature as itself in another element and so conquering or "devicting" that element.

For example, in the combination AB, you have a *humidus et calidus* with a *calidus et siccus*. In this case B *vincit* A, because B's proper *calor* draws in A's appropriated *calor* and this makes B's proper *calor* stronger than A's proper *humiditas*. In AD, A wins, and devicts D. In BC, it is C who is the conqueror. In CD, it is D who wins. In the combinations AC and BD both proper and appropriated qualities are contraries, so neither side can win.

A considerable part of the *Tractatus* consists in working out combinations of planets in Aries, Taurus, Gemini, and Cancer in terms of A, B, C, and D.<sup>3</sup> (Lull says that the student can then go on by himself working out combinations in all the other signs.) By going into the niceties of "devictio" he establishes what will be in each disposition of the planets in those four signs the relative power of A, B, C, or D, and this tells one which stars will be most influential in that disposition. For example, the answer to the problem of what happens in the case of Saturn and Jupiter in Aries, or BCA, is that the *calor* and *siccitas* of B are the victors, and that therefore Aries and his conditions or characteristics are more influential in that conjunction than those of Saturn or of Jupiter.<sup>4</sup>

By a brilliant process of abstraction and simplification, Lull has swept away the complicated apparatus of the horoscope-makers and puts forward a new method for doing an impersonal and highly scientific kind of astrology. One may well believe that this method may have seemed, both to himself and others, a wonderful discovery. Concentrating on the stellar influence on the elements as the bed-rock of astrological theory, he provides an alphabetical notation for working out astrological problems in "elemental" terms.<sup>5</sup>

<sup>1</sup> Fol. 52.

<sup>2</sup> Fol. 15<sup>v</sup> ff.

<sup>3</sup> Fol. 40 ff.

<sup>4</sup> Fol. 40.

<sup>5</sup> The major source of Lull's scientific

interest in the elements is, of course, Aristotle, particularly the *De generatione et corruptione* with its exposition of "contrarietas" among the elements and its insistence that each element is characterized by a single quality:

In the *Tractatus* we have found Lull doing a kind of astrology by means of letters of the alphabet on a rotating figure representing the zodiac and the planets. This in itself is enough to raise speculations in our minds when we look back again at the figures of the Lullian Art, particularly the fourth figure (Pl. 8e), which has, indeed, actually been described by Thorndike as consisting of "concentric circles divided into compartments, of which one rotated something like the planets in the signs while the other remained stationary like the sphere of fixed stars."<sup>1</sup> And that there is some kind of connexion between the methods of the *Tractatus* and those of the great Art is evident in the *Tractatus* itself.

It will be remembered that the *Tractatus* begins with the catalogue of the signs and the planets, and the assignation to them of A, B, C, or D, and that this first section of the first part was described as being concerned with the "old principles of astronomy." Now the second section of this first part is "on the principles of the *Ars Generalis* which are applied to the old principles of astronomy, and with the principles of the said Art may be understood and found out the truth concerning the old principles of astronomy, so that their nature and secrets may be discovered and shown forth."<sup>2</sup> And when this second section begins we are told that it will investigate what has been said in the first section (on the "old principles" or the signs and the planets) with the principles and questions of the *Tabula Generalis*.

Principia Tabulae sunt haec, bonitas, magnitudo, duratio, potestas, sapientia, voluntas, virtus, veritas, gloria, differentia, concordantia, contrarietas, principium, medium, finis, majoritas, aequalitas, et minoritas. Cum istis 18 principiis generalibus investigari possunt omnes res, quae sunt intelligibiles, et possibiles ad intelligendum.

Decem sunt genera quaestionum, videlicet, utrum, quid, de quo, quare, quantum, quale, quando, ubi, quomodo, et cum quo. Per haec decem genera quaestionum, fieri possunt omnes quaestiones, quae quaeruntur.<sup>3</sup>

These "principles of the Table" with which the "old principles" or the signs and planets are to be investigated are, therefore, the "absoluta," the "relata" and the "quaestiones" which in the Lullian Art are designated by BCDEFGHIK (see Pl. 8a).

In fact, it may be said that in the *Tractatus* Lull is applying the principles of his Art to the "subject" *coelum* (designated as D in the "Alphabet" of the Art, see Pl. 8a). And that he understands this "subject" in an astrological sense, meaning by it the 12 signs and the 7 planets.

We have now to apply ourselves to try to understand the extraordinary

"Earth by dry rather than by cold, Water by cold rather than by moist, Air by moist rather than by hot, and Fire by hot rather than by dry" (II, 3, 331a), which Lull seems to develop into the distinction between the "proper" and "appropriated" qualities. Even the astrological side of the elemental theory could receive support from Aristotle, whose general view of the construction of the uni-

verse could be, and was, interpreted as favourable to astrology.

I am not in general attempting in this article to discuss the ancient sources of Lull's notions.

<sup>1</sup> *Op. cit.*, II, p. 865.

<sup>2</sup> Fol. 3.

<sup>3</sup> Fol. 13<sup>v</sup>.

second section of the first part of the *Tractatus* in which Lull goes through the 18 principles and most of the questions of his Art in relation to the heavens. It will be impossible to do this in any detail. All that we can attempt is the examination of a few of what seem to be the most significant and illuminating passages.

In answer to the question "of what" (*de quo*) is the heaven, it is replied that the heaven is of celestial form and nature. And further it is stated that this form and nature is of "substantial" *bonitas, magnitudo, duratio, potestas*, and the rest of the 18 principles, with the exception of *contrarietas* which is not "substantially" in the heaven. The substantial *bonitas, magnitudo* etc. of the heaven is derived directly from God who created the heaven thus so that it might cause all the inferior *bonitates, magnitudines* etc. in the lower world. This it does in the following manner:

The seal which imprints the similitudes of its letters on the wax pours its influence into the similitudes (*similitudines influunt*) which are not of the essence of the seal. For the seal does not put anything of its essence into the wax; for the letters which are on the seal are of its essence and do not leave it. Similarly signs and planets do not transmit to inferior bodies anything, either substantially or accidentally, of their essential properties and natures; but they imprint on them (i.e. on the inferior bodies) their similitudes which are the influences which they transmit to the inferiors. And those influences are drawn from potentiality into action from the qualities in the inferior substances, through the superior substances. As the seal draws from potentiality into action in the wax the similitudes of its letters. And the similitudes or influences which are transmitted from the superiors are the similitudes of *bonitas, magnitudo*, and of the other principles of the heaven, which move the inferior substances so that they become in act those letters which they have in them in potentiality. As Sol, who by his greater splendour, in summer multiplies greater heat in fire; and as Luna, who by her waxing and waning makes fountains, rivers, and the menstrue in women to increase and decrease.<sup>1</sup>

Lull is here repeating a commonplace of astrological theory when he says that the influences of the signs and planets on inferior things are in the nature of seal-imprints. But what makes this passage of the keenest interest and importance to the student of the Lullian Art is that he here seems to identify the influences of the signs and planets with those of *bonitas, magnitudo*, and the other "principles" of the Art. And the influences which they transmit to inferiors, like the similitudes of letters on wax, become the influences, or similitudes, of *bonitas, magnitudo* and the other principles designated by the letters BCDEFGHIK in the Lullian Art.

The above statement is not an isolated instance of this curious role of *bonitas, magnitudo* and the rest as "principles" of heaven transmitting influences

<sup>1</sup> Fol. 17<sup>v</sup>. Salzinger attached great importance to this passage and quoted it in his "Revelatio" (see Lull, *Opera*, Mainz ed., I, p. 146). He must certainly have had access to a manuscript of the *Tractatus de Astronomia*, on which he drew heavily for his "Revelatio"; but the work was never published in the Mainz edition.

in a manner which seems to be identified, in some way, with that of the “old principles” of the heaven, that is of the signs and planets. The whole of the *Tractatus* may be said to be concerned with stating this in various ways, and its double theme is laid down, as it were, in the first part, with its first section devoted to the “old principles” or the signs and planets; and its second section in which the “principles” of the Art are examined one by one and associated with the signs and planets. For example, the paragraph in the second section on the *potestas* of heaven begins:

In coelo et stellis est potestas naturalis et essentialis cum qua signa et planetas habunt actionem in corporibus inferioribus . . .<sup>1</sup>

That on the *virtus* of the heaven begins:

In coelo et planetis est virtus quae informat movet et disponit virtutem in inferioribus secundum quod in signis est diffusa et in planetis sicut virtus Solis quae appetit flores et ipsos vertit ad suum respectum et ut ab ipso virtutem recipiant in quantum disponit quod virtus quam habet in potentia in actu educatur.<sup>2</sup>

In fact the “principles” of *bonitas*, or *potestas* or *virtus* and the rest, are the powers in the heaven informing the signs and the planets, or, in some sort, identical with them. From this it follows that the influence of the signs and the planets on the elements is really the influence of *bonitas*, *magnitudo* etc. on the elements, so that one can say, for example, that the reason why B *vincit* D is because the “virtus coeli iuvat B contra D”, or that it is the *duratio* of heaven which with Saturn makes dry and cold lasting, or with Sol the hot and the dry, or with Jupiter, the moist and the hot.<sup>3</sup>

The identification of the signs and the planets and their influences with *bonitas* and the rest, and their influences, is, however, refined upon and qualified in various ways. One of the most important of these refinements is that by which the distinction between “proper” and “appropriated” qualities—which, as we saw, was the principle behind “devictio” in telling fortunes through the elements—takes on another meaning in this context.

The signs and planets have, we are told, both “proper” and “appropriated” qualities.<sup>4</sup> The “proper” qualities of the signs and planets are, so Lull states, *bonitas*, *magnitudo* “and the other principles of the *Tabula Generalis*,” that is, of course, *duratio*, *potestas*, and the rest of the “Alphabet” of the Art. Their “appropriated” qualities are their individual characteristics, such as for example, the badness of Saturn or the goodness of Jupiter. These appropriated qualities are in turn divided into two classes, “common” and “specific.” Common are those which several stars may have in common, such as the badness of both Saturn and Mars or the goodness of both Jupiter and Venus. Specific qualities are those peculiar to one planet or sign, such, as for example, lead and the Sabbath day which are peculiar to Saturn.

From this it follows that in its “proper” quality no sign or planet has a bad influence, for the proper qualities of all of them are the principles *bonitas*,

<sup>1</sup> Fol. 21<sup>v</sup>.

<sup>2</sup> Fol. 23<sup>v</sup>.

<sup>3</sup> Fols. 24, 21.

<sup>4</sup> Fol. 19<sup>v</sup>.

*magnitudo* and the rest. It is also possible to say through their proper qualities all the signs and planets are in concordance with one another.<sup>1</sup>

And finally, it is possible to say that the terrestrial elements have greater concordance with the heaven through their mutual *bonitas*, *magnitudo*, etc., than through their elemental affinities. For example, Sol and Fire concord more through mutual *bonitas*, *magnitudo*, and so on, than through *calor* and *siccitas*; for Sol is not formally *calidus* and *siccus*, but he is formally *bonus*, *magnus*, *durans*, *potens*, etc.<sup>2</sup>

*Contrarietas*, alone of the “principles of the Table” is not in the heaven substantially, but it is there *per accidens*, and it is this which causes generation and corruption in inferior things which arise from the concords and contrasts between the terrestrial elements in their dependence on the stars.

The heaven, says Lull, has a soul, though not a vegetative, sensitive, or rational soul, and it moves in a circle. And in the circular movement of the heaven there is concord between the signs and the planets through their proper qualities—their mutual *bonitas*, *magnitudo*, *duratio*, and the rest. And the heavenly bodies do not cause (what happens here below) principally through ABCD (that is through the elements) but they cause principally through *bonitas*, *magnitudo*, *duratio*, etc. (The principles *sapientia*, *voluntas*, *gloria* when in the heaven are given the names *instinctus*, *appetitus*, and *delectatio*.)

In examining these principles in turn in the *Tractatus*, Lull discusses them in the signs and planets and he states of each one that it is the cause of such principles in inferior things. For example, *magnitudo* in the heaven is the cause of all inferior *magnitudines*;<sup>3</sup> the *instinctus* in the heaven is the cause of all instincts in inferior things;<sup>4</sup> the *aequalitas* in the heaven is the cause of all inferior *aequalitates*.<sup>5</sup>

Let us take one example, and attempt to give the gist of the paragraph on *aequalitas* as a principle of heaven.

The equality in the heaven is the cause of all inferior equalities, and this in two ways, by equality of measure and equality of proportion. Aries and Mars are equal in B as a measure, but according to proportional equality Mars has more B than Aries, for Mars has B throughout its sphere, but Aries does not have B throughout the circle of heaven. Sol is greater than Venus and therefore the “*aequalitas superior*” cannot make equal measures of B and D but it makes them “proportionally” so that in inferior things the contrarieties may be tempered by Sol and Venus. After giving other instances of “equality” in the signs and planets, the statement is made that the “*aequalitas coeli*” causes the instinct and natural appetite in inferior things for justice and that this is the cause of the composition of geometry, arithmetic, and music

et propter hoc astronomi possunt per astronomiam artem scire alias scientias quadrivalis et etiam Jus et Medicinam.<sup>6</sup>

So far as I am able to understand it, what goes on in Lull’s mind is something as follows.

<sup>1</sup> Fols. 20, 27.

<sup>2</sup> Fol. 27.

<sup>3</sup> Fol. 20.

<sup>4</sup> Fol. 22.

<sup>5</sup> Fol. 30.

<sup>6</sup> *Loc. cit.*

By simplifying astrology to its elements by the ABCD method, with its distinction between “proper” and “appropriated” qualities in the elements, he had got nearer to the truth of astrological influences and the way to calculate them.

By distinguishing again between ABCD in the heaven and the “proper qualities” of the heaven—in this case *aequalitas*—he gets still nearer to the truth. It is the *aequalitas* in the heaven between A, B, C, D as the signs and planets which is the true influencing cause, for this alone is substantially in the heaven, and not A, B, C, D themselves, as the elements.

Thus “aequalitas” becomes the influencing principle which imprints its “similitude” on the equalities in inferior things, on equality between men of the same size, or belonging to the same class of society, on equality in justice, geometry, arithmetic, music, and in the sciences of law and medicine.

We may note that there is a kind of parallelism between “proper qualities” in the elements and in the heaven. In the lower terrestrial sphere it is the “proper quality” of the element which is its powerful or operative quality. On the higher grade or level of the heaven the superiority of the “proper quality” reaches a much higher degree of superiority and becomes an abstract principle.

An Art which could calculate through the “proper qualities” of the heaven, making allowance for what happens in the lower world when *contrarietas* comes in (which alone of the “principles” is not substantially in the heaven) would be an all-embracing Art. The clue to its working would be the connexion between BCDEFGHIK and ABCD.

Lull claims that he is making original departures in the science of astrology in this very curious work. He says that it corrects the errors of “old astronomers.” These “old astronomers” erred in not giving reason for what they knew by experience and in not giving general principles for the guidance of students and practitioners. For example, they did not explain the distinction between the “proper” and “appropriated” qualities in the elements—that is in ABCD—nor investigate the rules of “devictio” which decide the victory of one element over another. Yet this method, when properly employed, will indicate what complexion reigns in a conjunction.<sup>1</sup>

Another deficiency of the “old astronomers” was that they did not state that the signs and planets have “proper” parts or qualities, and that these are “naturalis et substantialis bonitas, magnitudo et alia.” They therefore did not understand that—for example—although Taurus and Gemini or Saturn and Jupiter are contrary to one another “per A C *per accidens*,” yet in their essence and nature they concord with one another because they are “de una et eadem bonitate, magnitudine et aliis.”<sup>2</sup>

This does not exhaust all the errors of the old astronomers but I quote these two points to show that Lull believed that he was original—or at any rate introducing something not generally known—both in his way of doing astrology by the ABCD method based on the rules of “devictio,” and in insisting on *bonitas, magnitudo*, and so on, as the proper qualities of the signs and planets.

<sup>1</sup> Fol. 55<sup>v</sup>.

<sup>2</sup> *Loc. cit.*

But the most serious defect of the "old astronomers" was that they erred against God and against the soul of man by insisting that the heaven rules of necessity over all things here below.<sup>1</sup> God, says Lull, is the first cause of the signs and planets; he created the heaven and the firmament and he moves the constellations to the end for which they were made, namely man. He can if he will alter their influences. When through Aries, Jupiter, or Mars, there should be famine and sickness in some region, God in answer to prayer may give health and abundance. Therefore "astronomy" is not a "necessary" science. As a smith can make the hammer fall obliquely instead of directly, which is its nature, so God may move the influences of the constellations.

The superior bodies in the heaven do not participate in the soul of man, and the soul has power to move the body as it will. Through the soul joined to the body of man, God can therefore cause him to act against the constellation in which he was born. If born under Saturn and Aries, he can turn to do the operations of Cancer and Jupiter.

Therefore the "old astronomers" have erred in making astronomy a "necessary" science.

The passage concludes with warnings against geomancers and their mistakes.

Much which may be of great importance has been omitted in the above brief survey of the contents and design of Lull's *Tractatus de Astronomia*. But enough has been said to show that this work reveals Lull in an entirely new and hitherto unsuspected light. He is not only doing astrology in this treatise; he is doing a new kind of astrology, or rather doing the "old astrology" by a new method. The preface which has thrown so many modern students of Lull off the scent through appearing to be a warning against astrology can now be better understood. It is a warning against the errors of the old astrologers and an introduction to a new and improved method. This new method uses the "old principles" of astrology, namely the signs and planets and their influences, which it expresses through an alphabetical notation. And it combines or interprets the "old principles" with other "principles" and these latter are none other than the "principles" of the main Lullian Art. There can be little doubt that what we have in the *Tractatus* is the application of the general Lullian Art to the particular science of "astronomy."

But this treatise tells us more than that, for it reveals how important for Lull's conception of the manner in which the divine principles work in the universe was his integration of these with astrological influences on the elements. We need to gather more information about this from his other works before we can envisage its importance for the general Art, based on the divine principles.

There is a long course to take through the vast ocean of the works of Ramon Lull in search of more material on his theory of the elements, or "elemental astrology"<sup>2</sup> as one might perhaps call it. Important from this point of view is the working of the Art on the science of medicine.

<sup>1</sup> Fol. 56<sup>v</sup> ff.

<sup>2</sup> Perhaps one might also call it "astrological physics." It is certainly not ordinary,

or "vulgar" astrology, but a science of nature which seeks to find simplified ways of demonstrating, or calculating, the relations between

*The "Tractatus" and Astrological Medicine*

It will be remembered that in the poem quoted above<sup>1</sup> Lull claims to possess an *Ars Generalis* which will work for law, for medicine, and for all sciences. This may be interestingly compared with the statement in the *Tractatus* that "astronomi possunt per astronomiam artem scire . . . scientias quadrivalis et etiam Jus et Medicinam."<sup>2</sup>

Lull's medicine is an important line through which to follow up the clues given in the *Tractatus*; there are allusions to medicine in the *Tractatus*, and there are several treatises by Lull on astrological medicine which connect very closely with the *Tractatus*.

That the method of the *Tractatus* could be used in astrological medicine is indicated at several points in that work. I can only suggest this very briefly from one quotation.

In discussing the elemental combination AC in which neither A nor C can conquer, or "devict" one another because both their proper and appropriated qualities are contraries, Lull makes the following statement:

## De A C

Significat C complexionem siccam et frigidam, et terra formaliter sicca est per se et frigida per aquam, et ideo si de duabus herbis aequalibus in bonitate, potestate, et virtute, quarum una est de complexione de A, et alia de complexione de C, facta est una medicina, A non vincit C in illa medicina, necque C vincit A, quoniam aequaliter in illa medicina sibi invicem contrariantur per qualitates proprias, et appropriatas; verumtamen si patiens qui medicinam sumit sit de complexione de A, devincitur C per A, sed sit de complexione de C, devincitur A per C. Simili modo est de constellationibus, veluti si Saturnus et Jupiter sibi invicem obviant in domo Tauri, devincitur Jupiter, et iudicium fieri debet secundum illum planetam qui alium devincit.<sup>3</sup>

From this simple example one may grasp the idea of how the ABCD method might be of value in astrological medicine. The complexion of the patient would be denoted by A, B, C, or D (A, sanguine, B, choleric, C, melancholic, D, phlegmatic). So would the complexions of the herbs from which the medicines were made. Then by the "devictio" method one would know what happens when, as in this case, an A or a C patient takes an AC medicine. In the first case C, in the second case A, will be "devicted" inside the patient. Just as when Saturn (C) and Jupiter (A) are in Taurus (C), A will be devicted by C, and the C complexion will reign in that house.

Note that the contrary A and C herbs are not contrary, but equal, in *bonitas*, *potestas*, and *virtus*.

The hints on astrological medicine in the *Tractatus* can be found in fully developed form in Lull's treatises on medicine. One of these, the *Liber de regionibus sanitatis et infirmitatis*,<sup>4</sup> is very closely related to the work on astrology,

the stars and all that belongs to them in the lower world according to the astrological code.

<sup>2</sup> See above, p. 126.

<sup>3</sup> Fol. 14<sup>v</sup>.

<sup>4</sup> On this work, see Appendix I, below, p. 168.

<sup>1</sup> See p. 117.



of which its first part is practically a repetition or an abbreviation. Its second part applies the method to astrological medicine, particularly to the "grading" of the elements in medicinal simples.

The same method is used in the medical work which Salzinger published in the first volume of the Mainz edition, namely the *Liber Principiorum Medicinae*. The astrological basis of the medicine is, however, not made clear in this work, save by the introduction of a figure at the end, the use of which is not explained and which cannot be understood without reference to Lull's other medical works and to his work on astrology. Salzinger, who had very carefully studied the *Tractatus de Astronomia* from which he quotes extensively in his "Revelatio," warns the reader of this in a note.<sup>1</sup>

The *Liber Principiorum Medicinae* is illustrated by a diagrammatic "Tree of the Principles and Grades of Medicine" (Pl. 9). As can be seen at a glance, in this diagram the ABCD notation for the elements is combined with the principles of the Lullian Art. ABCD appear on the circles at the foot of the Tree and on the trunk from which sprout the "grades." The "triangles" are taken from the Art.

The Tree divides into two branches. In the description of the diagram in the text of the work, we are told that the branch on the left represents what has been taught about medicine by "old doctors," that on the right what has been "newly invented" about this science and that the "new" branch in turn divides into two parts, one of which is divided into ABCD and the other into three triangles and a rectangle formed from the principles of the Lullian Art.<sup>2</sup>

Thus Lull in this work is setting out to do medicine in a "new" way which will be an improvement on that of the "old doctors" because it will use a new method based on ABCD and BCDEFGHIK. We are immediately struck by the close parallel with the work on astrology which claimed to have made a similar advance on the methods of "old astronomers."

We are told in the *Liber Principiorum Medicinae* that the method used in the work is applicable to other disciplines, including philosophy, law, and theology. "Est in hac Arte Metaphora, ut per hoc, quod secundum Gradus et Triangulos et alias Distinctiones in hac Arte dictum est, possint etiam intelligi ea, quae de aliis scientiis existunt, sicut de Theologia, Jure et Philosophia naturali et aliis, per quas intellectus exaltatur in intelligendo . . ."<sup>3</sup>

Thus, if one could understand how Lull does medicine by the combination of ABCD and BCDEFGHIK one would be drawing close to the secret of how the Art works as a whole.

In the hope of inducing historians of medicine to help with this side of the problem I would remind them that Paracelsus mentions Lull.<sup>4</sup> Giordano Bruno, whose *De medicina lulliana*<sup>5</sup> shows that he was fully aware of the astrological basis of the Lullian medicine, even goes so far as to accuse

<sup>1</sup> *Opera*, Mainz ed., I, *Lib. Princ. Med.* (separately paged), p. 47.

