"THE TRIPLE ESSENCE OF THE VISUAL PROCESS", OR THINKING WITH DIAGRAMS IN THE MIDDLE AGES AND MODERNITY

"LA TRIPLE ESENCIA DEL PROCESO VISUAL" O PENSAR CON DIAGRAMAS EN LA EDAD MEDIA Y LA MODERNIDAD

JEFFREY F. HAMBURGER
Harvard University
jhamburg@fas.harvard.edu
ORCID ID: 0000-0002-1103-1692

ABSTRACT
Medieval diagrams, in particular, the medieval models for Robert Fludd’s celebrated diagrammatic man in his magnum opus, *Utriusque Cosmi* (1617–1621), offer a way to reconsider the role of the senses in human cognition and experience as they have been construed in recent scholarship on medieval images. Given that diagrams, medieval or modern, have the power to engender as well as merely mimic mental processes, current accounts of the senses in the Middle Ages should not underestimate the informing role of the intellect, at least as posited in the sources, which often resort to diagrammatic imagery, not simply as an emblem but also as an exemplification of the very process of thinking. To embodiment and experience must be added a coherent account of cognition, as medieval accounts, visual and verbal, themselves sought to provide.

KEYWORDS: Robert Fludd, diagrams, microcosm-macrocosm, Trinity, senses, logic, cognition, Johann Lindner of Mönchburg, Magnus Hundt, Peter Gerticz (Peter of Dresden), Gregor Reisch, intension-remission.

RESUMEN
Los diagramas medievales, y en particular los modelos medievales para el célebre hombre diagramado de Robert Fludd en su obra magna, *Utriusque Cosmi* (1617-1621), ofrecen una forma de reconsiderar el papel de los sentidos en la cognición y la experiencia humanas, tal como se ha interpretado en los estudios recientes sobre las imágenes medievales. Dado que los diagramas, medievales o modernos, tienen el poder de engendrar, además de imitar, los procesos mentales, los relatos actuales sobre los sentidos en la Edad Media no deberían subestimar el
papel informador del intelecto, al menos tal y como se plantea en las fuentes; estas a menudo recurren a la imaginería diagramática, no simplemente como un emblema, sino también como una ejemplificación del propio proceso de pensamiento. A la corporeidad y a la experiencia hay que añadir un relato coherente de la cognición, tal y como los propios relatos medievales, visuales y verbales, trataban de proporcionar.

PALABRAS CLAVE: Robert Fludd, diagramas, microcosmos-macrocosmos, Trinidad, sentidos, lógica, cognición, Johann Lindner de Mönchburg, Magnus Hundt, Peter Gerticz [Pedro de Dresde], Gregor Reisch, intención-remisión.

INTRODUCTION

We all know Herb as a man of many parts. An unrivalled exegete of medieval objects and images, over the course of his long career he has embraced an ever-changing constellation of materials and methodologies. Herb’s ability not only to keep pace with the times but also to set scholarly agendas is perhaps best represented by his recent book, *Experiencing Medieval Art*, a reworking of *Seeing Medieval Art* (2004), which in turn originated as an article entitled “The State of Medieval Art History”, published in the *The Art Bulletin* in 1989. *Experiencing Medieval Art* both reflects and embodies the desire on the part of historians of medieval art to address the manifold ways in which medieval works of art engage not simply with historical modes of vision, a subject on which Herb has published extensively, but the other senses as well. To all his work, Herb brings a combination of keen perception and penetrating intellect; this essay, therefore, addresses medieval understandings of the interaction of the two. Recent interest has focused less on the intellect than on embodiment. Without denying the importance of embodiment within discussions of perception, memory, and the imagination, this essay seeks to redress the balance on the basis of diagrammatic reasoning, which, in addition to having served as a means of mapping the topology of brain function, as it continues to do today, also operated in its own right as an epitome of the process of rational thought. Diagrams served in this capacity despite their constituting part of worldviews that strike modern observers as anything but rational.

FLUDD’S DIAGRAMMATIC MAN

I begin with a celebrated image from Robert Fludd’s *Utriusque Cosmi*, which, in the words of the caption at the top of the page, represents “The Triple Essence of the Visual Process” (*De Triplici Animae in Corpore Visione*). Like everything else in Fludd’s work, vision is threefold. What we have here is a crypto-portrait of Herb avant la lettre.¹ (Figs. 1 & 2) It is not the baldness of this gentleman that makes one think of Herb, but rather the workings of his

mind, which, like this image, explore links between visible and invisible worlds and do so, at least in part, through the mediation of diagrams. To quote from *Experiencing Medieval Art*, in many respects a summa of Herb’s interests and insights, diagrams “enabled the embedding of universal principles in renderings of nature and the correlating of conceptual connections with theological concepts”.²