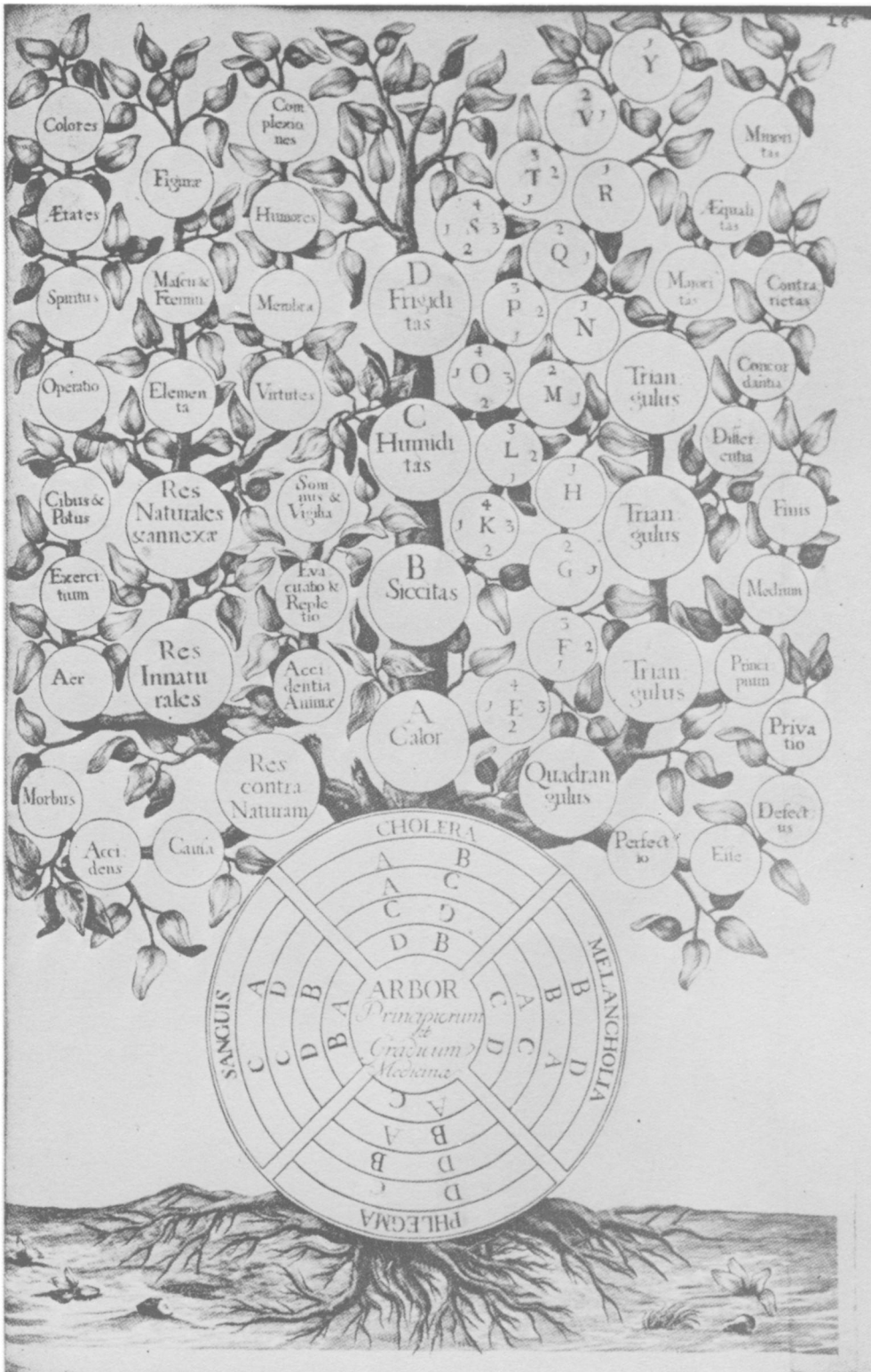
<sup>2</sup> *Ibid.*, p. 2 ff.

<sup>3</sup> *Ibid.*, p. 5.

<sup>4</sup> In the preface to a work on graduated medicine, Paracelsus associates Lull with Avi-

cenna (Theophrast von Hohenheim, *Sämtliche Werke*, ed. K. Sudhoff, Berlin, 1931, IV, p. 72).

<sup>5</sup> G. Bruno, *Opera latina*, Naples, 1879-86, III, p. 577.



Tree Diagram illustrating R. Lull's *Liber Principiorum Medicinae*, From R. Lull, *Opera*, Mainz, 1721-42, I (pp. 130, 139, 153)

fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira		
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira			
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira				
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
fortit	temp	gula	luxur	avarit	super	acedi	invid	ira					
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
temp	gula	luxur	avarit	super	acedi	invid	ira						
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
gula	luxur	avarit	super	acedi	invid	ira							
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
luxur	avarit	super	acedi	invid	ira								
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
avarit	super	acedi	invid	ira									
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
super	acedi	invid	ira										
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
acedi	invid	ira											
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
invid	ira												
fides	spes	charit	justit	prud	fortit	temp	gula	luxur	avarit	super	acedi	invid	ira
ira													

a—Combinations of Virtues and Vices (pp. 139, 141)

## PRIMA FIGURA ELEMENTALIS.

Figura Ignis

Ignis	Aër	Aqua	Terra
Aër	Ignis	Terra	Aqua
Aqua	Terra	Ignis	Aër
Terra	Aqua	Aër	Ignis

Figura Aëris

Aër	Ignis	Aqua	Terra
Ignis	Aër	Terra	Aqua
Aqua	Terra	Aër	Ignis
Terra	Aqua	Ignis	Aër

Figura Aquæ

Aqua	Terra	Aër	Ignis
Terra	Aqua	Ignis	Aër
Aër	Ignis	Aqua	Terra
Ignis	Aër	Terra	Aqua

Figura Terræ

Terra	Aqua	Aër	Ignis
Aqua	Terra	Ignis	Aër
Aër	Ignis	Terra	Aqua
Ignis	Aër	Aqua	Terra

Ignis	Aër	Aqua	Terra
Ignis	Aër	Aqua	Terra
Ignis	Aër	Aqua	Terra
Ignis	Aër	Aqua	Terra
Ignis	Aër	Aqua	Terra
Ignis	Aër	Aqua	Terra

Secunda Figura Elementaris.

b—Second Elemental Figure (pp. 132, 139, 141)

c—First Elemental Figure (pp. 132, 141, 149)

Figures for the *Ars demonstrativa*, From R. Lull, *Opera*, Mainz, 1721-42, III

Paracelsus of having borrowed his ideas from Lull without acknowledgment.<sup>1</sup>

*The "Tractatus" and Alchemy*

As is well known, many alchemical treatises of the fourteenth and fifteenth centuries purport to be written by "Raymundus Lullus" and make use of the alphabetical and geometrical schemes of the Lullian Art in abstruse efforts at combining the elements to obtain the Philosopher's Stone.<sup>2</sup> This posthumous reputation of Lull as an authority on the alchemical method has seemed unsupported by Lull's genuine works, none of which treat of alchemy. And further there are several passages in the authentic works in which Lull utters warnings against alchemy and alchemists, and this seems further good evidence that the "pseudo-Lullian" alchemical tradition could not have stemmed from the genuine Lull but was unwarrantably fathered on him.

So long as the Lullian Art is regarded solely as a method of doing logic by some almost mechanical process, it is possible indignantly to deny that it could have anything in common with alchemy. But the discovery that there may be hitherto unsuspected "elements" in the Art must, I think, of necessity re-open the whole question of Lull and the alchemical tradition.

As has been indicated above, there are passages in the *Tractatus* which show that the use of its method is envisaged in application to astrological medicine, as a scientific method of calculating elemental complexions in man, and in medicines made from plants, in relation to the stars. Is its use also envisaged in connexion with elemental complexions in metals and other substances? That is to say, could it be used not only in astrological medicine but also in alchemy?

The "convertible" planet Mercury and the substance associated with it—namely *argentum vivum* or quicksilver—were, as is well known, fundamental to alchemical theory and practice. We have seen that the ABCD method acknowledges the peculiar position of Mercury among the planets by labelling him with all the letters. In the *Tractatus* Mercury might almost be said to sum up in himself the ABCD method for he, and he alone, *is* ABCD. This may in itself seem significant, and it becomes more so when we find that alchemy is mentioned in some of Lull's "fortune-telling" by the ABCD method in conjunctions in which Mercury occurs. The following are some examples of this:

*Aries, Jupiter, Mars, Sol, Venus, Mercury* BABBD(ABCD)

It is noted that in this constellation "Mercury is convertible, and therefore Alchemists say that Alchemy has fortune in this constellation through B and infortune through D."<sup>3</sup>

<sup>1</sup> *Op. lat., ed. cit.*, II, ii, p. 234.

Lull's medical ideas may be rather closely associated with those of his contemporary and compatriot Arnold of Villanova. On Villanova and "pseudo-Lullism" see M. Batllori, S.J., "El seudo-Lull y Arnau de Vilanova"

in *Bolleti de la Societat Arqueològica Lulliana*, XXVIII, 1939-43, pp. 441-58.

<sup>2</sup> For an excellent survey of the pseudo-Lullian alchemical tradition see F. Sherwood Taylor, *The Alchemists*, London, 1951.

<sup>3</sup> Fol. 41<sup>v</sup>.

*Aries, Sol, Venus, Mercury* BBD(ABCD)

“. . . This constellation is good for Alchemists and Doctors . . . because Mercury is convertible to good with the good *actio* of Sol and the good *passio* of Venus.”<sup>1</sup>

*Cancer, Venus, Mercury, Luna* DD(ABCD)D

The very strong fortune of D in this constellation is still more strengthened because Mercury converts to it and “Alchemists like (or choose) this constellation because in it the *argentum vivum* has good fortune and the colour white.”<sup>2</sup>

So far as I am able to understand these results, they would seem to mean that when Mercury is in a constellation where one element has a majority, he “converts” to this powerful element and so wins a fortune for alchemy and *argentum vivum* in that constellation. (The second example relates to the grouping of the elemental qualities as “active” and “passive.” Hot and cold are active; moist and dry are passive. This theory is given in the *Tractatus*.)<sup>3</sup>

There is no doubt that Lull did not believe in the possibility of the transmutation of metals. He states this repeatedly in his works, and notably in the long and important passage on generation and corruption of metals in the *Liber Principiorum Medicinæ*<sup>4</sup> which shows that he had examined specimens of the alchemist’s art. That he did not write works on alchemy as he did on astrological medicine may well have been because he thought it a vain science, and not ethically important like medicine. Nevertheless the “pseudo-Lullian” alchemists—it may now be suggested—were not wrong in supposing that the Lullian notations and figures could be used for calculating elemental combinations. Nor probably would they have been wrong in assuming that Lull’s scientific outlook—with its concentration on the *bonitas* and so on of the stars in substances as the true operative core—was in many ways congenial to their own.

For these reasons the elucidation of the Lullian Art is important for the historian of alchemy. In particular the use of colours in the Art to designate the elements may have a bearing on alchemical symbolism. It is useless to study the figures and letter-combinations of the great Lullian Arts unless these are printed in the colours which they have in the manuscripts, as was done in the plates of the Mainz edition. For example, the two “Elemental Figures” of the *Ars Demonstrativa* (Pl. 10b, c) are printed in the plates of the Mainz edition with the names of the elements in four colours (not always the same element in the same colour). Without these colours, it is impossible to follow the printed text which accompanies these figures.<sup>5</sup> This text connects the “Elemental Figures” with *bonitas*, *magnitudo*, and so on.

Any serious attempt to grapple with the Lullian Art must use, not only the figures from the *Ars Brevis*, but also the far more complicated figures of the unabbreviated Arts, and those in colour.

<sup>1</sup> Fol. 42<sup>v</sup>.

<sup>2</sup> Fol. 52<sup>v</sup>-53.

<sup>3</sup> Fol. 19.

<sup>4</sup> p. 30 ff. (in the Mainz ed., Vol. I).

<sup>5</sup> *De Figura Elementalī*, p. 60 ff. in the Mainz ed., Vol. III.

*Other Evidence of Lull's Attitude to "Elemental Astrology"*

Before any large-scale attack on the Art can be made, we must try to discover all that we can about the outlook behind it. A vast and virtually unknown country lies waiting here for exploration. Lull was one of the most prolific authors who ever lived. Only a small proportion of his work is generally known, and much of it is still unpublished. The *Tractatus de Astronomia* is only one of the unpublished works which have a bearing on his attitude to astrology, and on astrology in the Art. There are numerous others of equal, perhaps even greater, importance from this point of view. There are others again, of vital importance for this line of inquiry, which have been printed—but in editions now so rare that they might just as well be unpublished and are, in fact, more accessible in manuscript form. In the Appendices to this article, I try to indicate some of this almost unknown and unstudied material.

The early Lullists were not so ignorant of these writings as we are, for they worked from manuscripts of which there are still vast numbers and there must have been still more in earlier times. Lull wished the knowledge of his Art to be disseminated as widely as possible and very numerous copies were made of the works connected with it.

Apart from all this buried treasure, there is the corpus of Lull's writings which is accessible in print but which has never been examined for traces of the interests and outlook now revealed to us by the *Tractatus de Astronomia*. People have searched the printed works for Lull's views on alchemy; but not (so far as I know) for his elemental theory. In the following pages we shall glance at some of the printed works to see what we can find. The survey will be far from complete. I have not read all of Lull's printed works, and those which I use here, and from which I quote, could be made to yield far more than I have drawn from them.

*The "Liber Contemplationis in Deum"*

This stupendously long work was one of Lull's earliest productions, and was written about 1272. Said to have been first written in Arabic, it exists in both Latin and Catalan versions.<sup>1</sup> It is an encyclopaedia covering the whole creation—both macrocosm and microcosm, both the world of nature and the world of man—and expounding the ways of God in the Creation and Redemption of the world. Written throughout in a vein of extreme mystical fervour, it shows Lull moving towards the vision in which the Art was revealed. Salzinger says that he first understood the "secret" of the Art in the long and very extraordinary allegories in the fifth book, which he interpreted (rightly or wrongly) in terms of the Art.<sup>2</sup> We shall not attempt to follow Salzinger into those mysteries, but it is certainly true that the materials of the Art are present in this work.

<sup>1</sup> The Latin text is in vols. IX and X of the Mainz edition; the Catalan text in vols. II-VIII (1906-14) of the Palma edition.

<sup>2</sup> "Revelatio," p. 3 ff. (in Mainz ed., Vol. I).

The first book of the *Liber Contemplationis* is on Divine Attributes, of which it discusses eight, namely Infinity, Eternity, Unity, Trinity, Power, Knowledge, Goodness, Truth. It will be seen that some of these correspond to the principles of the "Alphabet" (Pl. 8a) of the Art, particularly if the meanings of A in the "Alphabet" are included. The introductory part of this book which is on "Joy" might correspond to the "Glory" of the "Alphabet." Lull is here, as it were, feeling after the choice of the divine principles which he will later use.

The second book is on the created universe as divine revelation, ending with man. The third book continues on man, in all his aspects, including man in society, and on ethics. The fourth is philosophical and theological and aims at proving the articles of the faith. The fifth is on love and prayer, and contains the allegories which Salzinger thought so important.

The material for which we are looking is in the second book which, in going through the created world as the revelation of the attributes of God, deals with angels, with the heaven or firmament in which are the signs and planets, with the elements through which the influence of the heaven comes into all created things, with the animal and vegetable worlds, with metals (on which there is a long section), and with man—the last subject being continued in the next book. As will be seen, Lull is working through what will later be the "subjects" of the Art, *Deus, Angelus, Coelum, Homo*, and so on.

It is repeatedly stated that the elements of which all terrestrial substances are composed depend on the heaven.

Thine is the work of great artifice and order, that Thou willest that there should be in the firmament signs and planets through which the elemental bodies existing among us may be regulated and ordered . . .<sup>1</sup>

And

. . . Thou willest, O God, that the bodies of the firmament should have dominion over and action on the *elementata* . . .<sup>2</sup>

And the intense pre-occupation with the movements and behaviour of the celestially ordered elements—the interest which was to be one of the main-springs of his thought and Art—is already prominent in this early work in which he contemplates the ordered distribution and movements of the elements and the

. . . concatenation and ligature . . . through which fire is hot in itself and dry through earth; air is moist in itself and hot through fire; water is cold in itself and moist through air; earth is dry in itself and cold through water.<sup>3</sup>

Here is the emphasis on the distinction between the "proper" and "appropriated" qualities in the elements which was to play such a part in his system of doing astrology.

<sup>1</sup> Mainz ed., Vol. IX, p. 68.

<sup>2</sup> *Loc. cit.*

<sup>3</sup> *Ibid.*, p. 70.

Though the *Liber Contemplationis* follows a mystical trend which is common to all religious tradition in its contemplation of the revelation of the divine in the patterns of the universe, we can see already present in it the peculiarities of Ramon Lull who was not only a mystic but a mystic who sought to demonstrate scientifically the object of his love. In the *Liber Contemplationis*, the "artista" is feeling after his Art.

*The "Doctrina Pueril"*

It is said to have been during Lull's retirement on Mount Randa in 1274 that the Art was fully revealed to him by God in a vision (Pl. 13a), and it was after this that the *Ars Generalis* or *Ars Magna* took shape. Not long after the vision, he visited Prince James of Mallorca at Montpellier and probably there composed two works, the *Libre del ordre de cavayleria* and the *Doctrina Pueril*.<sup>1</sup>

The *Doctrina Pueril* belongs to the pedagogic class of Lull's works, and is a book of general knowledge for the young which he dedicated to his son. This compact little encyclopaedia, written after the full revelation of the Art, should be read by all students of the Art.

A chapter in the work treats of the arts of geometry (which is introduced with a reference to the astrolabe), arithmetic, music and astronomy. Of astronomy, Lull says:

Astronomy is a demonstrative science through which man has knowledge that the celestial bodies have dominion over and operate upon the terrestrial bodies, and it shows that the virtue which is in the celestial bodies comes from God who is sovereign over the heavens and over all that is.

You must know, my son, that this is a science which belongs to the 12 signs and the 7 planets, according to whether these concord or contrast in heat, dryness, cold, and moisture; for it is according to this that they have operation on terrestrial bodies. . . .

Gentle son, I counsel thee not to learn this art, for it is of great difficulty and one may err in it; and it is dangerous, for the men who understand it best use it ill, for the sake of the power of the celestial bodies ignoring and despising the power and the goodness of God.<sup>2</sup>

We have here, digested into a few sentences, a simplified form of the doctrine of the *Tractatus de Astronomia*, including the warning of its preface against erroneous astronomy. To do this science through the concords and contrasts of the elemental qualities would be to do astrology by the ABCD method. And we note too that *bonitas*, *potestas*, *virtus*, come into the discussion of the power of the stars.

There is a great deal more on Lull's elemental theory in the *Doctrina Pueril*, in the chapter on medicine (which gives in a simplified form the theory of "grading" expounded in the medical works), in the chapter on the "science of nature," and in that on "the four elements." The importance which Lull attached to elemental theory is shown by the large amount of space given to it in this highly compressed pietistic and ethical handbook.

<sup>1</sup> Peers, *Ramon Lull*, pp. 101-28.

<sup>2</sup> R. Lull, *Obres*, Palma, I (1906), p. 133.



‘Felix’ or the ‘*Libre de Meravelles*’

About ten years later, Lull wrote an encyclopaedia for adults, the *Libre de Meravelles* which imparts the Lullian world of knowledge, and the Lullian outlook, in the pleasing form of a story about the instructive adventures of a young man called Felix. More is revealed in this work than was suitable for the young readers of the *Doctrina Pueril* to know.

The prologue to the work (which again can only be consulted in printed texts in Catalan)<sup>1</sup> invokes the *bonitas, magnitudo, eternitas, potestas, sapientia*, and *voluntas* (to translate the Catalan words into terminology more familiar to us) of God and states that it will treat of God, Angels, the Heaven, the Elements, Plants, Metals, Beasts, Man, Paradise, and Hell.<sup>2</sup> The work does in fact follow this plan, in which we may recognize variations on the *Deus, Angelus, Coelum*, etc., of the Art.

At the opening of the story, Felix is a prey to religious doubt owing to the sad fate of a fair shepherdess in whom he was interested. But a holy hermit proves to him the existence of God by various arguments, one of which involves taking a stick and drawing a circle round Felix which represents “the firmament.”<sup>3</sup> The Trinity is proved by arguments which seem to recall St. Augustine’s *De Trinitate* and which also use the “dignitates” or divine attributes *bonitas, aeternitas* and so on (the concepts used are not quite the same as in the Art). And in the chapter on the Virgin Mary, it is stated as an analogy (or is it more than that?) to her immaculacy that “in every body composed of the four elements, one element enters into another element without either of them corrupting the other.”<sup>4</sup>

After the first book on *Deus*, comes a short book on *Angelus*, and with the third book we reach the subject *Coelum*. “Bel ami,” inquires Felix of a shepherd, “how is it that the stars which are in the firmament, and the planets, are influent on the four elements, and on that which is composed of the elements?” He is told, amongst other things, that “by participation of the essence of the celestial bodies in the terrestrial comes the influence of which you ask.” Felix next asks whether in the 12 signs and the 7 planets there are heat, moisture, cold and dryness. The shepherd replies that astronomers have appropriated the four qualities among the 12 signs and the 7 planets because it is through their influence that these are stronger at one time than at another in terrestrial things.<sup>5</sup>

In answer to the question as to whether fate or the stars are “necessary,” the shepherd says that God has power to alter the influences of the constellations according to whether he wishes to judge or to pardon men.

<sup>1</sup> The best edition is that edited by S. Galmés in the series *Els Nostres Classics*, Barcino, Barcelona, 1931.

Neither the *Doctrina Pueril* nor the *Libre de Meravelles* were printed until the 18th century (the first edition of the former was in 1736, of the latter in 1750). They were, however, probably widely disseminated in manuscripts among the early Lullists. There is a manuscript of the *Libre de Meravelles* in the British

Museum (Additional 16, 428), and a manuscript of an Italian translation of it, made in the late 15th or early 16th century in the Biblioteca Marciana at Venice (MS. II, No. 109).

<sup>2</sup> *Proleg* (ed. of Barcelona, 1931, pp. 25-6).

<sup>3</sup> Lib. I, Cap. i (*ed. cit.*, I, p. 32).

<sup>4</sup> Lib. I, cap. x (*ed. cit.*, I, p. 111).

<sup>5</sup> Lib. III, cap. xviii (*ed. cit.*, I, p. 156 ff.).

In short, the attitude to the stars here again seems to be that of the *Tractatus*, with its denial of necessity and its emphasis on the elements. When at the beginning of the next book on "The Elements" we find a king having his elder son taught natural science because the knowledge of this is more useful for the art of government than that of arms<sup>1</sup> we feel inclined to suppose that this "natural science" may have included the improved method of doing astrology through the elements which the preface of the *Tractatus* advises for princes and magistrates.

The instruction on the elements in this book takes the form of a long lecture given by a philosopher to the king's son and his suite, which Felix attends.<sup>2</sup> The king's son compares the elemental processes with those by which justice engenders charity in a sinful man. And he further seems to compare correspondencies and contrasts amongst virtues and vices with those amongst the elements. And then he goes on to compare the engendering of the Son by the Father, with the giving by God of virtue to the elements that they may engender their like.<sup>3</sup>

The transitions from elemental theory to law and ethics, and to theology—which seem to the king's son to arise so obviously from the philosopher's lecture on the elements—occur again and again in the books which follow on plants, metals, beasts, and man. In these books, Felix is being led to contemplate the *bonitas*, *magnitudo*, *virtus* and other attributes of God as revealed in different forms on the steps of the ladder of creation. In every book, pages and pages are devoted to elaborate expositions of elemental theory working in plants, metals, beasts, and man. And in every book, the elemental theory leads immediately to theological analogies, often accompanied by lamentations that these things are not demonstrated more clearly to the Saracens so that they may thereby be converted to the Catholic faith. Moreover we are told again and again that all this is fully worked out in the *Ars Demonstrativa*.

As one reads the pleasing tale of the adventures of Felix, which are set in a fascinating world in which Christian hermits, philosophers, abbots, knights and jongleurs, rub shoulders with Saracens, Jews, and other infidels, one realizes with increasing astonishment the utter precision of its plan. Felix is being conducted through the "subjects" of the Art, and being taught to see on every step of the ladder of creation the *bonitas*, *magnitudo*, *virtus*, etc., of God as revealed in the working of the elements on all the steps. And this revelation demonstrates to him the truth of the Incarnation and the Trinity.

In the book on "Plants," Felix wanders through a wood in which he meets a philosopher who is seated under the trees reading a book beside a beautiful fountain. This philosopher has retired into the wood in order that through plants and trees he may contemplate, understand, and love their Creator. The philosopher tells him of a hermit who lives in the wood, "looking at what nature does in trees and herbs," so that through that work he may contemplate God "according to the art of philosophy and theology," which art is ordered "according to the order of the *Ars Demonstrativa*."<sup>4</sup>

Sitting under the tree, the philosopher contemplates in it the *bonitas* and *magnitudo* of God (*la granea e la bonesa de Deu*). Felix asks how so great a

<sup>1</sup> Lib. IV, cap. xviii (*ed. cit.*, II, p. 6).

<sup>2</sup> Lib. IV, cap. xix (*ed. cit.*, II, p. 8 ff.).

<sup>3</sup> Lib. IV, cap. xx (*ed. cit.*, II, pp. 11-12).

<sup>4</sup> Lib. V, cap. xxix (*ed. cit.*, II, p. 42).

tree can have come from a small seed. In reply he is told a story about a fire lighted by a peasant which grew great because the *virtus* of the fire was able to convert to itself things containing less *virtus*. Felix then asks a question about the *virtus* of Jesus Christ which was greater than that of men. The philosopher warmly compliments him on his intelligence in having asked this question (in relation to the problems of *virtus* in fire and in the tree) and tells him of a man who has an *Ars Demonstrativa* for showing the truth to those in error, but to whom no one will listen.<sup>1</sup>

The philosopher spoke long to Felix about "the generation of plants and how they signify that there is generation in God through which God the Father engendered God the Son without corruption." This subject develops later into a story which the philosopher tells to Felix about a "wise Saracen" who was disputing with a "wise Christian." The Saracen asked the Christian a question about the generation of the Son from the Father. The Christian in his reply said that generation in God is "nobler" than that in trees, and went on from that to demonstrate the infinity, eternity, and incorruptible perfection of the Trinity.<sup>2</sup>

Leaving the wood, the philosopher and Felix come to a beautiful plain in which are growing many medicinal herbs having great *virtus*, given to them, so the philosopher explains, to signify the *virtus* of God. The philosopher imparts to Felix in this chapter information, interspersed with illustrative stories, about the precise virtues of medicinal herbs in accordance with their elemental *complexio*. For example, rhubarb is *calidus* and *siccus* (calt e sech) and the reason why it is good for fevers is because the hot and dry of fever has concordance with it and so adheres to it and so goes out of the patient's system with the rhubarb when the patient is purged. This leads on to an astonishing story about how a heretic became convinced of the superior *virtus* of the Christian faith, to the demonstration of *virtus* in the Three Persons of the Trinity, and to a discussion of the "vegetative nature" in Christ in connexion with the homage paid to him by plants on Palm Sunday.<sup>3</sup>

There is much more of the same kind of thing in the book on metals. This book, by the way, contains a chapter on alchemy in which Lull states his disbelief in the possibility of the transmutation of metals and seems to be "against" alchemy.<sup>4</sup> Together with the misreading of the preface to the *Tractatus de Astronomia* as "against" astrology, this passage has done much to throw people off the scent as to the true nature of the Lullian system. There is less direct reference to elemental theory in the book on beasts which consists mainly of a long and interesting allegory. The book on man is full of the elements in relation to man, leading off all the time into theological analogies.

A very large part of the book on man is taken up with virtues and vices—each virtue paired with an opposite vice,<sup>5</sup> as in the "Alphabet" of the Art (Pl. 8a), though more virtue-vice pairs are given here than in the *Ars Brevis* alphabet. Many of the virtues and vices given in the extended list in the *Libre*

<sup>1</sup> Lib. V, cap. xxx (*ed. cit.*, II, pp. 44-7).

<sup>2</sup> Lib. V, cap. xxxi (*ed. cit.*, II, pp. 48-50).

<sup>3</sup> Lib. V, cap. xxxii (*ed. cit.*, II, pp. 53-62).

<sup>4</sup> Lib. VI, cap. xxxvi (*ed. cit.*, II, pp. 79-83).

<sup>5</sup> Lib. VIII, caps. lxxiii-lxxix (*ed. cit.*, III, pp. 104-76; IV, p. 1 ff.).

*de Meravelles* also appear in some of the diagrams of the Art to which such constant reference is made in the course of Felix's adventures—namely the *Ars Demonstrativa*. The virtue-vice diagrams of the *Ars Demonstrativa*, one of which is here reproduced (Pl. 10a), bear an obvious relationship to the Second Elemental Figure (Pl. 10b) of the same Art.

The last two books of the *Libre de Meravelles* are on Paradise and Hell. In the former<sup>1</sup> we read of the divine *dignitates* of *bonitas*, *magnitudo* and so on in the angelic world, and in the latter the fiery torments of the damned are interpreted as a hellish reversal of the true elemental processes.<sup>2</sup>

The adventures of Felix are highly instructive to the student of the Lullian Art, and there can be little doubt that the work was intended to popularize the Art and to present its principles in a simplified and pleasing form. It showed the fundamental importance of the influence of the heaven on the elements, and of the study of the elements in all terrestrial substances, in plants, in metals, in animals, in man. It showed how this study revealed the presence of the divine *bonitas*, *magnitudo*, *virtus* and so on present on all the steps of the ladder of creation. And it showed how by analogy from the divine-elemental workings one could perceive the workings of virtue and vice in ethics and law, and—most important of all—could demonstrate to the Saracens and all unbelievers in an infallible manner the divine workings in the Trinity and the Incarnation.

It shows to us the crucial role of the Lullian elemental theory for the whole of the Lullian Art. It was amongst the trees and the plants that the hermit was working out the *Ars Demonstrativa*, the art of "philosophy and theology" through which truth could be demonstrated. The workings of the medicinal herbs demonstrated the workings of Faith. Felix's adventures among the plants should send us back to look at the "Tree of Medicine" (Pl. 9), where BCDEFGHIK are seen working together with ABCD to form an Art by which "metaphorically" we may understand Law and Theology. And, as we know from the *Tractatus de Astronomia*, the arts of medicine and of law were done by "astronomy."<sup>3</sup>

Some of the diagrams in early manuscripts of the *Ars Demonstrativa* make very clear the basis of that Art in elemental theory. We reproduce (Pl. 11) a page of *Ars Demonstrativa* diagrams from a manuscript in Paris which may be contemporary with Lull. It shows the wheels of "Theologia," "Philosophia," and "Ius" in close relation to the wheels of the "Elementa." The curious thought-transitions of the characters whom we meet in the *Libre de Meravelles* are due to their thorough training in the Art.

### "Blanquerna"

The story of Felix connects with the romance of *Evast and Blanquerna*<sup>4</sup>

<sup>1</sup> Lib. IX, cap. cxvi (*ed. cit.*, IV, pp. 273-311).

<sup>2</sup> Lib. X, cap. cxix (*ed. cit.*, p. 295).

<sup>3</sup> See above, p. 126.

<sup>4</sup> The best modern edition is that ed. S. Galmés, *Libre de Evast e Blanquerna*, Barcelona, 1935 (*Els nostres classics*).

There is an English translation by E. Allison Peers, *Blanquerna*, London, 1925.

The first edition of *Blanquerna* appears to have been at Valencia in 1521. The mystical work, the *Libre de Amic e Amat* (*The Book of the Lover and the Beloved*, included in Peers' translation of *Blanquerna*) formed part of the story

(written at Montpellier between 1283 and 1285). Blanquerna retired into a forest to contemplate, emerged from thence as a great teacher, and eventually became Pope. In this book, as in the adventures of Felix, there are constant references to the Art.

Blanquerna's early education is significant. He learned grammar, logic, rhetoric, natural philosophy, medicine, and theology. And he learned medicine out of Lull's own "Book of the Principles and Grades of Medicine"<sup>1</sup> (that is the *Liber Principiorum Medicinae*), from which it follows that he must also have studied the *Tractatus de Astronomia*, or the teaching contained in that book, without which the medical theory cannot be understood. After studying the book on medicine he proceeded with great facility to the study of theology.

On emerging from the forest, Blanquerna became instructor to the monks in a monastery, expounding to them "by the natural arguments of philosophy how the creatures give knowledge of the Creator and his works,"<sup>2</sup> and through his teaching the monks increased greatly in virtue. Blanquerna promised them that they would be able to learn in a year the "art" of the four general and most necessary sciences which are theology, natural philosophy, medicine, and law.<sup>3</sup> It is clear that the monks were taught the Lullian Art of medicine with its "metaphorical" connexions with law and ethics, with philosophy and theology.

When Blanquerna became Pope he did what Lull so often urged in vain on real Popes, he encouraged the teaching of the Lullian Art. At the request of an "artista," the teaching of theology, natural philosophy, medicine and law was reformed and taught by the methods of the Art.<sup>4</sup> The "natural philosophy" which was thus reformed must have been, I would suggest, the science of "elemental astrology" with its close connexions with medicine, and thence "metaphorically" with law and with theology.

In *Blanquerna* there are long sections devoted—as in the story of Felix—to the pairing and contrasting of virtues and vices. When Blanquerna became Pope, a teacher was appointed whose office it was "to show by means of nature (per natura) how man could mortify within himself the vices, and strengthen

of Blanquerna, being the meditations of its hero. There was an edition of *Blaquerna de amico et amato* at Paris in 1505 in a volume of Lull's mystical works which Lefèvre d'Étaples had printed (Rogent-Duran, No. 35). The Latin text of the *Libre de Amic e Amat* was also published at Paris in 1585, and a French translation of it by Gabriel Chappuys in the following year (Rogent-Duran, Nos. 132, 133).

The tremendous revival of Lullism in 16th-century France, with which Lefèvre d'Étaples had much to do, must have grown up in the romantic atmosphere diffused by the mystical meditations of the hermit Blanquerna.

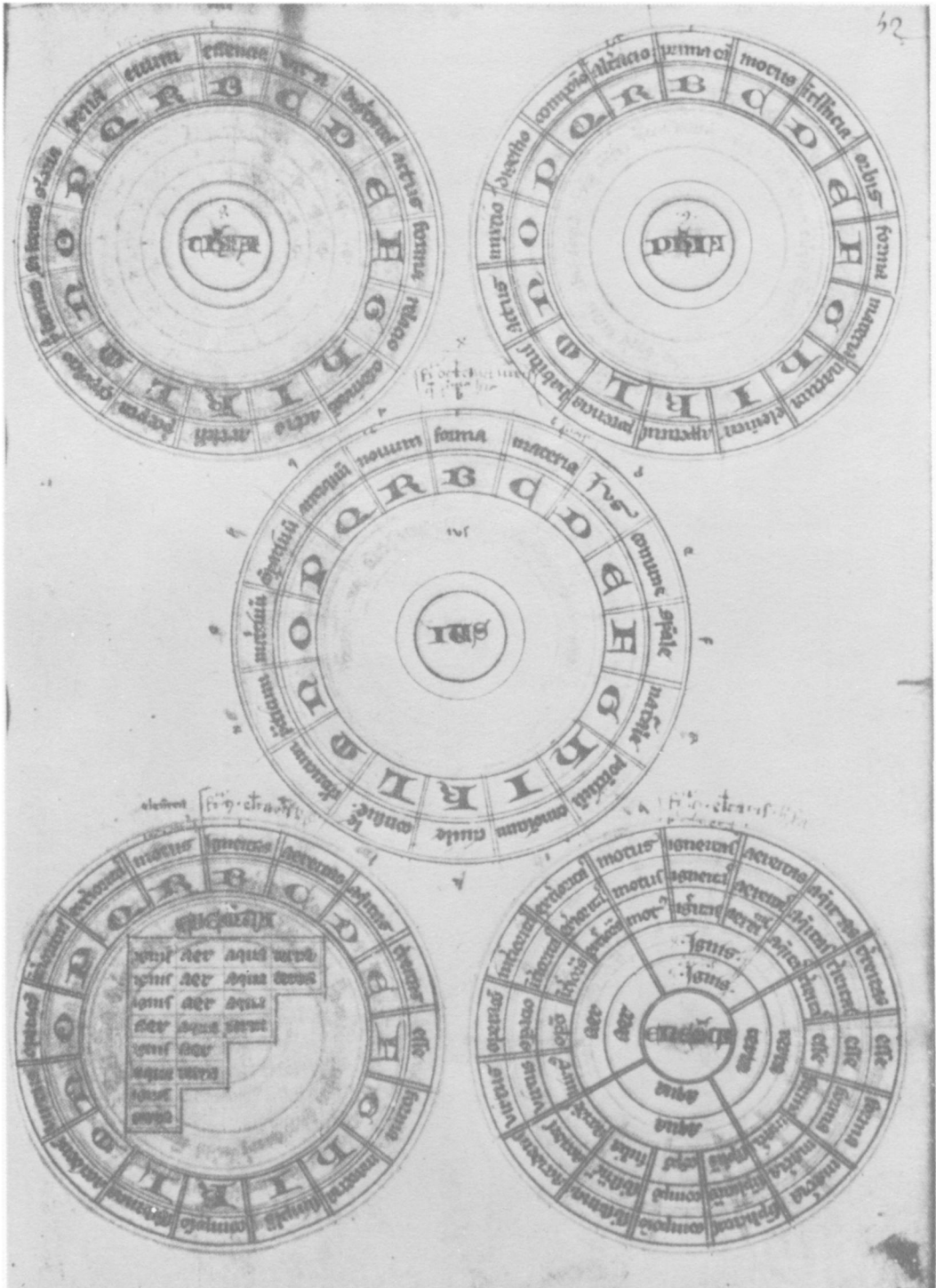
<sup>1</sup> *Blanquerna*, Barcelona, 1935, I, p. 33; trans. Peers, p. 40. (Peers mistranslates the title of the medical book studied by Blan-

querna as *Book of the Principles and Steps to Medicine*. It was the *Libre dels princíps e graus de medicina*, that is a book on medical principles and graduated medicine, namely the *Liber Principiorum Medicinae*, or one of Lull's other medical works, all of which use "grading." The mistranslation reveals the astonishing lack of interest in Lull's medicine displayed even by his most devoted admirers.)

<sup>2</sup> *Ed. cit.*, I, pp. 295-6; trans. Peers, p. 218.

<sup>3</sup> *Ed. cit.*, I, pp. 291-2; trans. Peers, pp. 215-6.

<sup>4</sup> *Ed. cit.*, II, pp. 201-2; trans. Peers, pp. 364-5 (Peers translates "artista" as "student," but I think that the "artista" was a practitioner of the Lullian Art. Lull used this word of those who understood how to use the Art, see below, p. 156).



Wheels of Theology, Philosophy, Law, and the Elements: Figures for Ramon Lull's *Ars demonstrativa* from a Thirteenth-Century (or Early Fourteenth-Century) Manuscript (Paris, Lat. 16, 113, f. 72<sup>r</sup>) (p. 139)



The Hermit and the Squire, Illustrations from Manuscripts of Ramon Lull's *L'Ordre de Chevalerie* (p. 141)

a—From Paris, Bibl. Nat., fr. 1973, French, Fifteenth Century

b—From British Museum, Royal MS. 14 E ii, Flemish, Fifteenth Century

the virtues."<sup>1</sup> This teacher no doubt knew how to use the "elemental" diagrams of the Art (Pl. 10b, c) as analogous to the "virtue-vice" diagrams (Pl. 10a).

The visions of the hermits of *Felix* and *Blanquerna* under the trees are all repetitions of Lull's own vision. The artist who depicts this (Pl. 13a) shows Lull as a hermit under two trees, who develops, like the hermits of the romances, into the teacher of the Art.

The tree—as well as its other meanings<sup>2</sup>—had, I believe, for Lull the meaning of representing the working of the elements in nature, particularly in the vegetable world so essential for the art of medicine; and this was the fundamental "exemplum" upon which he based his Art (as will become more apparent in a later section of this article).

### *The "Libre del ordre de cavalyleria"*<sup>3</sup>

In the *Book of the Order of Chivalry*, an old knight has retired from the world to become a hermit in a wood, meditating every day under a tree well covered with fruit near a clear fountain.<sup>4</sup> Here a squire comes upon him (Pl. 12a, b), whom he instructs in the virtues and in the rules of chivalry, presenting him with a book on that subject.

This work contains the usual virtue-vice pairs,<sup>5</sup> which we know from *Felix*

<sup>1</sup> *Ed. cit.*, II, p. 212; trans. Peers, p. 372.

Cf. also the remark of the Cardinal that "it was very natural and a thing of utility in preaching to prove by natural reasons the manner wherein virtues and vices are contrary, and how one virtue concords with another virtue and one vice with another vice, and through what nature a man may mortify a vice with a virtue, or with two, and how with one virtue a man may revive another virtue; and this manner is in the *Brief Art of Finding Truth*." (*Ed. cit.*, II, p. 241; trans. Peers, p. 394. I have slightly revised Peers' translation to bring it nearer to the "concords and contrasts" of the original.)

<sup>2</sup> Its primary meaning is, of course, that of the Cross, the *Lignum Vitae*. In Lull's "naturalistic" approach to theological and moral demonstration, this would not conflict with its meaning as a fundamental exemplum from the workings of nature.

I make no attempt in the present article to relate Lull's tree symbols to the history of this symbol.

<sup>3</sup> The Catalan text of this work, together with one of the old French versions of it, is published in the *Obres*, Palma, I, 1906.

This work had a very early English translator and was one of the first books to be printed in England. William Caxton translated it and published it himself between

1483 and 1485. His translation has been reprinted by the Early English Text Society. See William Caxton, *The Book of the Ordre of Chyualry*, ed. A. T. R. Byles, London, *E.E.T.S.*, 1926.

<sup>4</sup> "In one of the partyes of the same wode was a fayr medowe in which was a tree well laden and charged of fruyte . . . And under the same tree was a fontayne moche fayre and clere . . . And in that same place was the knyght acustomed to come euery daye for to preye and adoure God Almyghty . . . whan he sawe the squyer come he lefte his oroyson and satte in the medowe in the shadow of a tree And beganne to rede in a lytyl book that he had in his lappe . . ." Caxton's trans., *ed. cit.*, pp. 5-7. This is the meeting between the Hermit and the Squire in the Wood which the manuscripts illustrate (Pl. 12a, b).

As we know from experience, the hermit under the tree with a book means, in Lull's vocabulary, one who knows and will expound the Art.

<sup>5</sup> Caxton, in his translation, shows that he understands the "elemental" principles of concording and contrasting as applied to the virtues and vices. "Curtosye and Chyualry concorden to gyder" (*ed. cit.*, p. 113). "Then gif thow will fynd noblenes of courage, demand it of faith, hoip, charite, iustice, strenth,



and *Blanquerna* (though the *Order of Chivalry* is earlier than both those works, having been written at about the same time as the *Doctrina Pueril*). Its world is that same world of forests, knights, clerics, in which we have become accustomed to look for allusions to the Art. And there can be no doubt, I think, that the book of the rules of chivalry, based on the knight's duty to defeat (or "devict") vices by virtues, is a branch of the Art for the use of knights.

From *Blanquerna*, it would appear that it was a part of Lull's missionary and crusading plans that the knights who went on the crusade should be instructed in the Art, so that they should be able to convince the infidels either by arms or by arguments, or both. Pope Blanquerna advises the "Masters of the Temple and of the Hospital" (that is, of course, the leaders of the two great crusading orders) that they should arrange schools "wherein their knights should learn certain brief arguments, by means of the *Brief Art of finding Truth*, that they might prove the articles of the Holy Faith" and so maintain it "by feats of arms or by learning."<sup>1</sup> It is fitting therefore that the "hermit under the trees" should appear in the *Book of the Order of Chivalry* as the instructor of knights. Like the other hermits, he no doubt taught how to deduce, not only ethics and law, but also philosophy and theology from the book of nature, or of the creatures, of which the tree was the example. One of the Karlsruhe miniatures illustrating the life and work of Lull shows the "principles" of the Art attired as knights, and going forth to devict infidelity and error (Pl. 13b).

First written in Catalan, the *Book of the Order of Chivalry* became a standard text-book for the rules of chivalry. It was widely disseminated in beautiful French manuscripts and early printed in various languages. In the English translation by William Caxton, it was popular and may have been known to the poet Spenser. Its opening words state that as God rules over the seven planets which have power over terrestrial bodies, so ought kings and princes to have lordship over knights. Therefore

To signify the seven planets, which are celestial bodies and govern and order terrestrial bodies, we divide this Book of Chivalry into seven parts . . .<sup>2</sup>

attemperans, leaute, & of vertues. For in them is noblesse of courage by them is diffeated the hert of a noble knyght fro wickednesse fro trecherye and fro the enemyes of chyualrye" (*ed. cit.*, pp. 55-6). The last quotation describes the defeat or "devictio" of vices by virtues in the heart of the knight. Compare Salzinger on this, quoted below, p. 153.

<sup>1</sup> *Blanquerna*, *ed. cit.*, II, pp. 151-2; trans. Peers, p. 327. A few pages later we learn that a knight who was also a priest and "of the Order of Science and Chivalry," vanquished ten knights by force of arms and afterwards "vanquished all the wise men of that land by

his arguments, and proved to them that the Holy Catholic Faith was true" (*ed. cit.*, II, pp. 155-6; trans. Peers, p. 330).

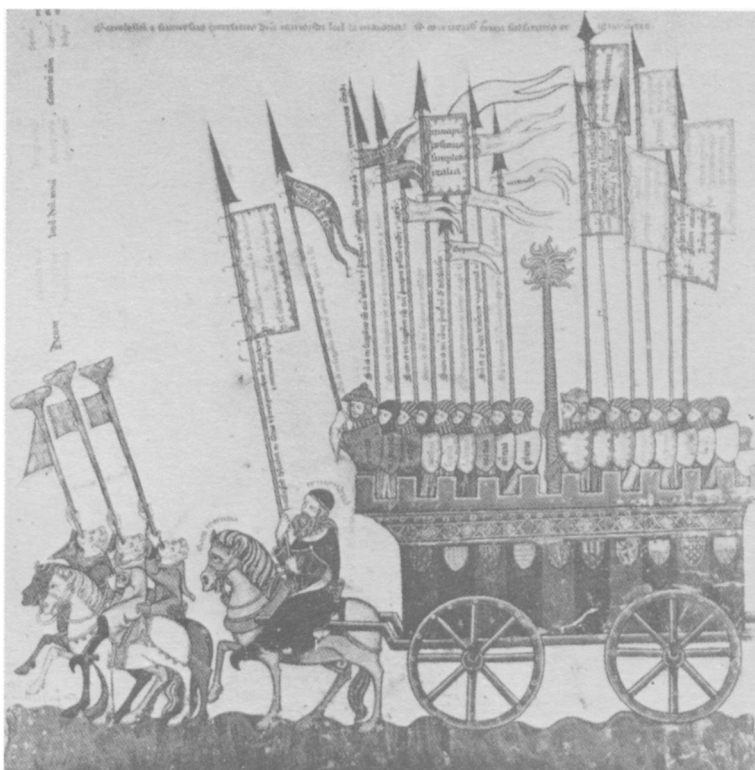
Such was the double power of a crusading knight who was also an "artista."