Robert Fludd, who died in 1637, was, among other things, a physician, mathematician, cosmologist, and astrologer. This polymath would have appreciated Herb’s understanding of the diagram’s double potential as an instrument of clarification but also of mystification.3 First published by Theodore de Bry in Oppenheim between 1617 and 1621, his magnum opus in five parts spread over two volumes aspired, in the manner of a medieval encyclopedia (a tradition to which he was deeply indebted), to comprehend all that there was to be known within a world view that cast the visible and invisible worlds as intimately, indeed, systematically linked.4 The work’s full title is The metaphysical, physical, and technical history of the two worlds, namely the greater and the lesser. The two worlds in question are the microcosm, namely, the earth, including mankind and its works and the macrocosm, that is, the universe, include the divine realm.5 The work consists of two parts, of which the first deals with the metaphysical, the second, which is more heavily illustrated, with the physical dimensions of the macrocosm as well as the “natural arts”. In addition to some of the traditional liberal arts (arithmetic, music, and geometry), these include others that reflect the changing status of the mechanical arts, a development rooted in the twelfth-century turn to history, society, and nature, in short, the mundane as well as the divine.6 Among these arts is painting, to which Fludd adds perspective, of relevance to other fields such as surveying. Along the same lines, and reflecting a long tradition of such works appealing to the requirements of rulers, also included are the military arts. Other sections (on the sciences of time and motion, cosmography, astrology,

---


Fludd’s image of the mind’s mechanisms serves not simply as an illustration but, more importantly, a demonstration of the intimate integration of the microcosm (that is, man, in particular, his inner life, understood in terms of the faculties of the intellect, reason, and the imagination) and the macrocosm (that is, the world outside it).\footnote{As noted by S. Berger, Fludd’s image may have been inspired by the considerably more complex thesis print of the Ordo universi by Andrea Bacci and Natale Bonifacio, dated 1581; see S. Berger, The Art of Philosophy: Visual Thinking in Europe from the Late Renaissance to the Early Enlightenment, Princeton, 2017, p. 20 and figs. 10-11. See further H. D. Saffrey, “L’homme-microcosme dans une estampe médico-philosophique du seizième siècle”, Journal of the Warburg and Courtauld Institutes, 57 (1994), pp. 89-122, and S. Siegel, Tabula: Figuren der Ordnung um 1600, Berlin, 2009, pp. 23-27.}

The macrocosm, represented by the set of concentric circles in front of the man’s forehead—labeled successively from the center outward Earth, Water, Heavy Air (Aer grossus), Thin Air (Aer tenuus), and Light or Fire (Lux seu Ignis)—impinges on the inner world of sense and cognition by means of the five senses, each embodied by one of the five lines leading, respectively, to his hand, lips, nose, eye, and ear. Together, the elements—expanded in number from four to five so as to correlate with the five senses—comprehend the sensible world (Mundus sensibilis).\footnote{For the five senses in art, see C. Nordenfalk, “The Five Senses in Late Medieval and Renaissance Art”, Journal of the Warburg and Courtauld Institutes 48 (1985), pp. 1-22, and Immagini del sentire: I cinque sensi nell’arte, ed. S. Ferino-Pagden, Milan, 1996.} The sensible world is, in effect, duplicated by the second

\footnote{See further J. M. E. E. van Sijpesteijn, “The Triple Essence of the Visual Process”, or Thinking with Diagrams… Codex Aqvilarensis 37/2021, pp. 41-78, ISSN 0214-896X, eISSN 2386-6454}
such set of concentric circles, identified as the Imaginary World (Mundus imaginabilis), placed in an intermediary position immediately above the man’s pate. In this case, the circles are constituted not by the elements themselves, but rather, in a Platonic construction, their likenesses or “shadows” (umbrae, as Fludd calls them), which reach from the earth to the heavens in the form of fire, in short, their forms as perceived by the soul.\footnote{A construction similar to, but not identical with, that posited by the doctrine of the spiritual senses, for which see K. RAHNER, “Le début d’une doctrine des cinq sens spirituels chez Origène”, Revue d’Ascétique et de Mystique 13 (1932), pp. 134-140 and 236-237; The Spiritual Senses: Perceiving God in Western Christianity, P. L. GAVRILEK and S. COAKLEY (eds.), Cambridge, 2012; and M. PLESTED, “The Spiritual Senses, Monastic and Theological”, in Knowing Bodies, Passionate Souls, S. A. HARVEY, M. MULLET (eds.), Washington, D.C., 2017, pp. 301-312.}