On Lull's relations with the Templars and Hospitallers some indications will be found in Peers, *Ramon Lull*, pp. 233, 333, 339, 340-1, 360-1. Peers does not use the curious remarks in *Blanquerna* quoted above, nor have I found any other work which discusses Lullism among crusading knights.

<sup>2</sup> *Obres*, I, p. 203 (Catalan version); p. 249 (old French version). Caxton's translation, *ed. cit.*, pp. 1-2.

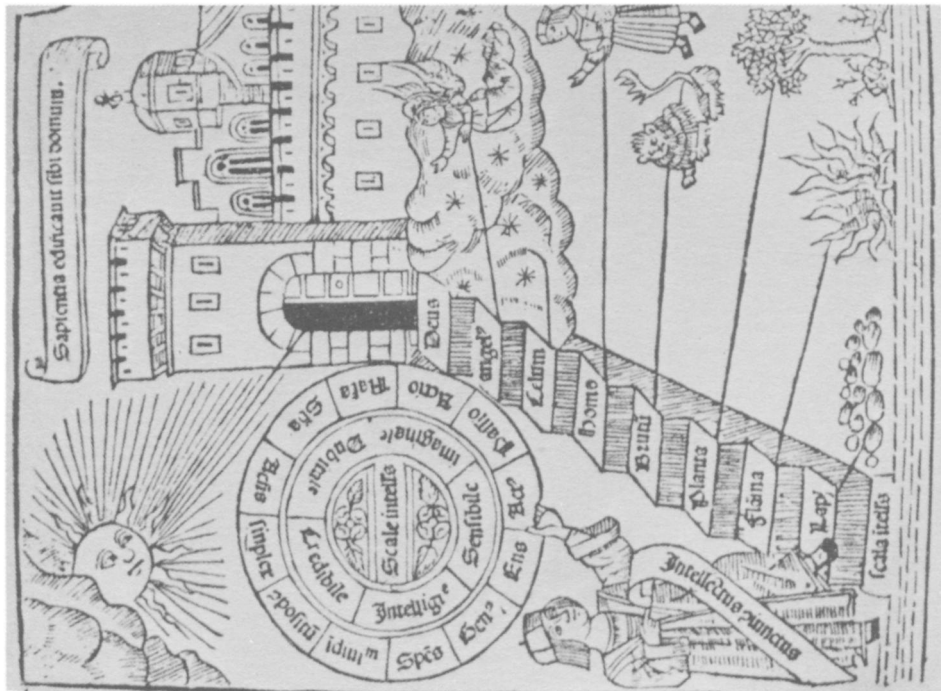


a—Lull's Vision; Lull Teaching the Art (*pp.* 135, 141)

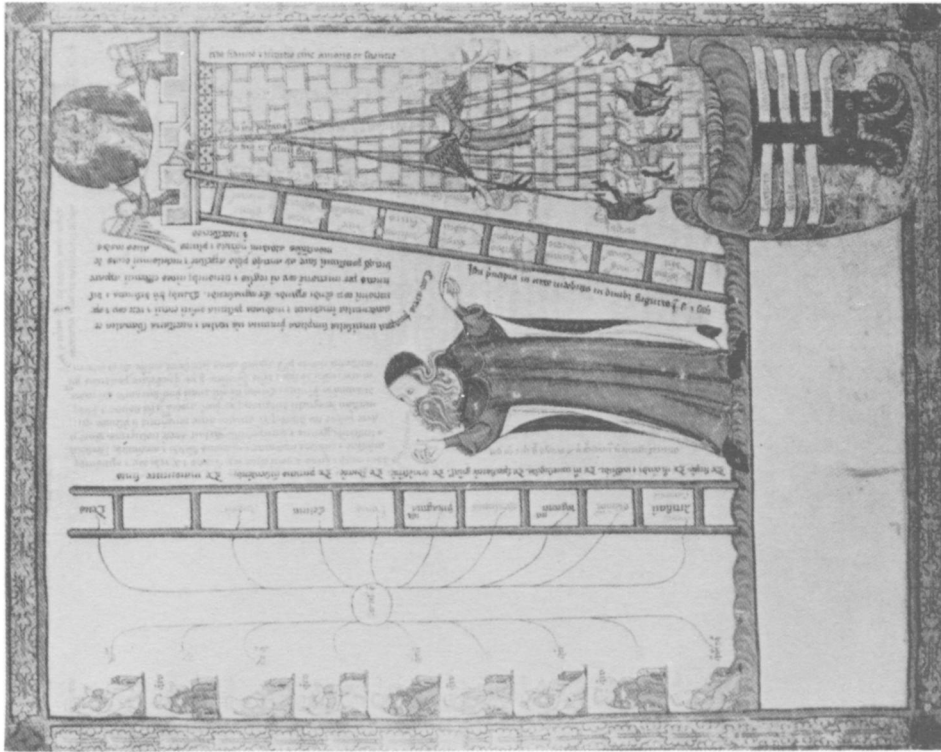


b—Lull on Horseback with the Principles of the Art (B to K as *absoluta* and *relata*, see Pl. 8a) dressed as knights (*pp.* 142, 153)

Miniatures illustrating the Life and Work of Lull, Fourteenth Century, Karlsruhe, Pergamenthandschrift 92



a—The Ladder of Ascent and Descent, From R. Lull, *Liber de ascensu et descensu intellectus*, Valencia, 1512 (p. 143)



b—Lull with Ladders, From the Karlsruhe Miniatures (p. 143)

*The "Liber de Ascensu et Descensu Intellectus"*

The *Book of the Ascent and Descent of the Mind* was written about 1305. The first printed edition<sup>1</sup> is illustrated by a helpful woodcut (Pl. 14a), which shows the ladder of ascent and descent—the steps of which are labelled Lapis, Flamma, Planta, Brutum, Homo, Coelum, Angelus, Deus.<sup>2</sup> The plan of the book follows this scheme, which is roughly that of the "subjects" of the Art; and the prologue states that the method followed will be that of the *Ars Generalis*, which shows how to ascend from inferior to superior things, and vice versa.

We shall not begin, as the book does, at the bottom of the ladder, but take a flying leap to the step *coelum*.<sup>3</sup>

Here we find, under the "action of the heaven" the list of the 12 signs and the 7 planets, with a short account of their characteristics, and in each case is noted the elemental affinity. It is like the list of the "old principles" in the *Tractatus de Astronomia*, though much less full on the characteristics of the signs and planets. And though the list seems meant primarily to draw attention to the elemental affiliation of each sign and planet, it does not assign to them the ABCD elemental notation, as in the *Tractatus*.

Under the "nature of the heaven" are listed the 18 principles—*bonitas*, *magnitudo* and so on (i.e., the meanings of B to K as *absoluta* and *relata* in the alphabet of the Art) with the exception of *contrarietas* which, of course, is not substantially in the heaven but only *per accidens*. Also *sapientia* becomes *instinctus*, and *voluntas* becomes *appetitus* as in the *Tractatus*. In each case it is stated that these "principles" are the true causes of things here below. For example, the *bonitas* of heaven causes the inferior *bonitates*, as the *bonitas* of a stone, a plant, a lion, or of the body of a man.

In short, what we have here is an abbreviation of the *Tractatus de Astronomia*, with its list of the signs and planets as the "old principles" of astronomy, followed by the "principles" of *bonitas* and so on which are the true influence of the heaven.

We may now start at the bottom of the ladder and give some quotations from the various steps of the ascent to see how this works out.

In the discussion of "stones" on the first step,<sup>4</sup> Lull gives examples of the characteristics of various stones. For example, the stone jasper has the power of stanching the flow of blood from wounds. The intellect "descends" to inquire into this operation of the stone jasper, and considers that "the super-celestial bodies are naturally the first cause of this . . . as Saturn which is *siccus et frigidus* and causes the dry and cold of jasper through which it has the power of stanching blood."

Then the intellect doubts, and inquires further what can be the medium between jasper and Saturn which is outside the *genus* of coldness and dryness. And then the intellect "believes that the medium is the natural *bonitas* of

<sup>1</sup> Valencia, 1512. I have used this edition and the page references are to it. This important work may have been rather overlooked owing to its not having been included in the Mainz edition. A Spanish translation of it, with introduction, was published at

Madrid in 1928.

<sup>2</sup> Cf. also the Art as a Ladder in one of the Karlsruhe miniatures (Pl. 14b).

<sup>3</sup> Part VII (*ed. cit.*, fol. 33 ff.).

<sup>4</sup> Part II (*ed. cit.*, fol. 2<sup>v</sup> ff.).

jasper and Saturn, and their *magnitudo* and so on; and the reason why it believes this and does not know it is because it does not have experience of this through sense.”<sup>1</sup>

We can easily recognize this as a rather more cautious form of the theory of the *Tractatus* through which *bonitas* etc. influence their similitudes on things below and are the true medium of the influence of the heaven on the elements.

On the step *planta* of its ascent and descent, the *intellectus* inquires into the problems arising from mixing herbs in medicines, such as are discussed at length in Lull’s medical works. It wants to know what will happen when lettuce, which is cold and moist, is mixed in an electuary with rose which is dry and cold. It “descends” to learn this, and understands that since lettuce is cold *per se* and rose is cold *per accidens*, the former will be stronger than the latter.<sup>2</sup> We recognize this as the principle of “devictio.” There is much here, too, on the “graduating” of medicines, and through studying these matters the intellect is able to move up and down the ladder from this step.

So through the elements and their relation to the true principles of heaven, the intellect moves up and down the ladder of being. Above the heaven, in the angelic world,<sup>3</sup> the “principles” *intellectus* and *appetitus* become *sapientia* and *voluntas*; and on the top of the ladder,<sup>4</sup> with *Deus*, the principles emerge in their true glory. *Bonitas*, *magnitudo* and the rest are here the “dignitates Dei.” The existence of God is proved, also the Trinity and the Incarnation, very briefly but to the satisfaction of the intellectus. This work shows very clearly the integration on the step *coelum* of the ladder of the down-flowing divine principles with astrological influences, whence the divine principles are manifested, through the workings of the star-controlled elements, at lower stages of the ladder. Hence the pattern of the elements is of prime importance to the intellect as it descends from, or rises to, God through his vestiges in creation, or the “Book of Nature.”

### *The “Arbor Scientiae”*

We have found an abbreviated version of the *Tractatus de Astronomia* on the step *coelum* of the ladder of ascent and descent. In the forest of trees into which we are now about to force a way we shall find on the Tree of the Heaven practically the whole of the theory of the *Tractatus* given in a very illuminating form and related to all the other Trees in this forest of knowledge, the *Arbor Scientiae*, which Lull states that he wrote for the purpose of explaining his Art.

The Forest Encyclopaedia belongs to an earlier period of Lull’s life than the Ladder Encyclopaedia. It was written during the autumn and winter of the year 1295 when Lull was in Rome trying, without success, to interest Pope Boniface VIII<sup>5</sup> in his missionary and crusading plans which included as their mainstay the propagation of the great Art. It was during this year that he wrote the poem entitled *Desconort* (“Disconsolateness”) in which he pours out his profound depression at his failure and in which occurs the stanza

<sup>1</sup> Fol. 5r.

<sup>2</sup> Part IV (*ed. cit.*, fol. 20r).

<sup>3</sup> Part VIII (*ed. cit.*, fol. 41r).

<sup>4</sup> Part IX (*ed. cit.*, fol. 45v).

<sup>5</sup> Peers, *Ramon Lull*, p. 251 ff.

which we quoted on an early page of this article where the Art is defined as “an *Ars Generalis*, newly given by the gift of the Holy Spirit through which one may know all natural things . . . valid for law, for medicine, and for all sciences, and for theology which I have most at heart. No other Art is of such value for resolving questions, and for destroying errors by natural reason.”<sup>1</sup>

The opening words of the prologue to the *Arbor Scientiae* present Ramon Lull disconsolate and tearful, and “singing his *Desconort* beneath a great tree, to alleviate somewhat the grief which he had when he could not accomplish in the court of Rome the sacred work of Jesus Christ and the public weal of all Christendom.” A monk heard Ramon singing and came to comfort him. When he learned the cause of his sorrow this monk advised him to compose an encyclopaedia of the sciences which should be less subtle to the understanding than his great Art.<sup>2</sup> That is, he advised Lull to present the principles of his Art in a more popular form which would make it more widely known and acceptable. Lull decides to take this advice, and, reflectively considering a beautiful tree covered with leaves and fruit, he resolves to present the simplified and popular form of the Art in the form of the *Arbor Scientiae*.

We are again strongly reminded of how the philosopher in the *Libre de Meravelles* initiated Felix into all wisdom from the plants and trees. And we cannot doubt that if only Blanquerna, and not Boniface VIII, had been Pope, the *Arbor Scientiae* would have been joyfully accepted at the court of Rome.

The *Arbor Scientiae* is a work of colossal length, though not quite as long as the *Book of Contemplation*. The Catalan version of it has been published in the Palma edition.<sup>3</sup> The most modern Latin editions of it are two published at Lyons in 1635 and 1637,<sup>4</sup> for it is not included in the Mainz edition—though Salzinger in his “Revelatio”<sup>5</sup> made use of its Tree of Heaven, in conjunction with his manuscript copy of the *Tractatus de Astronomia*, as one of the main keys to the arcana of the Art.

The fifteenth-century manuscript of the Catalan version in the Biblioteca Ambrosiana contains an illustration which shows Ramon and the monk at the foot of the Tree from which all the sciences branch off.<sup>6</sup> The illustrated printed editions also give an inclusive Tree-diagram, showing all the sciences as branches of it, with Ramon and the monk at its foot (Pl. 15a); they also give separate tree-diagrams for each science (Pl. 15b, c, d; Pl. 16).

There are sixteen Trees in the Lullian Forest. Each is divided into seven parts—roots, trunk, branches, twigs, leaves, flowers, and fruit. Most of them have eighteen roots, and these are the meanings of BCDEFGHIK as *absoluta*

<sup>1</sup> See above, p. 117.

<sup>2</sup> Part of the Prologue to the *Arbor Scientiae* is translated by Peers in his *Ramon Lull*, pp. 269-70, from which the above English versions are taken.

<sup>3</sup> Vols. XI-XIII, 1917-26.

<sup>4</sup> I have used the edition of Lyons, 1635.

<sup>5</sup> “Revelatio,” p. 145 ff. (in Mainz ed., Vol. I.)

The *Arbor Scientiae* and the *De ascensu et descensu intellectus* were probably omitted from the Mainz edition because they were already published. Their omission has had, however, the rather unfortunate result of divorcing these key works from the main body of works on the Art in the Mainz edition.

<sup>6</sup> This is reproduced in colour in Vol. XIII of the Palma edition.

and *relata* in the "Alphabet" of the Art. There are some variants of this 18-root system in the later Trees, but all of them connect with it. The Trees are, therefore, the Art in tree form.

To give any idea of the immense complexity and ingenuity with which Lull works out the Tree allegory would involve writing a book as long as his. The following is the skeleton outline of the scheme.

(1) *Arbor Elemental* (Pl. 15b). Rooted in BCDEFGHIK, the trunk of the Elemental Tree is a confused body called chaos. Its branches are the four simple elements. Its twigs are the elements mixed. Its fruits are the *elementata*, that is, all things in the sublunar world which are all composed of the four elements—as a stone, an apple, a bird, a fish, a lion, a man, gold and silver.

(2) *Arbor Vegetalis* (Pl. 15c). BCDEFGHIK and the Elements in the vegetable world. As the fruits of this tree, Lull outlines the system of elemental grading in herbs which was the basis of his medicine.

(3) *Arbor Sensualis*. BCDEFGHIK and the Elements in relation to the five senses and animal nature.

(4) *Arbor Imaginalis*, tree of imagination or of mental images, which are similitudes of things on all the preceding trees (therefore similitudes of BCDEFGHIK and the Elements).

(5) *Arbor Humanalis*, the Tree of Man. Rooted in BCDEFGHIK, but these roots are double, corporal and spiritual, involving, for example, *bonitas corporalis* and *bonitas spiritualis*. It has corporeal branches, elementative, vegetative, sensitive, and imaginative; and spiritual branches which are the three powers of the soul—*memoria*, *intellectus*, and *voluntas*. Included in this tree are all the arts and sciences.

(6) *Arbor Moralis* (Pl. 15d). This has 18 good roots, BCDEFGHIK, and 5 bad roots; and divides into two parts, the Virtues leading to *Gloria* and the Vices to *Pena*.

(7) *Arbor Imperialis*. Has the same good and bad root system as the *Arbor Moralis*. The Tree of the Temporal Hierarchy from the Emperor downwards.

(8) *Arbor Apostolicalis* (Pl. 16a). Also has the root system of the *Arbor Moralis*. The Tree of the Spiritual Hierarchy, from the Pope downwards.

(9) *Arbor Coelestialis* (Pl. 16b). The Tree of Heaven. Its roots are BCDEFGHIK, with the exception of *Contrarietas*, which is not in the heaven. Unfortunately the illustration in the printed editions makes a very bad mistake in not omitting one of the eighteen roots for this Tree. The trunk of the Tree is the heaven; its branches the 12 signs; its twigs the 7 planets.

The theory of this Tree, which is that of the *Tractatus de Astronomia*, will be examined in more detail later.

(10) *Arbor Angelicalis*, the Tree of Angels.

(11) *Arbor Eiternalis*, the Tree of Eternal Rewards and Punishments.

(12) *Arbor Maternalis*, the Tree of the Virgin Mary.

(13) *Arbor Christianalis* (Pl. 16c, incorrect), the Tree of Jesus Christ.

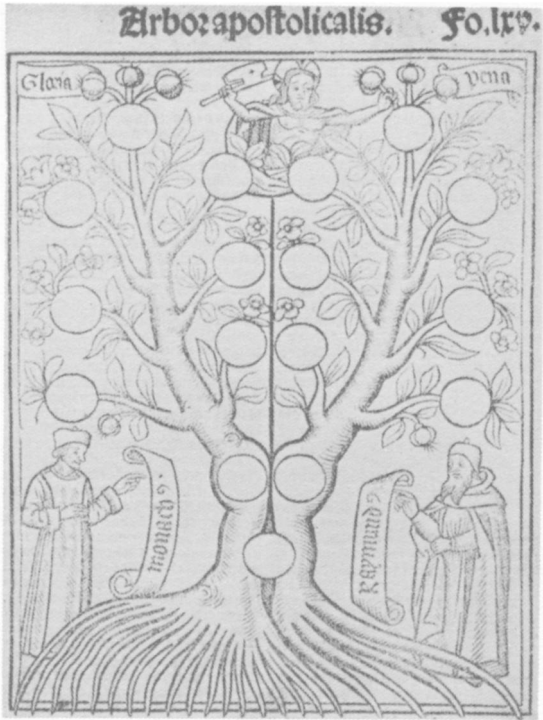
(14) *Arbor Divinalis* (Pl. 16d), the Tree of the Trinity.

(15) *Arbor Exemplificalis*, the Tree of Examples in which the matter of all the preceding trees is expounded in allegorical stories.

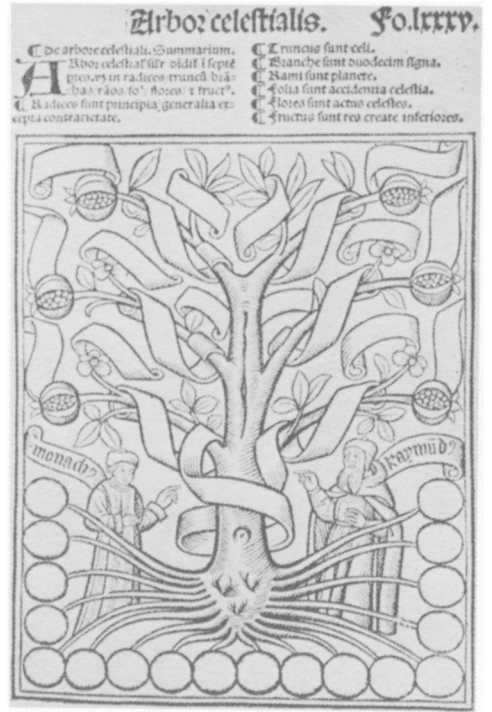
(16) *Arbor Quaestionalis*, questions propounded and answered about all the Trees.



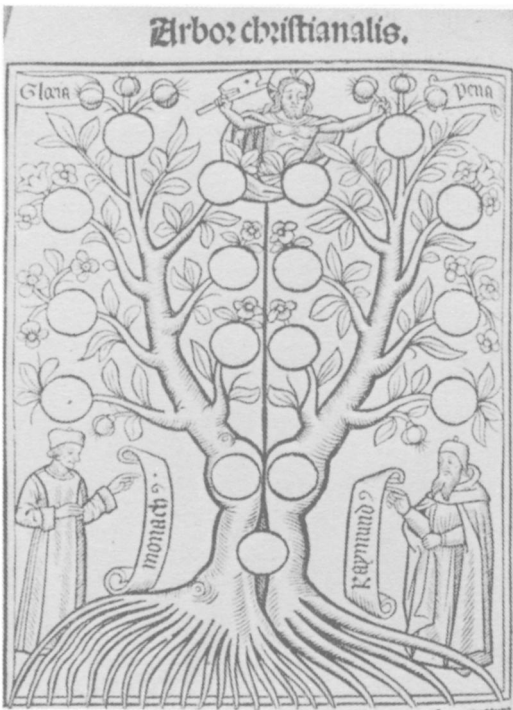




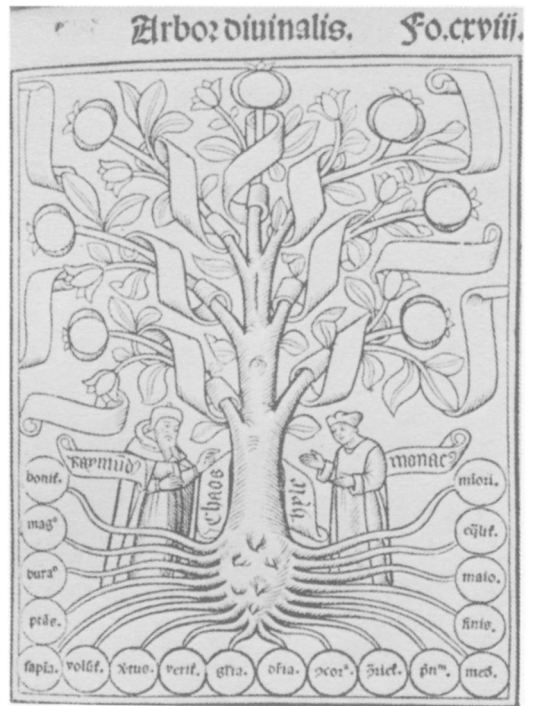
a—Apostolic Tree



b—Celestial Tree



c—Tree of Jesus Christ



d—Tree of the Trinity

Tree Diagrams from R. Lull, *Arbor scientie*, Lyons, 1515 (*pp.* 145-6)

Roughly speaking, it may be said that the sequence of Trees (I) to (14) again conducts us up the Ladder of the subjects of the Art from the elements to *Deus*.

*The Tree of Heaven and the Elemental Tree*

I think we may compress very briefly the correspondencies between the Tree of Heaven and the *Tractatus de Astronomia*, for the outlines of the theory are now familiar. Once again, in the Tree of Heaven,<sup>1</sup> Lull takes us through the 12 signs and the 7 planets and their characteristics, insisting above all on their elemental affinities. Once again we go all through the *bonitas* and so on series (except for *contrarietas* which is not in the heaven), insisting that these are the true influences of heaven, and combining these influences in the same peculiar way with those of the signs and planets. Once again there is the insistence that it is the "similitudes" of these things and not their actual essence which are imprinted on things below. Very often the actual language is practically the same as in the *Tractatus*. And if the Elemental Tree<sup>2</sup> is read in conjunction with the Tree of Heaven—to which, of course, it corresponds, and the influences running between these two Trees run also through the intervening Trees, except that man has free-will through the Moral Tree to withstand the stars—we can learn from these two trees most of Lull's astrological-elemental theory, though not the actual working of elemental astrology through the "deviction" theory.

But the Tree of Heaven should be very carefully compared with the *Tractatus*, for there are things in the former which are not in the latter.

For example, in discussing the errors of "old astronomers" in the Tree, he complains that the old astronomy may be wrong in some of the elemental correspondencies which it attributes to the stars, and that these possible errors are an inconvenience to "ars nostra."<sup>3</sup> He suggests that the Pope and the Cardinals ought to look into the errors in "astronomy" and have it put into better order, and this investigation could be made "according to the method of this book with the help of the method of the *Ars inventiva* and the *Tabula Generalis*."<sup>4</sup> This throws an interesting light on Lull's mission at Rome, the failure of which had made him so disconsolate. Did part of it consist in trying to get the Pope and the Cardinals to sponsor a reform of astrology through the Art?

Apart from interesting hints of this kind, of which there may be more, the *Arbor Scientiae* is valuable because it makes somewhat clearer than does the *Tractatus* a very important part of Lull's astrological-elemental theory, which we must now attempt to expound.

He regarded the all-important relationship between the elements and the heaven—the basic pattern of the physical structure of the universe—as expressible in terms of three geometrical figures, the circle, the triangle, and

<sup>1</sup> Ed. of Lyons, 1635, p. 241 ff.

<sup>2</sup> *Ed. cit.*, p. 3 ff.

<sup>3</sup> *Ed. cit.*, p. 248.

<sup>4</sup> *Ed. cit.*, p. 245.

The *Tractatus de Astronomia* which was

written in Paris two years later than the *Arbor Scientiae*, may well be the attempt at the reform of astrology through the Art which was (apparently unsuccessfully) urged on the Pope and the Cardinals in 1295.

the square. Salzinger cast his "Revelatio" of the secret of the Lullian Art in the form of a dialogue between himself and the Master, and at one point he puts into Lull's mouth the statement that the circle, the triangle, and the square "contain the whole secret of my Art."<sup>1</sup> For corroboration of this, Salzinger refers the reader to the "Arbor Elementalís" and the "Arbor Celestialís" of the *Arbor Scientiæ*, to the *Tractatus de Astronomia*, and to some of the medical works.

In the Elemental Tree there is the following passage:

The four elements . . . are figured in the *elementata* in the figures of a square, a circle, and a triangle. In the square figure, there is a straight line from fire to air which concord in heat, from air to water through concord of moisture, from water to earth through concord in cold, and from earth to fire through concord in dryness . . . In the circular figure the elements enter into one another; fire enters into air giving it its heat . . . air enters into water giving it its moisture . . . water enters into earth giving it its coldness . . . earth enters into fire giving it its dryness. . . . The triangular figure is caused by the line going from fire to air, and from fire to earth, and from earth to air. And this triangle is composed of two concurring lines and one contrasting line. And the same is true of the triangles air, fire, water; water, air, earth; earth, water, fire. And thus there are four triangles which fill the square, and the square fills the circle.<sup>2</sup>

The concords and contrasts of the elements depend, as we know, on the heaven, and were worked out in terms of ABCD in the *Tractatus*. If one represents ABCD in these geometrical patterns (see Fig. 2) one has the figure shown on the opposite page (in which, for convenience sake, I represent the heaven of the 12 signs and the 7 planets by one circle only). And if the geometrical elemental patterns are expressed by alphabetical notation one has for the "circular" and the "square" patterns, sequences like AB, BC, CD, DA, AB, and so on; and for the "triangular" patterns, sequences like AB, BD, DC, CA; AC, CB, BD, DA. The realization that letter-sequences can follow circular, quadrangular, and triangular patterns is of fundamental importance for the Lullian Art.

The "trunk" of the Tree of Heaven and the "trunk" of the Elemental Tree "se respiciunt"

although the superior trunk does not enter into the inferior trunk, nor does the inferior enter into the superior in so far as they have discrete quantity, but the influence of the superior comes into the inferior through the continuity of the general quantity, in which are both trunks . . .<sup>3</sup>

Since both trunks are rooted in the *bonitas*, and so on, series, and it is through this that the influence of the "superior" quantity comes into the "inferior" quantity, it would follow that the letters BCDEFGHIK could

<sup>1</sup> "Revelatio," p. 12 (Mainz ed., Vol. I).

<sup>3</sup> *Ed. cit.*, p. 244.

<sup>2</sup> *Ed. cit.*, p. 13.

follow the circular, quadrangular, and triangular patterns in their sequences in the Art.

The best approach to these mysteries would be through the "Elemental Figure" (Pl. 10b, c) for Lull works out the arrangement in this of the elements in circular, quadrangular, and triangular sequences.<sup>1</sup> What he says can be clearly followed on the Figure, if this is studied in colour.

If one can get hold of how circular, quadrangular, and triangular progressions work in the Figure in connexion with the "devictio" principle, one

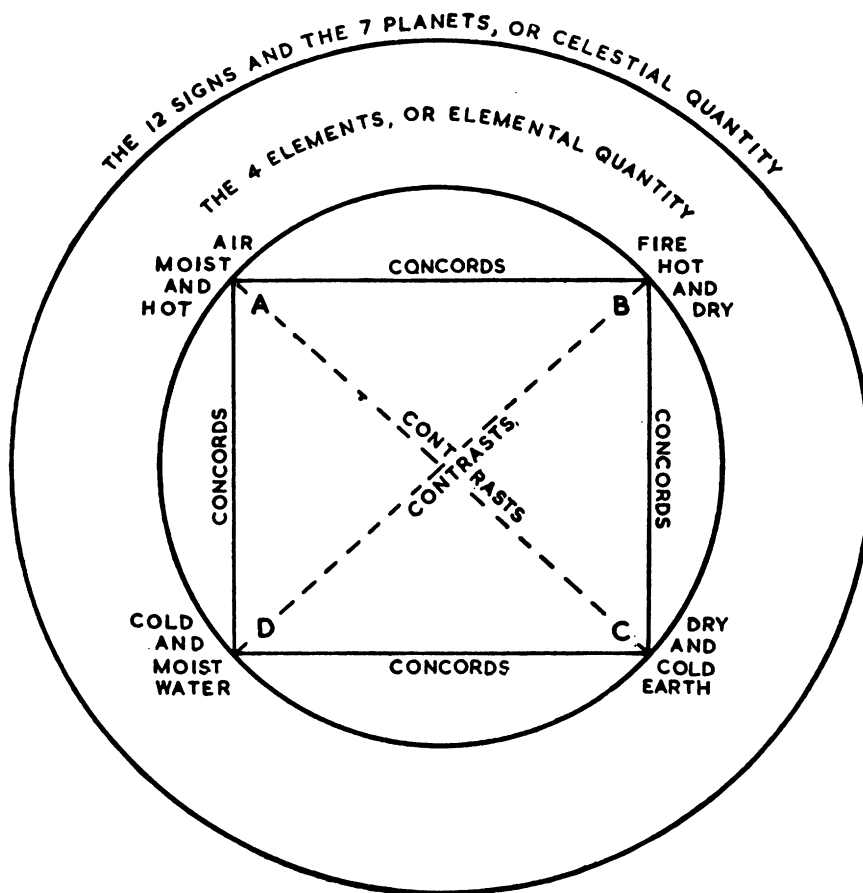


Fig. 2

will understand how the Elemental Figure is also the "Ladder" rising through the elements to the "Dignitates Dei," to *bonitas* in the divine world.

The geometrical mysteries of the Elemental Figure should be studied in connexion with Lull's two geometrical works, the *De nova geometria* and the *De quadratura et triangulatura circuli*. As Professor Millas Vallicrosa has pointed out in the introduction to his recent edition of the *De geometria nova*,<sup>2</sup> the work

<sup>1</sup> See the *De Figura Elemental*, Mainz ed., Vol. III, p. 60 ff.

<sup>2</sup> J. M. Millas Vallicrosa, *El Libro de la "Nova Geometria" de Ramon Lull*, critical edi-

contains astrological material. The two geometrical works relate closely to one another<sup>1</sup> and both have a bearing on the Art. They are probably as fundamental for the approach to the Art as the *Tractatus novus de Astronomia*. With the "new" astronomy, there went a "new" geometry. If these works, and the other material indicated in the first Appendix to this article,<sup>2</sup> are studied in relation to the Art, it may be possible eventually to understand how the geometry of the elemental theory worked in the Art.

Pending this solution, I will conclude these remarks on what Salzinger regarded as the fundamental secret of the Lullian Art by quoting the following little story from the "Arbor Exemplificalis" of the *Arbor Scientiae*. It seems to be an extremely curious geometrical version of the Judgment of Paris:

It is narrated that Circle, Square, and Triangle met together in Quantity, who was their mother, and who was holding a golden apple. She asked her sons if they knew to which of them the apple should be given. To which Circle replied that he ought to have it because he was the first-born and was greater and could run more strongly than his brothers. Square said that he ought to have it, because he was nearer to man than Circle, and greater than Triangle. Triangle, on the contrary, said that he should have the apple, because he was nearer to man than Circle, and more like God than Square.

Whereupon Quantity gave the apple to her son Triangle.

But Aries, and his brothers, and Saturn, and his brothers, reproved Quantity, saying that she had judged wrongly; because Triangle had no likeness to God in length, width, and depth, whereas Circle was like God, because he had no beginning nor end. And Square reproved Quantity saying that she had not judged well because he was more like God in the four elements than was Triangle; for without the four elements there would not be men, who exist in order that they may seek out and know God.

But Triangle excused his mother Quantity, saying that she had judged well, for he was more like the Soul of man and God the Trinity through

tion with introduction and notes, published by *Asociación para la historia de la ciencia española*, Barcelona, 1953, Introduction, p. 35 ff. (Cf. also J. M. Millas Vallicrosa, *Estudios sobre historia de la ciencia española*, Barcelona, 1949, pp. 357-86).

Professor Millas shows in his introduction that Lull's geometry is erroneous from a genuinely mathematical point of view (pp. 16-25), that it does not employ the traditional Euclidean terminology (p. 26), and that it contains strange admixtures of metaphysics and also of astrology (pp. 35 ff.).

Quite early in the text of the *De nova geometria* come hints that the geometry of this work relates to the geometry of "elemental astrology"; for example in the statement that "sicut omnia elementa sunt ex simplicibus

elementis, ita omnes figure composite, sive sint naturales vel artificiales, descendunt et derivantur de figura circulari, quadrangulari et triangulari" (*ed. cit.*, p. 60). This impression is amply borne out by the later development of the work which certainly relates closely to the *Tractatus de Astronomia* and also to Lull's works on astrological medicine.

<sup>1</sup> The relationship of the first part of the *De nova geometria* (which is on the investigation "de quadratura circuli et de eius triangulatura ac etiam de triangulatura quadranguli") with Lull's other geometrical work, the *De quadratura et triangulatura circuli* is discussed by Professor Millas in his introduction (p. 21 ff.) to the *De nova geometria*.

<sup>2</sup> See pp. 167-8 below.

the ternary number than were his brothers Circle and Square. Yet she had erred somewhat, for she had given him a *round* apple, which was not his figure.<sup>1</sup>

So Quantity, though she gave the prize to the triangle (the Trinity), gave it in the form of the circle (the heavens), on which depended the square (the elements), and so worked all the figures into the answer.

Thus I would interpret the enigma, but the reader may find other interpretations. He should ponder it well, for it is also the enigma of the Art of Ramon Lull.

### *Elemental Exemplarism*

We have already touched on what I here propose to call Lull's "elemental exemplarism." The reader will remember how Felix and the king's son attended a lecture on the elements given by a philosopher and how the king's son immediately applied the teaching on the elements as a metaphor of correspondencies and contrasts between virtues and vices, passing immediately from that to comparisons between the virtues of the elements and the theology of the Trinity. These abrupt transitions from natural philosophy to ethics and theology went on all through the adventures of Felix. We suggested that Blanquerna's teaching of "natural philosophy," medicine, law, and theology was based on similar "metaphorical" applications of the basic elemental theory. We thought this also present by implication in the hermit's instruction, under the trees, of the squire in the virtues of chivalry. And we came to think that the "tree" represented for Lull his basic *exemplum* of the working of the elements.

In the *Arbor Scientiae*, or the "Forest Encyclopaedia" as we have called it, these kinds of comparisons, or metaphors, are developed and systematized to an extraordinary extent. Through studying them in this work one begins to realize that Lull must have believed that he had found in the elemental processes, particularly as worked out in the science of medicine, a pattern which could be used metaphorically, or as an exemplum, in ethics and theology with such precision as to provide a way of—so to speak—mathematically calculating exemplarism.

For example, in the "Arbor Moralis," we are told that the virtue of Prudence belongs most to the intellectual part of the soul "as fire is stronger in pepper than are other elements."<sup>2</sup> In the "Arbor Apostolicalis" there is a long comparison between the Sacrament and elemental theory, ending with "as in pepper fire has greater action and water greater passion, so in the Sacrament the superior forms have greater action, and the inferior forms greater passion."<sup>3</sup> In the "Arbor Angelicalis," we learn that "Fire which heats pepper more than fennel, places in it more heat . . . for pepper can

<sup>1</sup> *Arbor Scientiae*, ed. cit., p. 424.

<sup>2</sup> *Arbor Scientiae*, ed. cit., p. 127.

<sup>3</sup> *Ibid.*, pp. 194-5. On "active" and "passive," see above, p. 132, and below, p. 153.

Blanquerna also gives an "elemental" exposition of the Sacrament, though not on the same lines as here. See *Blanquerna*, trans. Peers, p. 209.

receive more than fennel. And so it is of the recalling, understanding, and loving of the angels, which is greater or less according to whether the objects are more or less suitable for them to recall, understand, and remember.”<sup>1</sup> In the “Arbor Aeviternalis” it is said that the *bonitas* of St. Peter is an appropriated quality which is against the *malitia* of Judas. “As dry is the appropriated quality of fire with which it mortifies air and compels it to receive its heat, without which dryness fire could not heat air . . . so it is needful that to St. Peter should be appropriated the quality of *bonitas* throughout eternity.” And “in the glorified body of St. Peter the actions and passions are in concordance without contrariety; as fire warming air, water, and earth in natural concordance.”<sup>2</sup>

In the “Arbor Christianalis” we find such parallels particularly directed towards convincing the Saracens of Christian theology (we had examples of this also in the *Libre de Meravelles*). For example:

. . . the divine nature does not receive any alteration in the conjunction which it makes with the human nature: as fire does not receive any alteration in entering air through warmth but raises air to a nobler state through imparting to it its warmth through concordance, so the human nature is exalted in receiving the divine nature through concordance. Therefore the Saracens and Jews do wrong in denying the Incarnation of the Son of God, saying that God is altered . . . in being joined to man . . .<sup>3</sup>

Salzinger must have fully understood this argument, for he had placed on the title-page of the earlier volumes of the Mainz edition an engraving which could be entitled “The Incarnation and Ignis” (Pl. 17a).

And, to take another example from the “Arbor Christianalis”:

The Saracens say that the Christians believe that God had passion in human nature through hunger, thirst, heat, and cold, and on the cross through death. And therefore the wise Saracens (*Saraceni sapientes*) will not believe that God was man. And therefore the Christians do wrong in that they do not show to the wise Saracens their error in denying those passions; for the divine nature is affirmed in the human nature through those passions. As water which has passion through the heat of fire in pepper, and does not have passion through cold in the cucumber.<sup>4</sup>

Does not this last astounding quotation suggest that it must have been through what I have called “elemental exemplarism” calculated by the Art that Lull proposed to demonstrate the Incarnation to the “wise Saracens”?

The exact relevance of the comparisons with elemental processes made in the above quotations will not be fully clear to the reader because they use points in Lull’s elemental theory which I have not fully expounded in the shortened and over-simplified account of it which I have given in this article

<sup>1</sup> *Ibid.*, p. 265.

<sup>2</sup> *Ibid.*, pp. 276-7.

<sup>3</sup> *Ibid.*, p. 300.

<sup>4</sup> *Ibid.*, p. 304. With this may be compared

one of the fascinating allegories in the “Arbor Exemplificalis,” in which Pepper and Cucumber argue as to whether Fire or Water is most like to God (*ibid.*, p. 407).

(e.g. fire is “nobler” than the other elements, two of the elements are “active” and two “passive”). But the comparisons are worked out with mathematical exactitude in accordance with his full theory, particularly the theory of the “grading” of the elements in herbs.

If we now turn back to that fundamental work, the *Liber Principiorum Medicinae*, we shall find that the principles of elemental exemplarism (this expression is not used by Lull) are there quite clearly laid down.

The grades and triangles with which he worked his medicine (see Pl. 9) may be used “metaphorically” of the virtues and vices.

The grades, triangles, and conditions of this Tree (i.e. the Tree of Medicine, Pl. 9) will reveal to thee how the virtues are joined with one another, and one vice with another vice; and how the virtues and vices are contraries.<sup>1</sup>

And by this same method, he says, one can also expound theology.

If one fully understands “elemental exemplarism” one can work the Art, as Salzinger says, so that virtues “devict” vices and truth “devicts” error. It will be, perhaps, helpful to quote Salzinger on this. Having just explained the ABCD method and astrology by “devictio” (citing the *Tractatus de Astro nomia* on this), Salzinger goes on to say:

Devictio signorum, planetarum, elementorum, complexionum & humorum est metaphora significans devictionem virtutem & vitiorum: unde si perfecte sciveris Artem hujus metaphorae, & ab illa te convertes ad literam sui significati, practicando hanc nobilem Artem contra vitia, devincendo illa per virtutes in te ipso, majus imperium hac victoria referes, quam si armis expugnares totum imperium orientis, vel ipsam Terram Sanctam in tuam ditionem redigeres . . .<sup>2</sup>

In these words there are still—even in the eighteenth century—echoes of the old function of the Art as part of the Crusade, devicting vice by virtue, error by truth, thus converting the Saracens and regaining the Holy Land. They remind one of the picture of the principles of the Art as crusading knights (Pl. 13b).

In two of Lull’s best-known works on the conversion of the infidels, the argument takes place under trees. In the *Liber de gentili et tribus sapientibus*<sup>3</sup> a “wise Saracen,” a “wise Jew,” and a “wise Christian” converse near a stream by which stand five trees covered with leaves, fruit, and flowers. On the trees

<sup>1</sup> *De Princ. Med.*, p. 40 (in Mainz ed., Vol. I).

<sup>2</sup> “Revelatio,” pp. 151-2.

<sup>3</sup> Catalan text in Vol. I, 1901, of the first Palma edition; Latin text in Vol. II of the Mainz edition.

Salzinger no doubt thought that this work would be perfectly clear to the reader of his edition, who would have studied in Vol. I his “Revelatio” and the “metaphors” in the *Liber Principiorum Medicinae*. Also in his preface to the *Liber de Gentili*, Salzinger took

a lot of trouble, and referred the reader to the adventures of Felix, or the *Libre de Meravelles* (see Mainz ed., II, p. 5).

The *Libre de Meravelles* is certainly fundamental for the student of the *Liber de gentili*, who should also consult *Evast and Blanquerna* (notably *ed. cit.*, II, p. 131). Nor must the *Arbor Scientiae* be neglected. The allegory of the Nightingale (*Arb. Scient.*, *ed. cit.*, p. 397) is said to contain the meaning of the *Liber de gentili*.



hang combinations of the virtues and vices (Pl. 17b).<sup>1</sup> In the *Liber de quinque sapientibus*,<sup>2</sup> the conversation with the “wise Saracen” also takes place by a fountain under a beautiful tree. I would suggest that these trees are related to those under which Felix talked with the philosopher, the hermit talked with the squire, to the trees of the *Arbor Scientiæ*, of the Tree of Medicine, and of Lull’s vision—that is to say that they represent the fundamental *exemplum* of the working of the elements, through which—as systematized in the Art—Christians should demonstrate to “wise Saracens” and others the truths of ethics and theology.

The *naïveté* with which Lull forces his elemental theory to work “metaphorically” in the spheres of ethics and theology may cause the reader to smile. Littré expresses amazement at the “metaphors” in the *Liber Principiorum Medicinæ* and his reaction might have been still stronger had he realized the fundamental connexion of these with the Art, patterned on elemental astrology. He is appalled to find Lull explaining Christ’s forty days’ fast in the wilderness by a detailed application to this of his theory of “graduated medicine.” Littré finds the medical theory itself ludicrous and the metaphorical application of it still more so.

Mais à quoi n’arrivent pas l’incohérence et le vide de ces combinaisons (i.e. those of Lull’s medical theory), quand . . . elles servent d’application mystique à des notions de philosophie ou de théologie! Ainsi Raimond Lulle explique le carême par la considération des quatre qualités radicales. “Le Fils de Dieu ayant pris la nature humaine . . . si tous les degrés des quatre qualités sont dans la nature humaine, cette nature, que le Fils de Dieu a prise, convient mieux avec l’être; elle conviendrait mieux avec le non-être . . . si tous les degrés susdits n’étaient pas dans l’humanité même; et, vu que l’être et la perfection conviennent ensemble ainsi que le non-être et le défaut, on comprend que tous les quatre degrés des quatre éléments existent dans le corps humain. Par cette démonstration est révélé le secret du carême que Jésus-Christ supporta dans le désert, quand il jeûna quarante jours, pour signifier les quarante mesures des degrés, chacune des quatre complexions ayant dans le corps humain dix points produits par l’addition de quatre points, de trois, de deux et d’un; lequel jeûne nous est donné pour mortifier la superfluité des quarante points ci-dessus démontrés.”<sup>3</sup>

The details of the working of this metaphor are, of course, at present unintelligible. But they will be quite intelligible when the details of Lull’s medical theory are fully worked out, together with their bearing on the “Elemental Figures” of the Art.

Littré’s amazement at these extraordinary “combinations” is understandable; nevertheless it seems to me that Lull’s attempt to put moral and mystical

<sup>1</sup> The engraving in the Mainz edition, from which this plate is taken, is based on the illustration (perhaps planned by Le Myesier) in Paris lat. 15450. Cf. also a coloured drawing in a seventeenth-century manuscript collec-

tion of Lull’s works in the Bibliothèque Mazarine (MS. fr. 3506).

<sup>2</sup> In Vol. II of the Mainz edition.