Higher still stands the world of the intellect, placed more or less directly above the man’s head, wherein dwells the highest reality, namely, the Trinity, which is connected to the mind by the hierarchy of the angels. The inscription, attached to mind (Mens), linking the visible and invisible realms, which itself is further subdivided into spheres of the intellect (Intellectus) and reason (Ratio), reads “whose point connects (literally, penetrates) the soul to the angels.” In its threefold structure, this part of the overall image recalls without replicating the Augustinian conception that saw in the triune faculties of memory, understanding, and will a reflection of the three persons of the Trinity, then combines it with a neo-Platonic conception of creation as a ladder whose rungs permit the soul to ascend to God.\footnote{For the ladder in medieval art, see C. HECK, L’échelle céleste dans l’art du Moyen Âge: une image de la quête du ciel, Paris, 1997.}

\section*{Not Modern: Medieval Antecedents for Fludd’s Diagram of the Faculties}

Fludd’s image presents a fascinating combination of the medieval and the modern. Fludd was a physician, and, in permitting the viewer to penetrate the skull’s surface, his diagrammatic man resembles a dissection diagram, such as that depicting the lobes and cavities of the brain, which opens the chapter “On the Head” in Magnus Hundt’s Anthropologia\don{im} de hominis dignitate. (Fig. 3) The title of Hundt’s handbook, published in 1501, is notable for its humanist emphasis on the “dignity” of man and for being among the first recorded uses of the term “anthropology”.\footnote{For Hundt, see F. J. WORSTBROCK, “Hundt (Hund, Hunt; Canis), Magnus, d. Ä. (Magnus Magdeburgensis, Partheneopolitanus)”, in Deutscher Humanismus 1480-1520: Verfasserlexikon, F. J. WORSTBROCK (ed.), vol. 1, Berlin, 2008, col. 1176-1185, and C. SANTING, “Early Anthropological Interest: Magnus Hundt’s and Galeazzo Capra’s Quest for Humanity”, History and Anthropology 31 (2020), pp. 462-490. On dissection, see K. PARK, Gender, Generation, and the Origins of Human Dissection, New York, 2006; S. KUSUKAWA, Picturing the Book of Nature: Image, Text, and Argument in Sixteenth-Century Human Anatomy and Medical Botany, Chicago, 2012; and R. A. SHOTWELL, “Dissection Techniques, Forensics and Anatomy in the 16th Century”, in The Body of Evidence: Corpses and Proofs in Early Modern European Medicine, F. P. DE CEGLIA (ed.), Medieval and Early Modern Philosophy and Science 30, Leiden-Boston, 2020, pp. 107-118.}

Like Fludd’s engraving, the woodcut crowns its depiction of the head with a schematic representation of the human faculties, Sensus communis, Imaginativa, Cogitativa, and Memorativa, each keyed by a letter to one of the three ventricles (of which the first is divided into two compartments), above which floats the disembodied term Intellectus. The threefold scheme, according to which common sense and the imagination occupy the first ventricle, cogitation the second, and memory the third, derives
directly from Galen. The engraving’s transition from subtle shading rendered with various forms of hatching to the abstraction of geometrical diagrams nicely simulates the shift from the senses to the intellect through the medium of the mind that the image seeks to convey. In short, in looking at these diagrammatic renditions of the mind, the mind of the viewer, working through the senses, recapitulates the very motions that are traced by the various elements within the illustrations.


Codex Aquilarensis 37/2021, pp. 41-78, ISSN 0214-896X, eISSN 2386-6454
In Fludd’s adaptation of this scheme, the image takes on the trappings of a fanciful Rube Goldberg device.\textsuperscript{15} It is superficially reminiscent of the illustrations to Fritz Kahn’s *Das Leben des Menschen* (The Life of Human Beings), an atlas published between 1922 and 1931, which combine figurative realism with Bauhaus functionalism.\textsuperscript{16} (Fig. 4) It also brings to mind the mechanized bodies of Duchamp and Picabia, in which, however, the automatization of the body’s inner operations deconstructs desire.\textsuperscript{17} (Fig. 5) Rather than imitating the body, the body imitates the machine. In effect we are presented with two radically different visions of the mind and its relationship to the world—the mind-body dualism that dominates western philosophy—of which Fludd’s version embodies the idealist version, according to which physical states are really mental, and of which, to the contrary, its modern counterparts embody the materialist, according to which mental states are

\textsuperscript{15} For analogies among the mind, body, and machine in the art of the modern period, see *Ghosts in the Machine*, M. Ginoi, G. Carrion-Murayari (eds.), New York, 2012.


really physical. What the two have in common, however, is a conception of the mind that is captured and conveyed through diagrams, a way of thinking that can be traced back to the Middle Ages and, beyond, to Antiquity. Fludd’s diagram maps the workings of memory; it also makes them memorable. To that extent, it is remarkably self-referential in ways that make one think of one of the perpetual motion machines in whose invention Fludd invested so much energy. In acting on Fludd’s diagram, our own minds set that of its subject in motion, just as the motions of his mind act in turn on ours. Diagrams possess this uncanny capacity to allow ourselves to see our minds at work.

As Herb would be the first to recognize, there is virtually no aspect of this image that is not anticipated by medieval precedents. For all its apparent esotericism, informed by the Paracelsian doctrine of alchemical triads, Fludd’s image, indeed, his worldview, remains rooted in the diagrammatic techniques common to the medieval classroom. Nothing, unfortunately, is known about Fludd’s library. However, his intellectual inclinations and, not least, the illustrations to his work indicate that he was well-versed in medieval diagrammatic traditions. Fludd’s image—in effect, a collection of inter-connected diagrams—testifies to his confidence in the ability of images in general and of diagrams in particular to convey and, no less important, create knowledge.

Fludd’s image draws on the visual rhetoric of anatomical sections such as a well-known illustration from an English medical miscellany, which depicts the seven tunics and three humors of the eye and skull. Fludd, however, dissects the spiritual as opposed to the purely corporeal man. In like fashion, Fludd’s diagram can be unpacked layer by layer so as to unfold a genealogy and typology of medieval diagrammatic method. In this context, more interesting than what the diagrams represent is how they work. In other words, while the content of diagrams is critical, more interesting is what makes them tick.

However ludicrous Fludd’s ideas might seem, his diagrammatic man lays claim to our attention. For once again, we live in a diagrammatic age. Across numerous fields, from cognitive and computer science to mathematics and physics, diagrams enjoy a renaissance. Diagrams prove central in fields such as combinatorics as well as set, graph and network theory, all of which are used by neuroscientists to try to unlock the mysteries of the human mind. Scientists debate the extent to which computers can mimic or replicate brain and mind function (not the same thing), whether by means of algorithms—flowcharts that map step-by-step processes that incorporate feedback loops—or of neural networks, collections of interconnected nodes

18 See most recently M. J. CARRUTHERS, “Geometries for Thinking Creatively”, in The Visualization of Knowledge (as in n. 8), pp. 33-44.
19 For Fludd’s machine, a water mill of a kind that he was the first to propose in 1618, see R. PISANO and P. BUSGOTTI, “Historical and Epistemological Reflections on the Culture of Machines Around the Renaissance: Machines, Machineries and Perpetual Motion”, Acta Baltica Historiae et Philosophiae Scientiarum, 3/1 (2015), pp. 69-87.
20 PERLER, “Robert Fludd” (as in n. 1), pp. 227-228, discusses some of these antecedents.
22 For London, British Library, Sloane MS. 981, see MURDOCH, Album of Science (as in n. 8), no. 215, and P. M. JONES, Medieval Medical Miniatures, London, 1984, pp. 48-51.
capable of machine learning. In some respects, we are not so different from Fludd after all.

The utility of diagrams was not always accepted, even in such areas as Euclidean geometry, to which they might seem indispensable. In 1894, the mathematician David Hilbert famously declared in his *Foundations of Geometry* that “a theorem is only proved when the proof is completely independent of the diagram”. Ever since the 1950s, however, Feynman diagrams have been accepted as, not just nifty representations of subatomic interactions, but mathematically precise and predictive tools that capture the nature of those interactions. It is not simply that diagrams perform a critical role as instruments of explanation. Rather, diagrams have always provided and continue to provide compelling models for how both the mind and nature—Fludd’s two worlds—actually work.

At issue in all this is not just a critical chapter in the history of the diagrammatic method, but, further still, the nature of the diagram itself. Are diagrams representations? If so, of what, precisely? To which a philosopher might add: and what exactly is a representation? Or rather, are diagrams instruments,
tools for thinking that generate knowledge? If that is the case, does the manner in which they do so mimic the actual structure of cognition? Speaking of cognition, why, in keeping with theories of extended cognition, do we find such externalized devices so useful? Are diagrams simply spatial metaphors? Or are they models? Either way, to what extent are their forms culturally specific? These are just a few of the questions that present themselves.

When it comes to the genealogy of Fludd’s diagram, the diagrammatic traditions of the Middle Ages provide some answers. As can be seen from a page from an English astrological, medical, and magical compilation of the late fifteenth century, Fludd’s diagram offers a medieval worldview in modern guise. (Fig. 7) To suggest that such a book might have passed through Fludd’s hands is simply to note that his sources need not have been as esoteric as they are sometimes made out to be. The compendium’s constellation of diagrammatic images invites comparison to Fludd, who constructs his arguments visually as well as verbally. At the center of the large central circle is hell. Proceeding upward and outward, we progress from earth through the other elements, water, air, and fire, to the circuits of the moon, and the other planets. Mercury and Venus are located between the moon and the sun, an arrangement that originated with the late antique commentator on Cicero’s Dream of Scipio, Macrobius. There follow the various firmaments, atop of which sits the Sedes dei, the throne of God. Joining the deity around the circumference of the circle are the nine orders of angels. Filling out the page are a T-O map of the world, with Jerusalem at its center, at the upper right, and diagrams of eclipses.