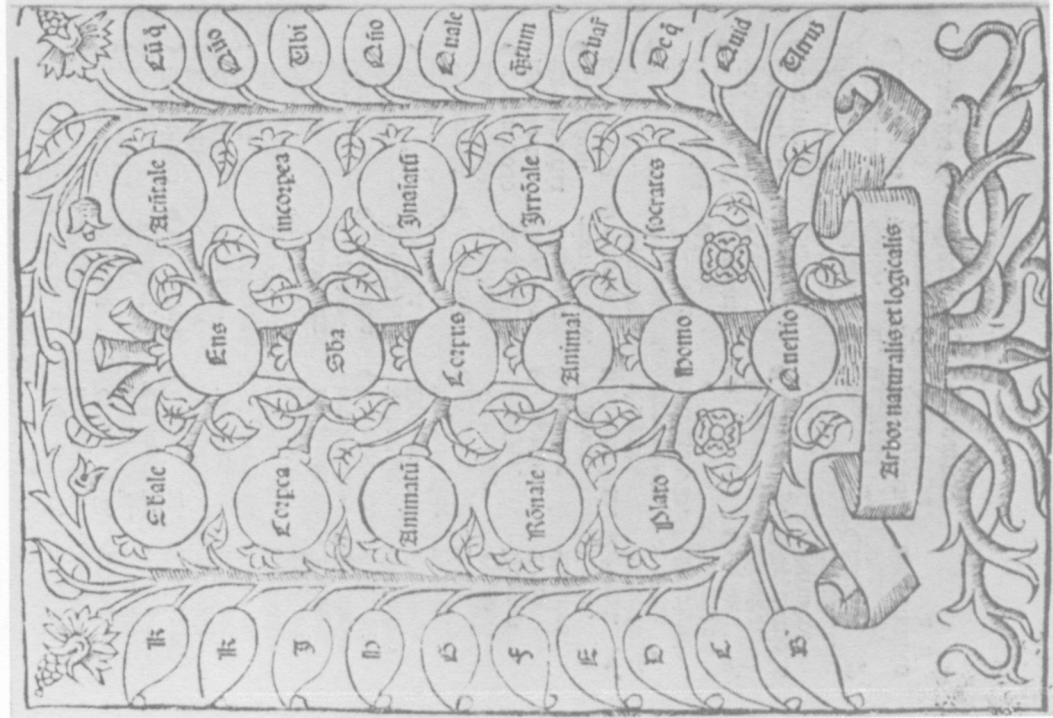
<sup>3</sup> *Histoire littéraire de la France*, 29, pp. 89-90.



a—The Incarnation, Title-page Engraving from R. Lull, *Opera*, Mainz, 1721-42 (p. 152)



b—Intelligentia and the Wise Men under the 'Trees of Virtues and Vices, Engraved Illustration to R. Lull's *Liber de gentili et tribus sapientibus*, Mainz edition, II (p. 154)



a—Tree Diagram from R. Lull, *De nova logica*, Valencia, 1512 (p. 159)



b—Thomas le Myesier Presenting his Compendia of Lull's Works to the Queen of France, From the Karlsruhe Miniatures (p. 172)

exemplarism on what one might call a "scientific basis" is deeply interesting. To the mystical theologian the world of nature always suggests "exempla" of the divine truths he is contemplating. The poet, too, like the Duke in *As You Like It*, retires into the forests of nature to find there

tongues in the trees, books in the running brooks,  
Sermons in stones and good in everything.

Lull is a mystic and a poet—a thirteenth-century romantic poet who ascends through nature in his visions:

For the whole of that day . . . Blanquerna journeyed through the forest. At nightfall he came to a fair meadow, wherein was a beautiful fountain, beneath a noble tree. There did Blanquerna take his rest, and he slept all that night. Before dawn he began his prayers according as he was wont; and through the strangeness and solitariness of the place, and the heavens and the stars, his soul was highly exalted in the contemplation of God.<sup>1</sup>

It is the combination of the mystic and the poet with the urge to "demonstrate" the vision with algebraical letter-combinations on geometrical figures which is so curious in Lull. He goes below the appearances of the world of nature to its underlying structure, which for him is elemental astrology, and makes that the fundamental *exemplum* through which he calculates the metaphors and so demonstrates the moral and mystical truths.

On its deepest metaphorical level, in its most secret application, the Art works out the structure of the universe in terms of the circle, the triangle, and the square. Though the Lullian geometry deals in "similitudes" and is not genuinely mathematical, yet the long practice of Lullism through the centuries must have helped to form a habit of mind which sought for mathematical explanations, or demonstrations, of reality. As is well known, Descartes told his friend Beeckmann that his new universal system of knowledge, based on analytical geometry, was to take the place of the Art of Ramon Lull.<sup>2</sup>

### *The Art as Logic*

There is an approach to the Art of Ramon Lull which regards it as a "logical machine which would constitute the same sort of labour-saving

<sup>1</sup> *Blanquerna, ed. cit.*, I, p. 206; trans. Peers, p. 155.

<sup>2</sup> "Et certe, ut tibi nude aperiam quid moliar, non Lulli *Artem brevem*, sed scientiam penitus novam tradere cupio, qua generaliter solvi possint quaestiones omnes, quae in quolibet genere quantitatis, tam continuae quam discretas, possunt proponi." Descartes to Beeckman, March, 1619. Against the reference to Lull, Beeckman wrote in the margin, "*Ars generalis ad omnes quaestiones solvendas quaesita.*" See Descartes, *Oeuvres*, ed. Adam and Tannery, Paris, 1908, X, pp. 156-7.

Descartes, of course, rejected Lullism, but

he probably understood it fully and knew its "geometrical" secrets. Such understanding would make the analogy with his own system closer.

It has been pointed out that in his preface to the French translation of the *Principia*, Descartes seems to echo the "tree" metaphors of the *Arbor Scientiae* (*Oeuvres, ed. cit.*, IX, pp. 14-15; and cf. Carreras y Artau, *op. cit.*, II, pp. 300-1). In the "Arbor celestialis" of the *Arbor Scientiae*, Lull uses the terms "continuous" and "discrete" quantity (see quotation on p. 148 above).

device in a scholastic disputation or mediaeval university as an adding machine in a modern bank or business office. By properly arranging categories and concepts, subjects and predicates in the first place, one could get the correct answer to such propositions as might be put."<sup>1</sup> There is no doubt that this was a function which the Art promised to perform, and students of the shortened form of the Art, the *Ars Brevis*, might well be led to assume that it was its primary function.

I must say here with all possible emphasis that although the present article has taken another way into the Lullian Art than the way of logic, this does not mean that the way of logic is not equally essential for its understanding. Both lines of approach are necessary, for both unite to form the Art.

Lull himself gave several definitions of his Art in relation to logic. In the introduction to the *Ars Demonstrativa* he says that the Art is both a logic and a metaphysic, yet differs from both logic and metaphysic.

Sciendum est ergo, quod ista Ars est et Logica et Metaphysica . . . sed in duobus differt ab aliis duabus, videlicet in modo considerandi suum subjectum et in modo principiorum. . . . Metaphysica considerat res, quae sunt extra animam, prout conveniunt in ratione entis; logica etiam considerat res secundum esse, quod habent in anima. . . . Sed haec Ars tanquam suprema omnium humanarum scientiarum indifferenter respicit ens secundum istum modum et secundum illum. . . .<sup>2</sup>

Thus the Art is a logic but yet differs fundamentally from ordinary logic, because it combines logical processes with metaphysics.

In the *Ars Magna generalis ultima* it is also stated that the Art differs from ordinary logic. Here it is said that whilst logic deals with "second intentions," the Art deals with "first intentions," and that therefore the latter is "stable" whilst the former is "unstable." The logician cannot find out the "true law" with logic, but the "artista" is able to do this.<sup>3</sup>

The "artista" is therefore not an ordinary logician, though these definitions do not altogether clear up the nature of the difference between the artist and the logician. For the definition in the *Ars Magna*, one might turn to the book which Lull wrote, *De Prima et Secunda Intentione*, in which is to be found the following passage:

<sup>1</sup> Thorndike, *History of Magic and Experimental Science*, II, p. 865. On the same page, however, Thorndike says that the method of Lull's Art "leads us to infer that it occurred to him by some process of sub-conscious association with the employment of the planisphere in astronomy or the use of a revolving wheel and tables of combinations of letters of the alphabet such as we have noted in the geomancies and modes of divination ascribed to Socrates, Pythagoras, and other philosophers."

<sup>2</sup> Introduction to *Ars Demonstrativa*, Mainz ed., III, p. 1.

<sup>3</sup> "Logicus tractat de secundariis inten-

tionibus . . . sed generalis artista tractat de primis . . . Et in isto passu cognoscit intellectus, quod logica est scientia instabilis sive labilis; hec autem ars generalis permanens est stabilis. Item logicus facit conclusionem cum duabus praemissis, generalis autem artista huius artis cum mixtione principiorum & regularum. Adhuc logicus non potest invenire veram legem cum logica: generalis autem artista cum ista arte invenit . . . Et plus potest addiscere artista de hac arte uno mense quam logicus de logica uno anno." ("De logica," cap. CI of *Ars magna generalis ultima*, in Lull's *Opera*, ed. Zetzner, Strasburg, 1617, pp. 537-8).

Dear son, fire is hot and dry, and air is moist and hot, and water is cold and moist, and earth is dry and cold. Fire is hot through its own property, and dry through the property of earth; air is moist through its own nature, and warm through the nature of fire; water is cold through its own nature, and moist through air; earth is dry through itself, and cold through water. And therefore, son, each element . . . has a *First Intention* towards its own quality and a *Second Intention* towards that of another element. . . . Dear son, through this order of the two Intentions the elements enter into composition through generation and corruption, and they are *contraria et concordantia per medium*. . . . And what the elements do through First and Second Intention I counsel thee, son, to take as an example (*exemplum*), so that using Intention with the virtues against the vices, thou mayest have a First Intention towards God above all things.<sup>1</sup>

Might one deduce from this that the “artist” whose logic is based on “first intentions” is one whose logic is based on the fundamental *exemplum* of the elemental structure of the universe, with the “first intention” of using this as a ladder to God?

In his *Dialectica seu logica nova*, or *Logica brevis*,<sup>2</sup> Lull gives the following diagrammatic exposition of the four relations between propositions:

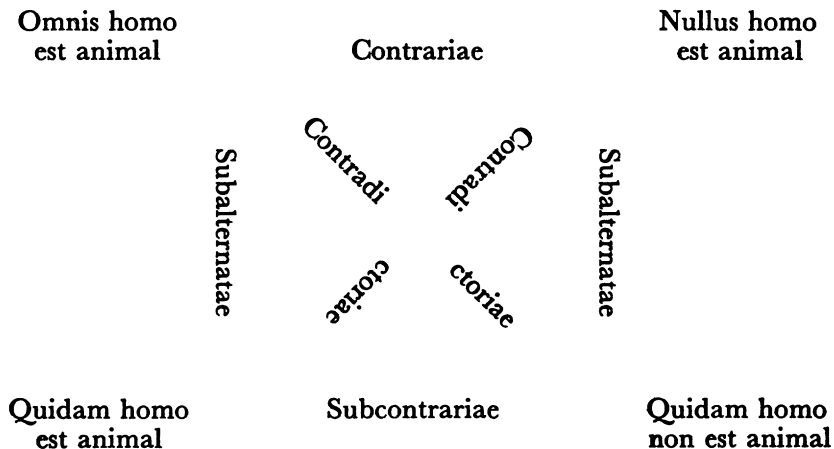


Fig. 3

<sup>1</sup> *Liber de prima et secunda intentione*, Mainz ed., VI, p. 19.

“First and second intentions” are, of course, scholastic terms. A recent valuable article, which unfortunately I did not see until this article was in proof, discusses Lull’s special use of the terms (E. W. Platzek, “La Combinatoria Luliana,” *Rev. de Filosofia*, XII, 1953, XIII, 1954, first published in German in *Franziskanische Studien*, XXIV, 1952). The author points out that, for Lull, first and second intentions correspond to substance and relation; in the “creatures” Lull distinguishes between substantial and accidental principles, the former being those belonging to

the “first intention” towards God.

Applying this to the elemental theory, one sees how the elements which concentrate on their proper qualities (or those which they have *per se* and not *per accidens*) become an *exemplum* in nature of “first intentions.” And the “devictio” process, by which the proper defeats the appropriated quality, is an analogy of the process by which, in an Art based on first intentions, virtue devicts vice, truth devicts error.

The elemental pattern would thus correspond, for Lull, to the pattern of a logic based on first intentions.

<sup>2</sup> Lull, *Opera*, ed. Zetzner, Strasburg, 1617, p. 150.

This diagrammatic way of representing the four relations was not invented by Lull but was traditional in logic.<sup>1</sup> The totally contradictory statements are those which are joined by the diagonals of the square. If one goes round the sides of the square one gets on two sides contrary but not contradictory propositions, and on the other two sides agreeing (or subaltern) propositions. "Those differing in quality but not in quantity are *contraries* (if quantity universal), *subcontraries* (if quantity particular). Those differing in quantity but not in quality are subaltern."<sup>2</sup> This diagram is sometimes called the "Square of Opposition."

Is it not probable that Lull may have thought that this ground-plan of logical thinking as a square, the diagonals of which join the totally contradictory propositions whilst the sides join the partially related propositions, bore a striking resemblance to his ground-plan of nature (Fig. 2) as the square of the Four Elements, with the diagonals as the contrasts and the sides as the concords between the elements? To a mind like Lull's, a formal and numerical resemblance of this kind would seem a "similitude" of supernal reality.

The "artista," says Lull, can work much more quickly than the "logicus," owing to the superiority of his method. But—and this is highly significant—before he starts to learn the art he must be well-grounded in *both logic and the natural sciences*:

Homo habens optimum intellectum et fundatum *in logica et in naturalibus* et diligentiam poterit istam scientiam scire duobus mensibus, uno mense pro theorica et altero mense pro practica. . . .<sup>3</sup>

These words at the end of the *Ars Magna generalis ultima* provide a confirmation of the view put forward in this article that another preparation is necessary for the approach to the Art besides the preparation of logic. If only we are sufficiently intelligent and have grounded ourselves sufficiently *in logica et in naturalibus* there is hope that we may learn to do the Art in two months.

But to ground oneself *in naturalibus* as understood by Ramon Lull takes time and is a tricky business. It was for lack of this grounding, I would suggest, that a brilliant logician and historian of logic, like Prantl, who made a very painstaking effort to understand the Lullian Art and to make it work as logic, came to the conclusion that there was no sense in it.

On the other hand, the grounding *in naturalibus* is also insufficient in itself. We must also be grounded in logic, and in logic in the relation to nature in which Lull envisaged it.

This second grounding process will not be even begun in the present article (which has only begun, without finishing, the first grounding process). There is no end of material for the approach to the Art as "natural logic." Probably a fundamental work is the *De naturali modo intelligendi*.<sup>4</sup> Also of primary importance is the *De nova logica*,<sup>5</sup> which is illustrated, of course, by a

<sup>1</sup> See Prantl, *Geschichte der Logik*, ed. cit., II, p. 663.

p. 45.

<sup>2</sup> L. S. Stebbing, *A Modern Introduction to Logic*, London, fifth edition, 1946, p. 59.

<sup>3</sup> Lull, *Opera*, ed. Zetzner, Strasburg, 1617,

<sup>4</sup> See below, Appendix I.

<sup>5</sup> *De nova logica*, Valencia, 1512 (published in a small volume containing three works, one of which is the first edition of the *De ascensu et*

Tree, the "Arbor naturalis et logicalis" (Pl. 18a). Together with these should be studied the *Metaphysica nova et compendiosa*.<sup>1</sup>

Careful study of these and other works may show how it was that the "artista" was able to find the right answers to all questions through "natural reason."

Lull believed that he had an Art of Thinking patterned on the logical structure of the universe, "through which one may know all natural things . . . valid for law, for medicine, and for all sciences, and for theology which I have most at heart. No other Art is of such value for resolving questions, and for destroying errors by *natural reason*."

When the monks were ordaining how Blanquerna was to instruct them in the sciences, it was decided that "he should teach logic, for the learning and understanding of nature."<sup>2</sup> This perhaps suggests that the logical patterns come first and the natural patterns are made to fit on to them, rather than the other way round. At any rate it shows that "logic" and "nature" can be practically indistinguishable in the Lullian world of thought.

Probably of great importance for the philosophical connexion between Lull's logic and his physics would be the *Liber chaos*.<sup>3</sup> In this work, Lull discusses *igneitas, aqueitas, aeritas, terreitas* as "essences" in "chaos," and—apparently as co-existing with these elemental essences in chaos—he treats of the five predicables (*genus, species, differentia, proprietas, accidens*) and the ten predicaments (*substantia, quantitas, relatio, qualitas, actio, passio, tempus, locus, situs, habitus*) of logic. From this work it would again seem as though the logical classifications and the elemental essences have in Lull's mind some close philosophical relationship.

Though nothing is as yet solved in detail, we now begin to understand in a general way why it is that an Art purporting to do some kind of logic uses figures which suggest astrology. This was a "natural logic," and "nature" involved "elemental astrology."

### *Lull and the Arabs*

Lull's knowledge of Arabic, in which language he wrote some of his works, and his close contact with the Arabic world which he desired so earnestly to convert are facts which have long led scholars to seek for Arabic influences in his thought and Art.<sup>4</sup> Since I have no knowledge of Arabic it would be absurd for me to attempt to discuss this problem. I only wish to suggest with humility to Arabic experts that the nature of the problem is perhaps slightly changed, or altered in focus, by the discovery of the importance of elemental astrology in the Lullian Art and the connexion of this with the logic of the Art. Perhaps

*descensu intellectus*). This *De nova logica* is not the same work as the logic published in the Zetzner edition and which contains the diagram of the "Square of Opposition."

<sup>1</sup> See Appendix II, p. 170.

<sup>2</sup> *Blanquerna, ed. cit.*, I, p. 291; trans. Peers, p. 215.

<sup>3</sup> In Vol. III of the Mainz edition.

<sup>4</sup> See J. Ribera, "Orígenes de la filosofía

de Raimundo Lulio," and M. Asín Palacios, "Mohidin," both in *Homenaje a Menéndez Pelayo*, Madrid, 1899; M. Asín Palacios, *Abenmasarra y su escuela*, Madrid, 1914, and *El Islam Christianizado*, Madrid, 1931.

Arabic influence on Lull is denied by J.-H. Probst, *Caractère et origine des idées du Bienheureux Raymond Lulle*, Toulouse, 1912, and *La mystique de Ramon Lull*, Münster, 1914.



this might narrow down the search for Lull's Arabic sources into a search for "natural logic" of this kind among the Arabs.

One of Lull's earliest literary efforts was to translate into rhymed Catalan verse the logic of Al-Gazali.<sup>1</sup> As Carreras y Artau has pointed out,<sup>2</sup> these verses already contain several cardinal points of Lull's doctrine, notably the emphasis on "first and second intentions":

Primera entenció a Deu  
la dona, si vols esser seu;  
la segona entenció es  
si sots Deu ames qualque res. . . .

The same writer has also dwelt on the significance for the genesis of the Art of the fact that, at the end of his rhymed version of this Arabic logic, Lull assigns a letter-notation to its principles:

Per affermar e per neguar  
a.b.c. pots aiustar,  
mudant subject e predicat  
relativament comparat  
en consequent antesedent.  
Ech vos que a. es consequent,  
b. son contrari exament,  
c. es antesedent so say  
d. per son contrari estay:  
a. es animal, home es c.  
b. ab c. en a. no's cové;  
ni a. ab d. en c., so say;  
e per aço dir eu porray  
que a. e c. son una re,  
e per contrari b. e d.,  
e tot qui es c., a. es  
convertir no ho pots per res;  
una causa son a. e b.  
contra la c., qu'axi's cové;  
axi es mul, qui es a. e b.,  
contra la c., mas greu s'enté;  
aço matex pots dir de d.,  
qui es a.b. contra la c.,  
en mul o en tot palafre  
e says que la c. e la d.  
una cosa son contra b.  
contra la a. en moltó,  
perqu'eu say que c. a. d. so  
una causa contra leó.<sup>3</sup>

This sounds as though Lull were proposing to work the "Square of Opposition" (Fig. 3) with an ABCD notation, and if this was his first effort at devising a letter-notation for logic it is, from our point of view, significant

<sup>1</sup> The text has been published, with a valuable introduction, by Jordi Rubio Balaguer, *La logica del Gazzali posada en rims per En Ramon Lull*, in *Institut d'Estudis Catalans Anuari*, Barcelona, 1913-14, pp. 311-54.

<sup>2</sup> *Historia de la filosofia española*, II, pp. 348-356.

<sup>3</sup> *La logica del Gazzali*, p. 352; quoted by Carreras y Artau, *op. cit.*, pp. 355-6.

that it should have been an ABCD notation used on logical “contrasts and concords.”

Al-Gazali was a philosopher and theologian, as well as a logician. It would be worth while to inquire whether Al-Gazali’s natural philosophy contains anything at all resembling Lull’s “elemental astrology,” and whether Al-Gazali’s logic is a “natural logic,” or could have been interpreted as such by Lull.

There is a curious passage in the *Liber de Gentili et de Tribus Sapientibus* which might possibly help as a clue to Lull’s Arabic sources. The Saracen has been describing the joys of the Mohammedan Paradise with its plenitude of food and drink and beautiful girls. He adds that there are amongst the Saracens certain heretics who interpret these joys “morally and spiritually,” saying that Mahomet spoke “metaphorically” of these things. These heretics are “natural philosophers” who have reached their heresy *audiendo logicam et naturas*, and it is therefore now forbidden that anyone should read publicly *naturalia et logicalia*.<sup>1</sup> This seems to suggest that Lull knew of a Saracen sect well-versed in *logica et in naturalibus* the members of which were also mystical theologians well-versed in drawing moral and spiritual analogies from material things. Which might bring one rather close to the methods of the Art, as we have tried to understand them.

Another line to pursue towards the Arabic sources—since we now realize that medicine could be done by the Art and also the great importance of metaphor from plants and medicine in Lull’s exemplarism—would be the origins of Lull’s medicine. He quotes from Avicenna on “elemental grading” in the *Liber Principiorum Medicinae*.<sup>2</sup> Was the use of detailed and precise theories of astrological medicine and its “grading” of the elements as metaphors of moral and spiritual matters habitual in the Arabic world?

Pending expert answers to these questions, it would seem a likely hypothesis that Lull did not invent either elemental astrology,<sup>3</sup> or its use with logic, or his “metaphorical” applications of elemental processes, or, perhaps, the use of “algebraical” and “geometrical” notations and figures. He perhaps learned these methods from the “wise Saracens” themselves, and was applying a good missionary technique in attempting to convert them with arguments which they would understand.

### *Lull and the Augustinian Tradition*

Whether, or not, influenced by the Arabs in his methods, the articles of Lull’s faith were those of Christian orthodoxy. Much admirable work has been done on Lull in relation to the Christian tradition of Augustinian theology<sup>4</sup>

<sup>1</sup> *Liber de gentili et tribus sapientibus*, in the Mainz ed., Vol. II, p. 89.

<sup>2</sup> *Lib. Princ. Med.*, p. 22 (in Mainz ed., Vol. I).

Perhaps one might find parallels in the medical works of Lull’s Catalan contemporary, Arnold of Villanova, who, according to Thorndike (*op. cit.*, II, p. 847) states in one of his medical works that “the proverbs of Solomon show that what learned men have revealed in the world of nature can be adapted by

convenient metaphor to moral instruction.”

<sup>3</sup> Thorndike quotes from Al-Farabi a plea for a general science of nature which should be a “science of action and passion” (*op. cit.*, II, p. 81). Lull’s theory stresses that two elements are active and two passive, so that possibly the kind of science of which Al-Farabi is thinking might be something like Lull’s elemental astrology.

<sup>4</sup> For a full treatment of Lull and the Augustinian tradition, see the article by E.

and I would not touch on this subject were it not that—as in the case of the Arabic influence—the investigations begun in this article may slightly alter the focus of the inquiry.

The endeavour to resume in a few short paragraphs a vast and complicated subject must result in only the most superficial and generalized statements. But it may be said that it is generally accepted that Lull's allegiance in Christian philosophy was to the Augustinian tradition, particularly as developed by St. Anselm. The most notable representative of this tradition in the thirteenth century was the great Franciscan theologian and mystic St. Bonaventura. This tradition carried on what I venture to call the Augustinian exemplarist geometry of the Trinity, the main source of which is St. Augustine's *De Trinitate* (also of course used by the great thirteenth-century Dominican scholastics, though in a different way) in which Augustine discusses man as the image of the Trinity, finding that image particularly in the three powers of the soul which are *intellectus, memoria, voluntas*.