In the English miscellany, the constellation of elements reflects a tradition of diagrams charting the hierarchy of the universe, such as that found in the De Lisle Psalter, illuminated in London before 1326. Accompanying an excerpt from John Pecham’s commentary on John of Sacrobosco’s De Sphaera, the diagram traces the motions of the stars and planets. As in the medical miscellany, the inclusion of hell at the center lends it a devotional as well as a didactic function.

Dans le diagramme, car l’application d’une telle méthode conduirait à rendre la connaissance indépendante de sa matière. Au contraire, le diagramme cherche l’union intime avec l’objet à connaître. Car le diagramme est ce point de passage.

---


29 For San Marino, Henry Huntington Library, MS. HM 64, see <https://catalog.huntington.org/record=b1841462> (accessed 27.5.2021).


ca. 1310–30 and now bound together with the fragmentary De Lisle Psalter), integrates the angelic ladder into a tree-like structure to provide the viewer with a lattice for contemplative ascent. The eight rewards of heaven, which constitute the central spine, are paired somewhat awkwardly with the eight beatitudes, to the left, and the nine orders of angels (conformed to the pattern by combining the seraphim and cherubim in the uppermost roundel), to the right.

Fludd’s diagram lends the overall scheme a more pronounced philosophical, specifically neo-Platonic cast. The seat of God at the summit of a ladder of all creation, culminating in the
orders of angels up which one can climb, but down which one also can tumble, is rooted in the thought of the Pseudo-Dionysius, the sixth-century Syrian theologian whose writings in Latin translations transmitted neo-Platonism to the medieval West. In a late-twelfth or early thirteenth-century miscellany of northern Italian origin, two such hierarchical schemes, each occupying a full-page and accompanying a short text on the destiny of the soul, outline the path of ascent. (Figs. 8A-8B) The text is based on the symbolism of the numbers three and ten, which also structure the accompanying images. Of these, the first (fol. 89r), constructed with complete circles, was abandoned when the designer recognized that he had not left himself enough space. In the second (fol. 90r), in which the outermost circles are reduced, pars pro toto, to arcs, souls set out from the earth and, having ascended through concentric circles representing the remaining elements (water, air and fire) plus the innermost planets

---

33 Although the influence of the pseudo-Dionysius’ ideas on western art, specifically, on the patronage of Abbot Suger of Saint-Denis, has largely been discredited, specific instances of impact remain; see K. L. Marsengill, “Images of Holy Men in Late Antiquity in Light of Pseudo-Dionysius the Areopagite: Framing Spiritual Ascent and Visualising Spiritual Hierarchy”, in Pseudo-Dionysius and Christian Visual Culture, c. 500–900, F. DELL’ACQUA, E. S. MAINOLDI (eds.), Cham, 2020, 133–176; for Paris, BnF, ms. lat. 3236A, fol. 90r, see BRUDER-EICHBERG (as in n. 30), p. 215.
(the moon, Mercury, and Venus), pass on to higher spheres, denoted by superimposed arcs. Following Ptolemy, these represent, first, the sun and three additional planets (Mars, Jupiter, and Saturn), followed by three spheres that account for the motion of the planets against the fixed stars (the first, denoted by hatching, of those stars, the other two, in motion, to account for the movements of the sun, moon, and planets from west to east or north to south). Having breached this boundary, ten climbers pass through a single sphere denoting physical nature (natura principium corporis), plus four more corresponding to progressively more ethereal parts of the world soul (vegetable, animal, rational, and celestial). The upper levels, identified with the Twenty-Four Elders of the Apocalypse and the nine orders of angels, correspond with Avicenna’s ten celestial intelligences (Metaphysica IX, 4), but (presumably because of scribal error) in reverse order so that, rather than culminating with the cherubim and seraphim, it begins with them. The three circles immediately below the feet of Christ, corresponding to the Platonic conception of νοῦς or intellect, are labeled causatum primum esse creatum primim.
principium omnium creaturarum contines intra se omnes creaturas, material in potentia, and forma in potentia. In lieu of the four evangelists, surrounding the Godhead stand four inscriptions: Creator omnium deum—words that define all that radiates below his footstool as a series of emanations—Causa prima, and, repeated at left and right, voluntas divina.34

Despite Fludd’s rejection of Aristotle, whom he identified as a second Satan, his diagram depends on a conception of the mind, senses, and, more particularly, psychological faculties, Aristotelian in origin (or at least believed to have been in the Middle Ages), that had been popularized in works such as the Margarita philosophica or Pearl of Philosophy by the Carthusian monk, Gregor Reisch, first published in 1503.35 (Fig. 9) Reisch’s treatise offers an introduction to the seven liberal arts, in short, a digest of the typical medieval curriculum, not unlike what one finds in Fludd’s compendium. As in the illustration to Hundt’s Anthropologium, its image of the human head encapsulates the cell doctrine of brain function, according to which a front ventricle serves as the seat of the vis communis or common sense—not what we think of it as being, but rather the place where, as in Fludd’s diagram, sense impressions are gathered. To this are added the middle ventricle, that of the vis cogitativa (the imagination), and the vis estimativa (the faculty of estimative or rational thought), and the rear ventricle, that of the vis memorativa or memory. Combined with common sense in the foremost ventricle are the faculties of fantasy (Fantasia) and imagination (Imaginativa). The middle ventricle contains the vis cogitativa and the vis estimativa, which evaluates sensory perceptions; the rear ventricle, the vis memorativa. Although the linking of the five senses to five external faculties of the soul originated in Aristotle’s De anima and in medieval commentaries on this widely circulated text, the distribution of five faculties over three ventricles is due to Avicenna.36

In the now well-known early thirteenth-century diagram from an English manuscript of the pseudo-Augustinian tract De spiritu et anima, formerly attributed to Alcher of Clairvaux


(d. ca. 1175), the number of ventricles or cells is expanded to a full five.\(^{37}\) (Fig. 10) As Herb notes in *Experiencing Medieval Art*, the image faces a stemmatic text that “diagrams how the soul comprehends sense, spirit, intellect, mind, reason, and memory”.\(^{38}\) Text and image complement one another perfectly, figuring the page, in Herb’s words, “as a kind of mirror that attests to the real things beyond it and hence as an intermediary between the intelligible and higher human understanding”.\(^{39}\) Much the same could be said of Fludd’s figuration of the mind as an intermediary between the two worlds of his title. In the medieval manuscript, the five ventricles, labeled “common sense”, “imagination”, “fantasy”, “estimation”, and “memory”, correspond to the five familiar senses, making a total of ten, five inner and five outer.


\(^{38}\) Kessler, *Experiencing Medieval Art* (as in n. 2), p. 132

\(^{39}\) Ibidem.
In Fludd’s case, the reduced number of three ventricles or regions would have appealed in part because it permitted him to match the mind’s three triads to that of the Trinity above and beyond the brain, represented at the apex of the entire composition, where Father, Son, and Holy Ghost converge, surrounded by the nine orders of angels, themselves three times three in number.

In its interlocking structure, Fludd’s Trinitarian configuration brings to mind the “Shield of Faith” (*Scutum fidei*), which lent the Trinity the self-evident character of a logical demonstration. To the underlying diagram, however, Fludd adds figural elements. In its combination of diagrammatic imagery as a means of representing the three-in-one triangle of inner-Trinitarian relations with sunbursts representing both the Trinity’s ineffability and manifest glory, the imagery employed by Fludd finds ample antecedents in medieval art, as, for example, in the Trinitarian imagery of the *Rothschild Canticles* (Fig. 11), in which an image of the Trinity as triangle is accompanied by a passage from Augustine’s *De Trinitate* VII.iv.7: “When, then, it is asked what the three are, or who the three are, we betake ourselves to the finding out of some special or general name under which we may embrace these three; and no such name occurs to the mind, because the super-eminence of the Godhead surpasses the power of customary speech. For God is more truly thought than He is altered, and exists more truly than He is thought.” God is beyond predication. The man ringing a carillon in the upper left-hand corner of the miniature also resonates with Fludd’s cosmos, whose order echos in the music of the spheres, the subject of Book III of his treatise.

---


As an account of the process of contemplative ascent, Fludd’s diagram reads from the bottom up. In terms of its multiplication of threefold structures, however, it is determined from the top down. Each brain ventricle is defined by a three-part diagram with the soul (Anima) occupying the overlapping area at the center. The soul, therefore, is made up of three powers, each of which is itself threefold in nature. The first and foremost triad is constituted by perception (Sensitiva) and the imagination (Imaginativa). The second, linked to the first by a “worm” physics, and Neoplatonic in its preoccupation with the soul’s ascent from a state of imperfection towards the unity of God. This, in combination with Fludd’s deliberate effort to connect music and the cosmos with the harmony and health of the human body, brings him closer to Renaissance philosophers”. See also E. KNOBLOCH, “Harmonie und Kosmos: Mathematik im Dienste eines teleologischen Weltverständnisses”, Sudhoffs Archiv 78 (1994), pp. 14-40; W. SCHMIDT-BIGGEMANN, “Der Streit um Kosmologie und Harmonie zwischen Robert Fludd und Johannes Kepler”, Buxtehude jenseits der Orgel, M. ZWIEB (ed.), Graz, 2008, pp. 119-150; and J. NORTH, “Macrocosm, Microcosm, and Analogy”, in Imagination in the Later Middle Ages and Early Modern Times, L. NAUTA, D. PATZOLD (eds.), Groningen Studies in Cultural Change 12, Leuven-Paris-Dudley, MA, 2004, pp. 135-151, esp. 144-147.
(Vermis) and subtended by three arcs representing mind (Mens), intellect (Intellectus), and reason (Ratio), is constituted by thought (Cogitativa) and estimation (Estimativa). The threefold elaboration of perception into sensible, imaginative, and intellectual spheres harks back to Augustine’s hierarchy, elaborated in De Genesi ad litteram, of corporeal, spiritual, and intellectual vision. The third ventricle, linked to the second, is in turn constituted by memory (Memorativa) and motion (Motiva) and communicates with the body through the medulla of the spine, as indicated by the long, near vertical column that descends beneath the man’s collar. Although the inscription connecting the mind, intellect, and reason to the divine realm reads “by whose sharpness the soul penetrates towards”, in the accompanying text Fludd, in keeping with tenets of apophatic theology, notes that “these secrets, such as the ineffable mystery of the three essences, have never been grasped by the senses. Nor can the imagination comprehend them, while reason itself, and the height of human intelligence, can scarcely ever obtain such grace, and only with a mighty illumination of mind. Thus it is that reason first ascends by divine speculation to the intellect, and then leaps up from the intellect into the sphere of the mind, so that in its light it sees spiritual things from afar, and by such a vision is transported with intense joy”.