This three-fold division of the soul as an image of the Trinity is one of the most deeply held and constantly recurring of Lull's convictions. In fact, the Art was planned as an image of it. For the Art in its full development was to have three sides; a side on which it worked through *intellectus*, and that is the only side of it discussed in the present article; a side through which it trained *voluntas*, and to that the mystical works relate; and a side through which it trained *memoria* and became a kind of memory system.<sup>1</sup>

In this Augustinian tradition, the approach to God not only through the Book of the Scriptures but also through the Book of Nature—through God as revealed in his creation and in all his manifold and multiform creatures—was very highly developed. This is particularly true of St. Bonaventura, hence the expression which speaks of the famous “Bonaventuran exemplarism.”

In his *Itinerarium mentis ad Deum*,<sup>2</sup> St. Bonaventura follows the rise of the mind to God through the “vestiges” of the divine in creation. Through seeking God in visible things we are led to his “*potentia, sapientia, et bonitas*,” and the work leads up through grades of ascension to the chapter *De speculatione beatissimae Trinitatis in ejus nomine quod est bonum*.

This saint was so deeply imbued with the presence of the divine throughout creation and permeating the thoughts and works of man that he wished to have all the sciences brought under the direct leadership of theology. In his *De reductione artium ad theologiam*<sup>3</sup> he defines the six lights of this life as the light of Holy Scripture, of sensitive cognition, of the mechanical arts, of rational, natural, and moral philosophy. These should all be brought together under the illumination of glory.

In his book on St. Bonaventura, Etienne Gilson has pointed out that it was in this unified world of Augustinian thought that Roger Bacon put forward a universal system of human knowledge and Ramon Lull conceived the project of a universally valid Art:

Longpré on Lull in the *Dictionnaire de théologie catholique*; and E. Platzeck's article, cited above.

<sup>1</sup> Carreras y Artau, *op. cit.*, I, p. 534.

<sup>2</sup> St. Bonaventura, *Opera Omnia*, Quaracchi, 1882-1902, V, pp. 295-313.

<sup>3</sup> *Ed. cit.*, V, pp. 319-25.

Au moment où saint Bonaventure affirme l'unité parfaite de la Sapience chrétienne, Roger Bacon pose les fondements et définit la méthode d'un système unique du savoir humain ; bientôt Raymond Lulle, dont la pensée franciscaine est profondément imprégnée de celle de saint Bonaventure, va concevoir le projet d'une *Combinatoire* dont l'idée n'a de sens que dans un système des connaissances et du monde aussi complètement unifié que celui des augustiniens du XIII<sup>e</sup> siècle.<sup>1</sup>

This was said before it was realized how fundamental a part is played in the Lullian Art by the elemental theory, and its use as the basic *exemplum*. And it is here that I would suggest a new direction for the inquiry into Lull's Christian background, namely that it should be investigated whether there is anything corresponding to Lull's elemental theory in the writings of St. Bonaventura.

St. Bonaventura is deeply interested in the elements in their dependence on the heaven, and he regards this dependence as the working of the divine wisdom in nature :

Conditor mundi corpora coelestia incorruptibilia posuit ad regulandum et regendum corruptibilia. . . .<sup>2</sup>

He discusses primary, or "proper," qualities in the elements and the relation of these to the celestial influences :

Ratio . . . quare superiora in haec inferiora agunt et imprimunt et rerum qualitates intendunt, est, quia sunt corpora nobiliora et praecellentia in virtute, sicut praecellunt in situ ; et ideo, cum ordo universitatis sit, ut potentiora et superiora influant in inferiora et minus potentia, ordini universitatis competit, ut luminaria coelestia influant in elementa et corpora elementaria . . . cum elementa et ex elementis commixta sint secundum primas qualitates alterantia et alterabilia, recte disposuit divina Sapiencia corpora coelestia, utpote luminaria, quae inferiora alterarent sua influentia secundum qualitates primas. . . .<sup>3</sup>

That what is meant by "primary qualities" here is what Lull calls "proper qualities" is clear from the note to this passage in the Quaracchi edition which states that several manuscripts have "qualitates proprias" instead of "qualitates primas."<sup>4</sup> This passage thus corresponds to Lullian theory in its insistence that it is the "proper quality" of an element which is the operative quality. And moreover, since it is the "proper quality" which is here stated to be the vehicle for the influence of the "nobler" and "higher" and "incorruptible" celestial bodies, it might almost be said that there is here in germ an indication of, or a justification for, Lull's use of the "devictio" process—

<sup>1</sup> E. Gilson, *La philosophie de Saint Bonaventure*, Paris, 1924, pp. 116-7.

<sup>2</sup> *Comment. in libros Sententiarum, Opera, ed. cit.*, II, p. 360.

<sup>3</sup> *Ibid.*, *loc. cit.*

<sup>4</sup> (Note 5) Plures codd. *qualitates habent proprias* pro *qualitates habent primas*, scil. caliditatem, frigiditatem, humiditatem, et siccitatem. *Ibid.*, *loc. cit.*

in which the victory comes through the proper qualities—as a moral *exemplum*.<sup>1</sup>

These passages occur in the Commentary on the Sentences of Peter Lombard which contains a very great deal of material on the heaven and the elements. In the *Breviloquium*, St. Bonaventura sums up his astrological-physical theory, in a very decided manner,<sup>2</sup> and explains that the reason why God says nothing openly in the Scriptures about the motions and virtues of the superior bodies or about the mixtures of the elements is because, in the Scriptures, God is concerned to reveal his work of redemption, but not his work of creation, which can be read in the book of nature, or of the “creatures.”<sup>3</sup> This would seem to suggest that the true reading of the “Book of the Creatures” would be to find in it the workings of the *corpora inferiora*, or the elements, in their dependence on the *corpora coelestia*, as ordained by the wisdom of the *Conditor Mundi*.

Other very important works of St. Bonaventura from the point of view of this inquiry are his Commentary on the Book of Wisdom<sup>4</sup> and his *In Hexameron*.<sup>5</sup> Gilson has gathered from these and other works St. Bonaventura’s view of Solomon as the master of all sciences, knowing the truth in ethics and law, in metaphysics, in mathematics, and in physics “puisqu’il connut les propriétés des éléments.”<sup>6</sup>

The wisdom of Lull was popularly associated with the wisdom of Solomon :

Tres sabios hubo en el mundo  
Adan, Salomon y Raymundo.<sup>7</sup>

So runs an old Spanish tag. Perhaps the Franciscans who eagerly adopted the Lullian Art saw in it the wisdom of Solomon about the elements, and the realization of St. Bonaventura’s dream of the regulation of all the sciences under the theology of the Trinity through an Art which knew how to work the fundamental *exemplum* from the Book of the Creatures.

St. Bonaventura held that the principal sciences were medicine, law,

<sup>1</sup> There is nothing about “devictio” in this passage in St. Bonaventura.

<sup>2</sup> *Breviloquium*, Part II, caps. III and IV (*ed. cit.*, V, p. 220 ff.).

Cap. III opens as follows: “De natura corporea quantum ad esse haec tenenda sunt, quod corporalis mundi machina tota consistit in natura caelesti et elementari . . . cum natura corporalis ad perfectionem sui et expressionem sapientiae multiformis primi principii requirat multiformitatem formarum, sicut apparet in mineralibus, plantis et animalibus; necesse fuit ponere aliqua corpora simplicia, quae multiformiter possent misceri ad introductionem formarum multiformium; et talis est natura subiecta contrarietati et haec est elementaris. Necesse etiam fuit, fieri naturam, per quam haberent haec contraria in mixtio conciliari; et talis est natura elongata a contrarietate, cuiusmodi est natura lucis et

corporis supercaelestis.

“Et quoniam mixtio fieri non potest nisi per contraria agentia et patientia, ideo necesse fuit, duplicem contrarietatem fieri in elementis, scilicet quantum ad qualitates activas, quae sunt calidum et frigidum, et quantum ad passivas, quae sunt humidum et siccum. Et quia quodlibet elementum agit et patitur, ideo habet duas qualitates, unam activam et alteram passivam, ita tamen, quod unam principalem et propriam: ac per hoc necesse est, tantum quatuor esse elementa secundum quatuor qualitates praedictas, quadrupliciter combinatas.”

<sup>3</sup> *Breviloquium*, part II, cap. V (*ed. cit.*, V, p. 222 ff.).

<sup>4</sup> *Opera*, *ed. cit.*, VI, pp. 107-233.

<sup>5</sup> *Ibid.*, V, pp. 327-454.

<sup>6</sup> Gilson, *op. cit.*, p. 97.

<sup>7</sup> Quoted by Peers, *Ramon Lull*, p. 402.

astrology, and theology, and that they were in need of reform. Doctors had to reason about the properties of bodies of which some were natural, others accidental; the natural properties were small in number and stable, but the others were innumerable and changing. Jurists gave wrong judgments because they did not base themselves on truth and law, which are absolute and stable terms, but on love of gain in the fleeting world. Astrologers, too, were constantly deceived, because their judgments were intermediary between the permanence of the movements of the heavenly bodies, which would be an excellent object for science, and the mutability of events in the sublunar world. Theologians, too, were not free from error, for although their object was the divine and the eternal, they had to take the temporal into account in prescribing for man. In short, all the sciences are vain and unstable unless taken in their relation to God and viewed in the light of divine illumination.<sup>1</sup>

Medicine, law, astrology, and theology were the sciences which Lull also thought the most important, and he offered new and more precise methods of doing medicine, law, and astrology. And these methods were based on, or fundamentally related to, the divine principles of *bonitas, magnitudo, eternitas, potestas, sapientia, voluntas, virtus, veritas, gloria*, in an Art the "first intention" of which was towards God, and so had a "stability" lacking in ordinary logic. And this Art had been revealed by divine illumination to Lull, the "Doctor Illuminatus." It may be suggested that the Franciscans had some reason to suppose that the Art of Ramon Lull was in conformity with the ideals of St. Bonaventura.

All this should be regarded as an hypothesis for future confirmation or disproof, rather than as in any sense a final statement. But the material from which to prove or disprove it exists, in the huge mass of the works of St. Bonaventura and of Ramon Lull.

Gilson has said of the logic of St. Bonaventura that it appears at first sight to be Aristotelian logic. "Et cependant il est impossible de pratiquer longtemps les oeuvres de ce philosophe sans apercevoir que la logique aristotélicienne est plutôt pour lui un procédé d'exposition qu'une méthode d'invention."<sup>2</sup> He points out that Aristotelian logic is not the right instrument with which to explore "les dessous d'un monde symbolique comme celui de la tradition augustinienne," and that therefore although the syllogism is not excluded from such a tradition, its true logic consists in "le raisonnement par analogie de proportion."<sup>3</sup>

It may be suggested that the Lullian logic may have something of the quality which Gilson is here analysing. Whilst appearing on the surface to be Aristotelian logic, it may, in reality, be something else, a method of exposition rather than of inquiry, or a diagram of proportions having analogies with other proportions, such as, for example, the analogy between the "Square of the Elements" and the "Square of Opposition."

<sup>1</sup> Quoted from Gilson, *op. cit.*, pp. 363-9. (*Opera, ed. cit.*, V, p. 540).  
 Gilson is giving a free rendering of material to be found in the *In Hexaëmeron* (*Opera, ed. cit.*, V, p. 357) and in *Sermo II de reb. theolog.*

<sup>2</sup> *Op. cit.*, p. 219.

<sup>3</sup> *Ibid.*, p. 221.

### *Conclusion*

This article has concluded nothing, for it is not an end but a beginning. The Lullian Art still looms in mystery like some huge unclimbed mountain. One might call the present effort a reconnaissance expedition searching out new routes for some future attempt on the summit. Only a beginning has been made at trying to clear the entrance to some long forgotten tracks of ascent and descent and it would be futile to speculate on the nature of the mountain as a whole until these have been further pursued. They lead into country much of which is unexplored, the mass of the unpublished works of Ramon Lull, and the mass of his published works which is almost equally unexplored from the points of view here suggested. The task of going through all this material is one of extreme difficulty, labour, and complexity, needing expert knowledge in many fields, and I publish the present attempt at mapping out some of the routes in the hope of enlisting co-operation. My aim has been to re-open the problem of Ramon Lull and his Art through suggesting some fresh ways of approaching the problem. To prove these suggestions either right or wrong will involve stirring up, sifting, and bringing to light the Lullian material, and that is bound to be an instructive and illuminating process.

Lullism is no unimportant side-issue in the history of Western civilization. Its influence over five centuries was incalculably great.<sup>1</sup> Lull was much in Italy and manuscripts of his works were early disseminated there and may have been known to Dante. Whether the Lullian geometry influenced Italian architectural theory is, I believe, a question which has never been asked. The Renaissance seized on Lullism with intense enthusiasm; in fact, it is perhaps hardly an exaggeration to say that Lullism is one of the major forces in the Renaissance. Pico della Mirandola acknowledged that his system owed much to the *Ars Combinatoria* of Raymundus.<sup>2</sup> Nicholas of Cusa collected and himself copied Lull manuscripts. Giordano Bruno and Agrippa of Nettesheim were both Lullists. So was John Dee, one of the most influential figures in the thought of Elizabethan England. The Lullian medical theories were known to Paracelsus. In Paris, one of the first homes of Lullism in the fourteenth century, it was intensively revived in the sixteenth century when, through the influence of Lefèvre d'Étaples, a chair of Lullism was established at the Sorbonne.<sup>3</sup> Lullism continued to be enthusiastically cultivated in Paris throughout the seventeenth century, and the system was certainly known to Descartes who acknowledged that it was present in his mind when he conceived his new method of constituting a universal science. There was a large-

<sup>1</sup> A full and valuable account of the influence of Lullism is given by Carreras y Artau, *Historia de la filosofía española*, Vol. II.

<sup>2</sup> In his *Apologia* (*Opera omnia*, ed. Basle, 1572, p. 180).

<sup>3</sup> The holder of the chair was Bernardus de Lavineta whose teaching probably did much to foster the very strong revival of Lullism in 16th-century France, which spread to

England. He was a prolific writer on Lullism. His *Practica compendiosa artis Raymundi Lull*, 1523, treats of Lullism in relation to natural philosophy, mathematics, music, astrology, mechanical arts (including navigation on which Lull was held to be an authority), medicine, metaphysics, moral philosophy, and theology.

scale revival of Lullism in eighteenth-century Germany, the end-product of which was the system of Leibniz. And all this while the "pseudo-Lullian" alchemical tradition pursued its mysterious course.

During the centuries of the living influence of Lullism, the Lullists knew far more than we have known of the ways into the working of the Lullian Art, for they used the manuscripts. Surely it is time that we also should use them and try to learn more of the true nature of this great monument which towered for so long over the European scene—the Art of Ramon Lull.

## APPENDIX I

I give here a "short list" of what seem to me to be the most significant of the works of Lull for further study on the line of approach indicated in this article.

C. Ottaviano in the introduction to his edition of *L' Ars compendiosa de R. Lulle*, Paris, 1930, gives a list of 231 works by Lull. With each work he prints references for the manuscripts of it, printed editions of it (with dates) if such exist, and its number in the previous bibliographies of Littré (*Histoire littéraire de la France*, Vol. 29) and Longpré (article "Lull" in *Dictionnaire de théologie catholique*). Ottaviano's information about the manuscripts is not complete, nor always accurate, but I have found his bibliography a useful guide to the material. After each of the works of Lull mentioned in these appendices, I give in brackets its number in Ottaviano's bibliography.

Fundamental for the printed editions is E. Rogent and E. Duran, *Bibliografía de les impresions lullianes*, Barcelona, 1927. Other important bibliographies of Lull's works are P. Glorieux, *Répertoire des maîtres en théologie de Paris au XIIIe siècle*, Paris, 1933, II, p. 146 ff. (this has some manuscript references not given by Ottaviano); J. Avinyó, *Les obres autèntiques del beat Ramon Lull*, Barcelona, 1935.

A useful short bibliography of modern editions and of books and articles on Lull has been provided by M. Batllori, *Introducción bibliográfica a los estudios lulianos*, Escuela lulística de Mallorca, 1945.

- (1) *Tractatus Novus de Astronomia* (Ott. 65). Unpublished. This needs to be much more fully studied than was possible in the present article, and to be re-studied in connexion with the following works.
- (2) *Liber de regionibus sanitatis et infirmitatis* (Ott. 93). Published only in *Opera medica*, Mallorca, 1752 (Rogent-Duran, No. 363), a volume which is so rare—there is no copy in the British Museum, the Bibliothèque Nationale, nor in the Vatican Library—that it is easier to consult the otherwise *inédit* works which it contains in manuscripts. There is a manuscript of this one in the Bodleian (Digby 85) which is not mentioned by Ottaviano and was used by Thorndike, *History of Magic*, II, p. 871.

This work connects very closely with the *Tractatus de Astronomia*, and uses an extended form of the ABCD notation (ABCDEFGH).

A fine example of the revolving figure, based on the calendar, which is needed for this work, is given in B. de Lavineta, *Practica compendiosa artis Raymundi Lull*, 1523, p. clxxi. The figure is also given by Bruno in his *Medicina Lulliana* (*Op. lat.*, III, p. 577).

- (3) *Ars compendiosa medicinae* (Ott. 35). Published only in the *Opera medica* of 1752. It gives an important exposition of the "circulariter, quadrangulariter, et triangulariter" theory of the elements.
- (4) *Liber de levitate et ponderositate elementorum* (Ott. 56). Written "at the request of the doctors of Naples." Published only in the *Opera medica* of 1752. Fundamental for Lull's system of elemental "grading," the understanding of which is necessary for the working of the "Elemental Figures" of the Art.
- (5) *Liber de lumine* (Ott. 92). Published only in the *Opera medica* of 1752. It contains astrological material on the elements, connects with the medical works, and is fundamental for the outlook on which the "Doctor Illuminatus" based his Art.



- (6) *Liber principiorum medicinae* (Ott. II). Published in Vol. I of the Mainz edition, see above, p. 130, and Pl. 9.

The study of this essential work must be led up to by the study of numbers 1 to 5 above. Salzinger says in his note (at the end of *Lib. Princ. Med.* in Mainz ed., Vol. I) that the work is not intelligible without the *Tractatus de Astronomia*, the *Liber de regionibus sanitatis et infirmitatis*, and the *Ars compendiosa medicinae*.

It is extremely important for its exposition of the "metaphorical" application of the principles of the kind of astrological medicine which it expounds, to ethics, philosophy, and theology (see above, pp. 130, 154). It connects with the *Liber Principiorum Theologiae*, the *Liber Principiorum Philosophiae*, and the *Liber Principiorum Juris*, which are printed with it in Vol. I of the Mainz edition. (Salzinger was the last arranger of the works of Lull who knew how to group them in accordance with their inner coherence, but he was evidently much hampered in his plans for publication.)

- (7) *Tractatus de nova geometria* (Ott. 75). Recently published from a manuscript at Palma, with an introduction, by J. M. Millas Vallicrosa, *El Libro de la "Nova Geometria" de Ramon Lull*, Barcelona, 1953 (see above, pp. 149-50).

The "new geometry" connects with the *Tractatus de Astronomia* and with Lull's medical works.

It includes brief applications of its principles to the "figures" of camps, towers, churches, palaces, and rooms. The paragraph on churches is illustrated by sketches of churches in manuscripts which I have seen (Ambrosiana, N. 260, Sup., f. 25<sup>r</sup> and Vatican, Ottoboniano, 1278, f. 115<sup>r</sup>).

- (8) *Liber de quadratura et triangulatura circuli* (Ott. 71).

The first part of this work was published by J. E. Hofmann, *Die Quellen der Cusanischen Mathematik I: Ramon Lull's Kreisquadratur in Sitzungberichte der Heidelberger Akademie der Wissenschaften, Philosophisch-historische Klasse*, Heidelberg, 1942.

It is essential to study also the unpublished second part which is introduced by the words "investigabimus principia theologiae, philosophiae, iuris et medicinae et aliquarum scientiarum, quarum principia iam sunt inventa ab ipsis" (quoted by Hofmann, pp. 22-3). This shows that the geometry of the squaring of the circle relates to the Art by which Lull investigated these sciences.

This work was in the possession of Nicholas of Cusa (see M. Honecker, *Lullus-Handschriften aus dem Besitz des Kardinals Nikolaus von Cues*, pp. 252-309 in *Gesammelte Aufsätze zur Kulturgeschichte Spaniens*, ed. M. Honecker, G. Schreiber, H. Finke, Münster, 1937). Nicholas of Cusa possessed a good many other works by Lull and was no doubt fully able to place his "squaring of the circle" in the context of his outlook as a whole, and of his Art.

- (9) *Liber de affatu, hoc est de sexto sensu* (Ott. 52). Unpublished (this work is not published in Vol. V of the Mainz edition, as usually stated, but only referred to on p. 325). In connexion with the sense of sight, this work shows the Lullian geometry in relation to optics and perspective.
- (10) *De naturali modo intelligendi* (Ott. 139). Unpublished. This work discusses "geometrical" and "arithmetical" ways of understanding, and—together with the works on geometry—is fundamental for the Art.

After going through these works (it is essential to begin with the *Tractatus de Astronomia*) the student will be grounded in the geometry of elemental astrology and will be ready to turn to the Arts, particularly to the expositions of the "Elemental Figures" of the *Ars Demonstrativa* in Vols. III and IV of the Mainz edition.

But a strong word of warning is necessary about the use of texts as printed in the Mainz edition. These should always be compared with the manuscripts to make sure that vital portions of the argument have not been omitted. For example, the *Liber de demonstratione per aequiparantiam* (Ott. 105), which was one of the most famous of Lull's "demonstrations" of the Trinity, contains in the text of it printed in Vol. IV of the Mainz edition no mention of the elements or of elemental theory. I have however seen a manuscript of this work (Vat. Ottob. lat. 1405, fol. 98 ff.) which contains (on fol. 100 verso) the first Elemental Figure (see Pl. 10c) in colours.

## APPENDIX II

Having recently examined a fairly large number of codices containing Lull manuscripts in Rome, Milan and Paris, I have formed the impression that the order and arrangement of the works in the manuscript collections brought together by people who understood the inner workings of Lullism may be a matter worth studying. As an example, I give here the context in which the *Tractatus de Astronomia* appears in some manuscript collections in which I have seen it.

*Rome, Vatican, Ottoboniano lat. 1278 (Spanish, 15th century)*

This codex has a richness of content which seems to have escaped the notice of the bibliographers. Ottaviano (No. 178) refers to it as containing a copy of the *De ente absoluto*, but, in addition to that work, it includes fifteen other treatises amongst which are good and hitherto unnoticed copies of the *Tractatus de Astronomia*, the *De nova geometria*, and the *De quadratura et triangulatura circuli*.

- (1) f. 1<sup>r</sup>. *Tractatus de Astronomia*. Complete copy. No figure.
- (2) f. 44<sup>r</sup>. *Liber de aequalitate potentiarum animae in beatitudine* (Ott. 102).
- (3) f. 45<sup>v</sup>. *Liber de investigatione vestigiorum productionis divinarum personarum* (Ott. 102).
- (4) f. 48<sup>r</sup>. *Liber de experientia realitatis ipsius Artis Generalis* (Ott. 121).
- (5) f. 59<sup>v</sup>. *Excusatio Raymundi* (Avinyó, 131).
- (6) f. 67<sup>r</sup>. *Liber de demonstratione per aequiparantiam* (Ott. 105).
- (7) f. 70<sup>r</sup>. *Liber de ente absoluto* (Ott. 178).
- (8) f. 71<sup>v</sup>. *Liber de conveniente fidei et intellectus* (Ott. 125).
- (9) f. 74<sup>v</sup>. *Liber de venatione Trinitatis per substantiam et accidentem* (Ott. 177).
- (10) f. 77<sup>v</sup>. *Liber de praedestinatione et praescientia* (Ott. 137).
- (11) and (12) f. 80<sup>v</sup> to 92<sup>v</sup>. Two short works which I have not been able to identify.
- (13) f. 95<sup>v</sup>. *Liber de levitate et ponderositate elementorum* (see Appendix I).
- (14) f. 103<sup>v</sup>. *Liber de affatu vel de sexto sensu* (see Appendix I).
- (15) f. 107<sup>r</sup>. *Nova et compendiosa geometria* (see Appendix I).
- (16) f. 126<sup>r</sup>. *Liber de quadratura et triangulatura circuli* (see Appendix I).