SYLLOGISMS AND THE SENSES

A diagram in a miscellany assembled in Leipzig in the 1470s by the historian Johann Lindner of Mönchburg brings one closer still to the patterns of thought that informed Fludd’s own way of thinking. By patterns of thought, I mean not only the content of his philosophy but also the diagrams that gave it shape and that in many respects come to stand for both the substance and processes of thought itself. The drawing prefaces the Parvulus philosophiae naturalis or Little Natural Philosophy, here attributed to Albertus Magnus but in fact by Peter Gerticz, also known as Peter of Dresden (1350–before 1425). As Annemieke Verboon

44 Fludd, Utriusque cosmi (as in n. 4), vol. 2, p. 218; translation from Godwin, Greater and Lesser Worlds (as in n. 3), 4.12.2.
Fig. 12. Brain ventricles. Peter of Dresden, *Parvulus philosophiae naturalis* in Miscellany of Johann Lindner of Mönchburg, Leipzig, 1470s. London, Wellcome Institute, MS 55, fol. 93r (Photo: Wellcome Institute)
has demonstrated, this text or, more accurately, commentaries on it, while not the original locus of such diagrams, served as the principal vehicle of their development and dissemination. 47 While little more than a primer in Aristotelian natural philosophy or, better, precisely for this reason, the Parvulus served as a university text book. 48 Lindner’s notations, which provide insight into what actually went on in the classroom, reflect the work’s function as a teaching tool, activity only later codified in printed editions. First published in Leipzig by Arnold of Cologne ca. 1495, approximately twenty-five years after Lindner compiled his manuscript, Peter’s work proved popular enough that it went through multiple editions, of which two were published by Wolfgang Stöckel. 49 The commentaries also found their way into print, among them Hundt’s Introductorium in Aristotelis physica. 50 The manuscripts and printed commentaries served the students at the university in Leipzig, where Hundt first studied medicine, then theology, and later taught as part of the Faculty of Arts, of which he became the dean in 1497 and in whose illustrated register of doctoral recipients he appears together with his uncle Andreas, a jurist, and father, also named Magnus, also a theologian and physician and one-time rector, at the head of the list for the summer semester of 1521 (fol. 36v). 51

Lindner’s drawing shares many elements with Fludd’s diagram: the five senses connected by lines, in this case, to the first ventricle of common sense, followed by the cells of imagination, fantasy, estimation, and, finally, memory. 52 The phrase Natura est princicipum et
causa movendi" scrawled repeatedly over the top of the page in the manner of a pen trial in fact reproduces the opening words of Gericz’s “Little Philosophy”, small not only in size but also originality. The heading provides a cue to the interpretation of the image below.\textsuperscript{53} The abbreviation SIFEM, inscribed prominently at the center, makes it easier for the viewer to remember the sequence of its component parts, specifically, $S<\text{ensus}>$, $I<\text{maginatio}>$, $F<\text{antastia}>$, $E<\text{stimativa}>$, and $M<\text{emoria}>$.