The student of this imposing volume would begin with the *Tractatus de Astronomia* and end with the *De levitate et ponderositate elementorum*, the *Nova geometria* and the *De quadratura et triangulatura circuli*. Within that framework he would have studied a defence of the "reality" of the Art (No. 4) and a number of theological works, including one of the most important of the demonstrations of the Trinity (No. 6).

*Rome, Collegio Sant Isidoro, 1/108 (Italian, 1603)*

- (1) f. 1. *Tractatus de Astronomia*. Complete copy with revolving figure.
- (2) f. 45. *Ars de Confessio* (Ott. 169).
- (3) f. 48. *Ars juris* (Ott. 222).
- (4) f. 83. *Liber principiorum medicinae* (see Appendix I).
- (5) f. 110. *Ars compendiosa medicinae* (see Appendix I).
- (6) f. 123. *Liber de levitate et ponderositate elementorum* (see Appendix I).

This predominantly medical volume, containing three of Lull's medical works, opens with the *Tractatus de Astronomia*, thus immediately giving the correct context of the Lullian medicine. The inclusion of the *Ars juris* is also not fortuitous since, as we know, in Lull's theory the arts of law and of medicine are closely related (see above, pp. 126, 129).

At the end of the volume is a very fine set of coloured diagrams, including one in colours of the "Tree" of the *Liber principiorum medicinae*. (On the importance of colour in the Lullian diagrams see above, p. 132.)

Milan, Ambrosiana, N. 184 Sup. (Spanish, 1567)

- (1) f. 1. Tractatus de Astronomia. Incomplete copy. No figure.
- (2) f. 37<sup>v</sup>. De figura elementalī (Ott. 27).
- (3) f. 37. Liber chaos (Ott. 18).

Number two is an abbreviated version of the *Liber exponens figuram elementalem Artis Demonstrativae* which is printed in Vol. IV of the Mainz edition. The manuscript gives one of the elemental figures (that shown in Pl. 10c).

Number three, the *Liber chaos*, is printed in Vol. III of the Mainz edition, in close association with the *Ars Demonstrativa*, and works relating to it.

The *Liber chaos* is probably a key-work for the relation of Lull's logic to his physics (see above, p. 159), and it is therefore illuminating to find it in this manuscript linked by the "elemental figure" of the *Ars Demonstrativa* to the *Tractatus de Astronomia*.

Paris, Bibl. Nat., lat. 17827. *Varia opuscula R. Lullii*.

"Ex bibliotheca fratrum minorum magni conventus Parisiensis, 1717"

- (1) f. 2. Tractatus de Astronomia. Complete copy. No figure.
- (2) f. 69. Liber de lumine (see Appendix I).
- (3) f. 90. Declaratio Raymundi edita per modum dialogi contra aliquorum philosophorum (Ott. 67).
- (4) f. 158. Liber de modo naturali intelligendi (see Appendix I).
- (5) f. 179. Disputatio heremitaie et Raymundi super aliquibus dubiis quaestionibus (Ott. 68).
- (6) f. 304. Liber de experientia realitatis artis generalis (Ott. 121).
- (7) f. 342. Liber de acquisitione terrae sanctae (Ott. 123).
- (8) f. 354. Petitio Raymundi in Concilio generali ad acquirendam Terram Sanctam (Ott. 160).
- (9) f. 357. Petitio Raymundi pro conversione infidelium (Ott. 54).
- (10) f. 361. Fons Paradisi divinalis (Ott. 48).
- (11) f. 370. Liber de demonstratione per aequiparantiam (Ott. 105).
- (12) f. 382. Liber de ascensu et descensu intellectus (Ott. 104, and see above, pp. 143-4).
- (13) f. 476. Liber de novis fallaciis (Ott. 120).
- (14) f. 545. Metaphysica nova (Ott. 135).

This volume, which was in the library of the Parisian Franciscans in the eighteenth century, was probably written in the seventeenth century.

To open a selection of Lull's works with the *Tractatus de Astronomia* immediately followed by the *Liber de lumine* would be a very good approach to Lullism. The reader then goes on to study Lull's (very orthodox) views about the articles condemned by Bishop Etienne Tempier in 1277 (No. 3). Amongst other works is one on the demonstration of the Trinity (No. 11), on the Art in relation to the Sentences of Peter Lombard (No. 5), on the "reality" of the Art (No. 6). The selection leads up to a series on crusades, missions, and Lull's schemes for colleges (Nos. 7, 8, 9), and, towards the end, the mystical element is strong (Nos. 10 and 12). The final work on metaphysics (No. 14) connects closely with the *Liber de ascensu et descensu intellectus* (No. 12), for it studies the nine "subjects" of the Art (Deus, Angelus, Coelum, etc.) in order.

It is interesting to notice that of the 14 items in this volume in which Lullism was still being studied in eighteenth-century Paris in a great Parisian library, only 7 have ever been printed (Nos. 2, 3, 5, 9, 11, 12, 14). And of these seven, three (Nos. 2, 12, 14) are in very inaccessible editions.

The Parisian Franciscans also possessed at the same date a volume containing only the *Tractatus de Astronomia*, namely Bibl. Nat. lat. 17822, "Ex Bibliotheca fratrum minorum magni conventus Parisiensis, 1717." This is an incomplete copy with a non-revolving figure.

Paris, Bibl. Nat., lat. 15095, 15096, 15097, 15098, 15099.

*Vita et opera R. Lulli*

These five calf-bound volumes, written in a seventeenth-century hand, were formerly in the library of the Abbey of Saint Victor. Since in order to get the full context in which the *Tractatus de Astronomia* appears here, it would be necessary to list the order of contents in all the volumes, I do not attempt to do this. The *Tractatus* comes in Vol. V (Lat. 15098), beginning at f. 79, with the heading "De astronomia Liber Raymundi Lullii ad usum Caroli Sauvage Canonici St. Victoris Parisiensis," and is a complete copy with no figure.

It is followed (f. 223) by a work entitled *Astronomiae principia* which I have not seen elsewhere and which is almost certainly not by Lull.

The first volume of this collection (lat. 15095) opens with the *De modo naturali intelligendi* followed by the *De experientia realitatis artis generalis* and the *Ars compendiosa medicinae*.

Paris, Bibliothèque Mazarine, MS. 3501 (17th or 18th century)

This volume, which the catalogue (A. Molinier, *Catalogue des MSS. de la Bibl. Maz.*, Paris, 1890, II, p. 111) describes as "Copie et traduction de divers traités de Raymond Lulle" is interesting for its tendency to present Lull in French translations and also because it mingles genuine works with "pseudo-Lullian" alchemical works.

- (1) "Pii heremiteae phantasticus." That is, the *Disputatio Raymundi phantastici et clerici* (Ott. 158). Copy of the edition of Paris, 1479.
- (2) "Le clerc du pieux hermite Raymond, nouvellement traduit en françois." French translation of the preceding.
- (3) De ascensu et descensu intellectus.
- (4) Liber de correlativis (Ott. 144).
- (5) "L'art de discourir de Raymond Lulle, sur toutes sortes de subjects proposez." Perhaps apocryphal.
- (6) Extractum ex libro, cui titulis est: *Sententia definitiva in favorem doctrinae Lullianae*, Palma, 1604, cum tractatu integro *De convenientia fidei et intellectus* (Ott. 125).
- (7) Liber de praedestinatione et praescientia (Ott. 137).
- (8) Liber de confessione. An apocryphal work (see Ott. 169).
- (9) Tractatus de lumine. (The *Liber de lumine*).
- (10) Tractatus de intentione prima et secunda (Ott. 29, and see above, p. 157).
- (11) Parabolae de quinque sapientibus (Ott. 55, and see above p. 154).
- (12) *Ars medicinae* (the *Ars compendiosa medicinae*).
- (13) Liber de astronomia (the *Tractatus de Astronomia*, complete copy, no figure).
- (14) *Lectura super figuris artis demonstrativae* (Ott. 23).
- (15) *De secretis naturae sive de quinta essentia*. A "pseudo-Lullian" alchemical work.
- (16) Lettre d'un philosophe à un abbé de ses amis touchant la pierre philosophale.

Numbers 3, 9, 12, 13 of this collection would prepare the student of this volume for the study of the figures of the Art (14). From the study of the genuine Lullian works he would go on to his "pseudo-Lullian" alchemical interests.

### APPENDIX III

In addition to trying to select for study in the right order the Lullian works which throw light on the Art, there is another approach which should not be neglected, though it must be used with caution, namely "revelations" by Lullists about the Art. I intend to suggest only two examples of these (for here also the material is vast), namely those by two men whom one might call respectively the first and the last Lullists.

*Thomas Le Myesier's "Electorium Remundi" in Paris, lat. 15450*

Thomas Le Myesier, doctor of medicine and canon of Arras, was a personal friend and ardent disciple of Lull's (see Carreras y Artau, *Historia de la filosofía española*, II, pp. 20 ff.). It was he who caused to be made the remarkable set of miniatures illustrating the life and work of Lull which are in the manuscript at Karlsruhe (Pergamenthandschrift 92) and which have been published by W. Brambach (*Raimundus Lullus Leben und Werke in Bildern des XIV Jahrhunderts*, Karlsruhe, 1893) and by Jordi Rubió ("El Breviculum i les miniatures de la vida d'En Ramon Lull de la Biblioteca de Karlsruhe," in *Bulleti de la Biblioteca de Catalunya*, 1916, pp. 73-89). These miniatures show understanding of Lull's symbolism and aims; three of them have been reproduced above (Pls. 13, 14b).

The huge and beautifully written early fourteenth-century codex, Paris, lat. 15, 450 was compiled by Le Myesier. He had a large collection of Lull's works, and he laboured to present the Master's doctrine in three compilations. One was a short introduction, the *Breviculum*, which is in the Karlsruhe manuscript, prefaced by the miniatures. Another was of medium length, the *Electorium medium*. The third was the full-length *Electorium Remundi* which is in Paris, lat. 15, 450. One of the Karlsruhe miniatures (Pl. 18b) shows Le Myesier presenting these three different-sized works to the Queen of France (it seems undecided whether the Queen is Jeanne de Navarre, wife of Philip IV, or Jeanne d'Evreux, wife of Charles IV).

No full analysis of the complicated contents of Paris, lat. 15, 450 can be attempted here. It contains a life of Lull, the earliest catalogue of his works, and the *Electorium Remundi*, an exposition and commentary in which full-length copies of many of Lull's works are embedded. After the long introduction, the first works selected for copying are the *De modo naturali intelligendi* and the *De ascensu et descensu intellectus*.

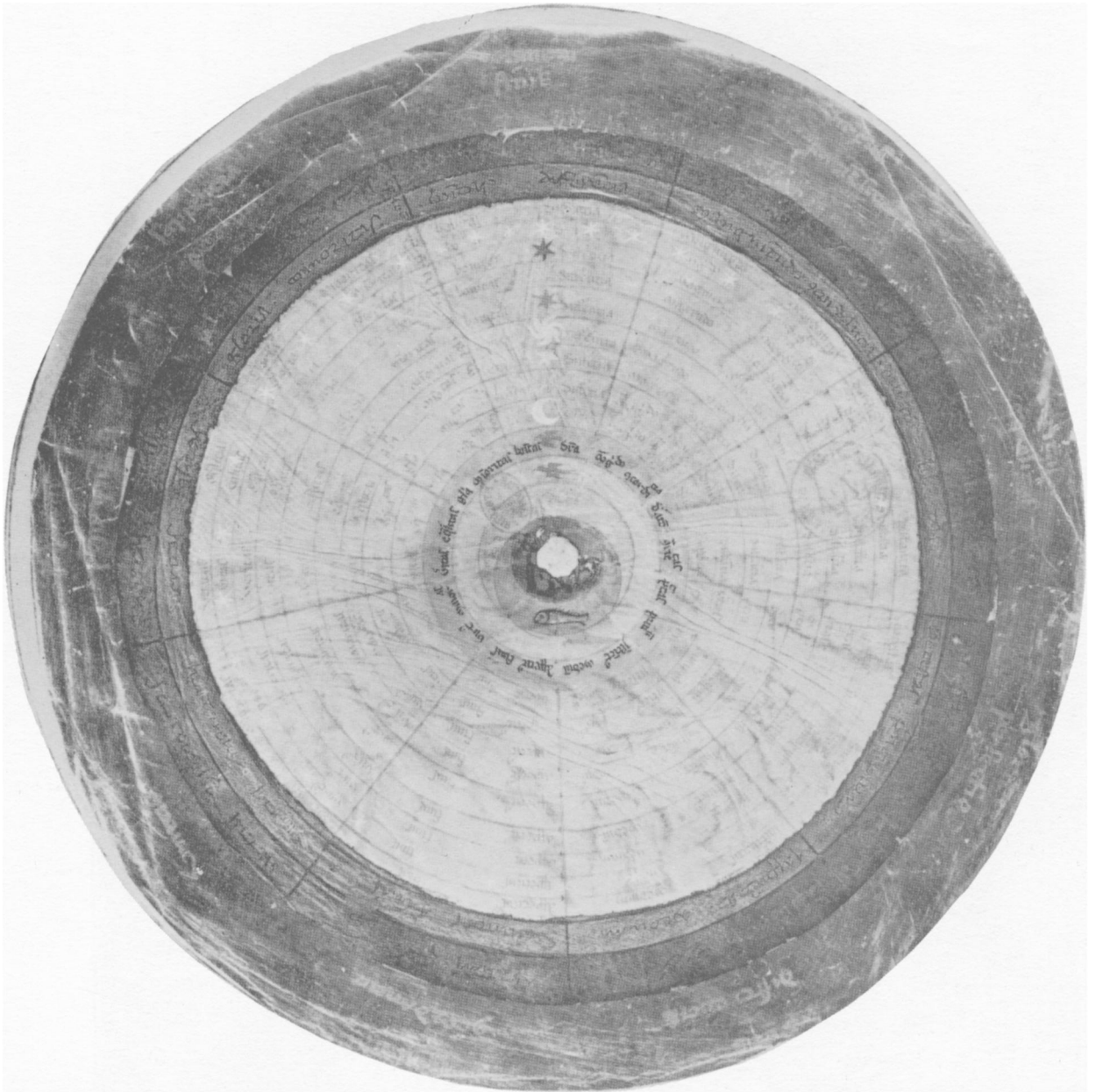
The introductory pages would form the best possible guide to what Lullism was like at its inception. They begin with a long description and explanation of a wonderful diagram (Pl. 19). This shows the angelic sphere in rich gold-leaf, and upon it revolve the spheres of the primum mobile, the empyrean, the chrystalline, then the sphere of fixed stars, and the seven spheres of the planets. At the centre of this universe is the earth, on which is a tree, an animal, and a man, surrounded by the spheres of the other three elements. The eleven super-celestial and celestial spheres, and the four spheres of the elements are drawn on transparent material, so that the gold of the angelic sphere on which they are placed shines through.

This circle of the universe is divided into nine segments, and in the segments are written the two meanings which BCDEFGHIK have, as "absoluta" and as "relata" in the Art. Some of the meanings change in different spheres in careful accordance with Lull's teaching. "Contrarietas" only comes into existence when the principles enter the elemental spheres. "Sapientia" and "Voluntas" are "Instinctus" and "Appetitus" in the heaven (see above, p. 126). Nothing could show more clearly than this diagram that the Lullian Art has a cosmological basis. The accompanying text (f. 91) states that this figure disposes a man "ad intelligendum ardua et subtilitates . . . artis Remundi," that it is like an "alphabetum primum" or an "instrumentum visibile" through which to make the approach to the Art. Why not accept the help which Le Myesier offers, and read what he has to say in the clear and beautiful script of Paris, lat. 15, 450?

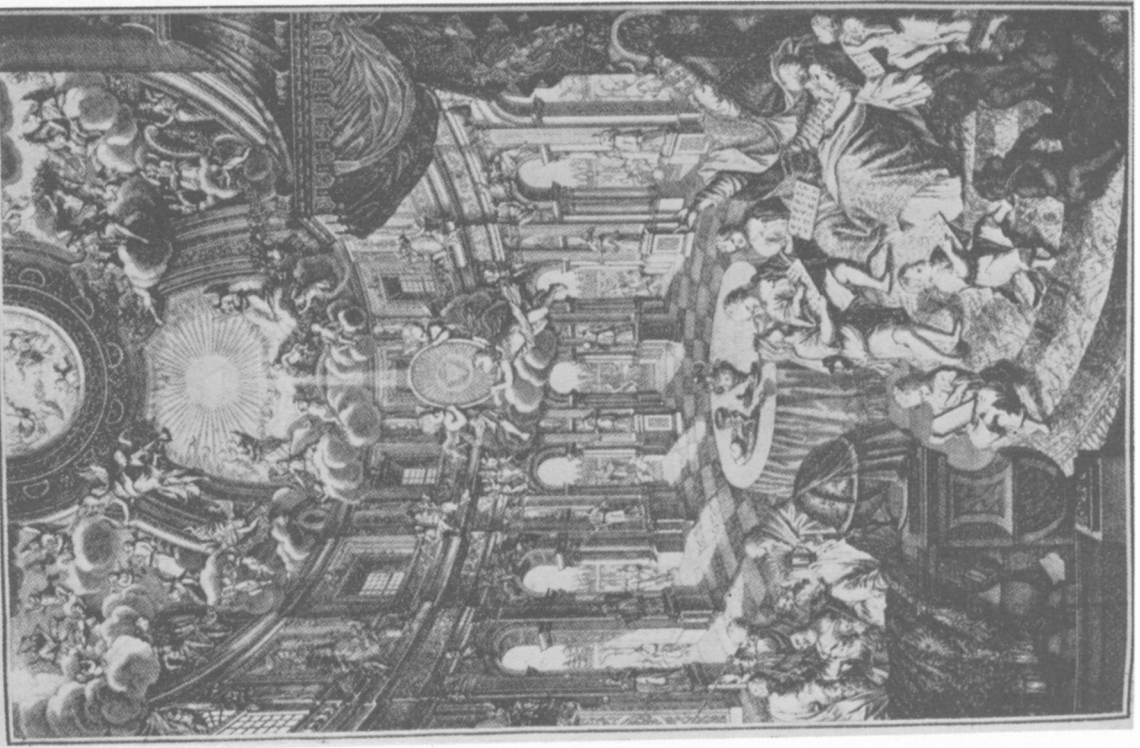
Le Myesier also wrote an introduction to Lull's *Liber de gentili et tribus sapientibus* which, I believe, has not been noticed. It is in Vatican, lat. 9344, f. 191<sup>v</sup> to 203<sup>v</sup>.

*Ivo Salzinger's "Revelatio Secretorum Artis Raymundi Lulli"*

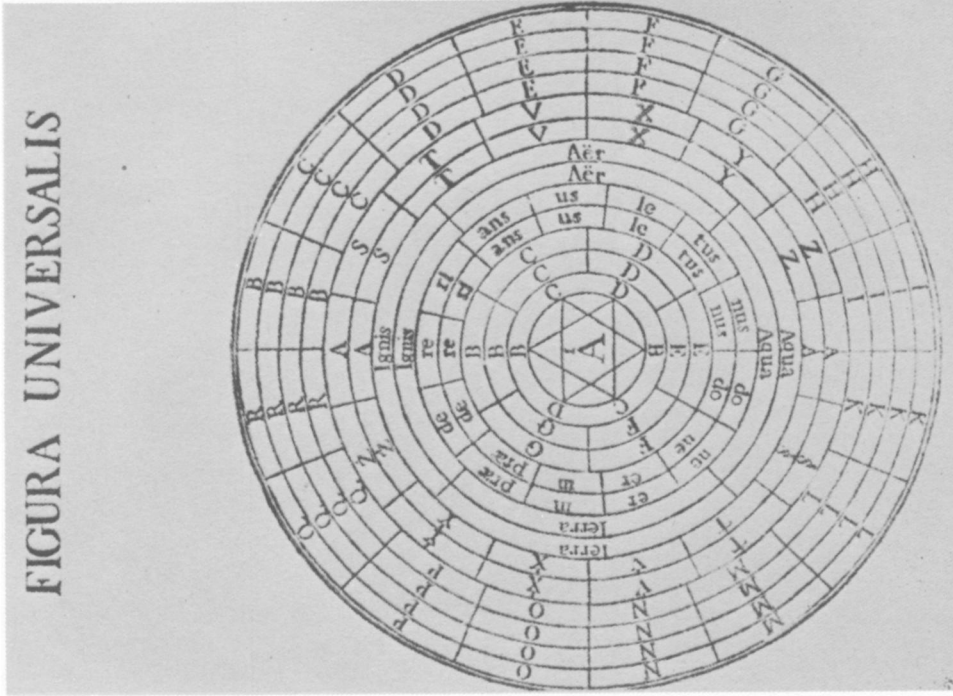
The revival of Lullism at Mainz in the eighteenth century, focused on the preparation of the great edition of Lull's works, was probably the last flare-up of a way of thinking which had exercised so pervasive an influence for five centuries. Salzinger's "Revelatio," in the first volume of the edition, is the latter-day "Electorium Remundi." Like Le Myesier, Salzinger allows the Master himself to speak by quoting long extracts from his works in a frame-work of commentary. He builds up the revelation of the secret from the *Tractatus de*



Cosmological Setting of the Lullian Art, Diagram from Thomas le Myesier's *Electorium Remundi*, Paris, Lat. 15, 45<sup>o</sup>, f. 90<sup>v</sup> (for a description of this diagram see p. 172)



a—The Triumph of the Faith through the Lullian Art, Engraving from Lull's *Opera*, Mainz edition (p. 173)



b—"Figura Universalis" of the *Ars demonstrativa*, From Lull's *Opera*, Mainz edition, III (p. 173)

*Astronomia*, the *Liber de lumine*, the *Liber chaos*, the geometrical works, the medical works, the *Arbor Scientiae*, the *De ascensu et descensu intellectus*, and many others. He had ransacked the libraries of Europe for Lull manuscripts and the material at his disposal may have been almost as extensive as that possessed by Le Myesier in the fourteenth century.<sup>1</sup> A comparison of his revelation with that of Le Myesier would be most instructive for the course which Lullism had taken from start to finish.

Salzinger knew the works of Newton and Descartes, whom he mentions, but still preferred the methods of Lullism to those of the new mathematicians. His discussion of Lullism in relation to contemporary thought is worthy of attention. He was also very well versed on the history of Lullism and any hints which he drops are not to be despised.

Two volumes of the Mainz edition have on their title-pages an engraving (Pl. 20a) which shows the Pope enthroned in a vast church; light streams from the geometrical symbols on the roof and wall (compare these with those at the centre of the *Figura Universalis* of the *Ars Demonstrativa*, Pl. 20b) on to the sacramental vessels on the table; and crowds of people are intently engaged on doing the Lullian Art. Probably this was the last pictorial expression of the old dream of the triumph of the faith through Lullism.

<sup>1</sup> Rubio, *article cited*, p. 77, points out that there is a copy of Paris lat. 15450 at Munich (Munich, lat. 10561-65). This copy may possibly have been taken to Germany at the time of the preparation of the Mainz edition.