Regarding the upper part of the page, Verboon suggests that it served as “scratch paper” and was “used for all kinds of diagrams and pen try-outs”\textsuperscript{54} True: but there is more to be said. Standing at the center of the upper portion of the page is a configuration of words arranged in a square with diagonals connecting the corners: a diagram in disguise, and one, moreover, that is intimately connected, no less than the floating diagrams at the top of Fludd’s image, to the head that stands beneath it. (Fig. 13) No medieval student with a training in the liberal arts, and hence, in the art of logic, would have failed to recognize this configuration as a variant of the square of opposition, a logic diagram included among the manuscript’s illustrations as well as in printed editions of the work that served as the cornerstone of medieval syllogistic.\textsuperscript{55} (Figs. 14A–14B) At the corners of the square of stand, at top, from left to right, the terms \textit{Calidus} (fiery) and \textit{Humidus} (humid), at bottom, \textit{Frigidus} (cold) and \textit{Siccus} (dry), in short, not the four elements per se but rather qualities associated with them. In contrast to the classic square of opposition, which can be traced to the commentary on Aristotle’s \textit{Peri Hermeneias} (\textit{De Interpretatione}) by Apuleius of Madaura, in which, just as fire would serve as the contrary...
of humidity, so too heat would stand as the contradiction of cold, the bottom two terms have been switched.\textsuperscript{56} Instead, the diagonals link heat to dryness, and cold to humidity.\textsuperscript{57} This variant, which links like terms rather than placing them in opposition to one another, appears for a reason, to which I will return.\textsuperscript{58}

Surrounding the square are other quaternities: immediately to the right, the four humors (\textit{sanguis}, \textit{colera}, \textit{melancolia}, \textit{flegma}) and, just below them, the four elements (\textit{ignis}, \textit{aer}, \textit{aqua}, \textit{terra}). Farther to the right, from top to bottom, appear the four winds, tied to the points of the compass (\textit{oriens}, \textit{occidens}, \textit{auster}, \textit{boreas}). Immediately below the square are listed, first, the four ages of man (\textit{Iuventus}, \textit{Adolescentia}, \textit{Senectus}, \textit{Senus}), omitting \textit{Infantia} and \textit{Pueritia} in favor of senility, and the four seasons (\textit{Ver}, \textit{Estas}, \textit{Autumnus}, \textit{Hiems}). At lower left, under the rubric of bodies (\textit{Corpora}), we find homogeneity (\textit{Omogenia}) and heterogeneity (\textit{Eterogenia}), each accompanied by its own form of denomination (\textit{Denominationes}), a term appropriated

\textsuperscript{56} For the oldest instance of the square (Vatican City, Biblioteca Apostolica Vaticana, Fondo Maristi, s.n., fol. 32v) in a manuscript of the text (fols. 28v–30r: \textit{Apulei liber de interpretatione)}, see P. \textsc{Radicotti}, “Romania e Germania a confronto: un codice di Leidrat e le origini medievali della minuscola carolina”, \textit{Scripta}, 1 (2008), pp. 121-144, fig. 1. See also D. \textsc{Londey}, C. \textsc{Johanson}, \textit{The Logic of Apuleius, including a Complete Latin Text and English Translation of the Peri Hemeneias of Apuleius of Madaura}, Philosophia Antiqua 47, Leiden, 1987.

\textsuperscript{57} Cf. the discussion in the \textit{Parvulus philosophiae naturalis}, fol. 8v: \textit{Et sunt quatuor scilicet ignis aer aqua terra que determinantur qualitatibus primis que sunt quatuor scilicet caliditas frigiditas humiditas et siccitas. Ignis est calidus et siccus, aer vero humidus et calidus. Aqua vero humida et frigida. Terra vero frigida et sicca. Quatuor pridicte qualitates sex faciunt combinationes quarum quatro sunt possibiles due vero impossibiles. Differunt autem ille qualitates prime quia non fluunt ab aliis sed ali fluunt ab ipsis, etc.}

\textsuperscript{58} In J. F. \textsc{Hamburger}, \textit{Color in Cusanus}, Stuttgart, 2021, pp. 97-98, I prematurely interpreted the reversal of terms within the square as an error; the error was in fact mine.
from Aristotle’s discussion in the *Categories* of “ante-predicaments” (e.g., equivocals and univocals), material of special interest to Lindner in so far as the manuscript contains two texts that touch on the topic, the first an anonymous *De predicamentis* (fols. 59v–74r), the second, the opening of Peter of Spain’s *Summulae logicales* (fols. 199r–203v), a vast and vastly influential work to which Magnus Hundt also wrote a commentary.59 At the far left stands a stack of terms, bracketed by the phrase *Entium latitudo*, “latitude of being”, a reference to the hierarchy of various species and their proximity to perfection, which here, reading from the top, begins *Prima causa*, *Species angelorum*, *Species humana*, etc. In short, the jottings constitute a *scala entium* within the great chain of being similar to that which accompanied the tract on the destiny of the soul. (cf. Figs. 8A–B)

The illustration to Lindner’s compendium presents the equivalent of a medieval schoolroom scratchpad. Far, however, from random notations, his scribbles represent various sets of terms capable of manipulation within the square of opposition. Similar sets of information are more efficiently and elegantly integrated within a *rota* accompanying a collection of calendrical and astronomical treatises, English or French, from the second half of the thirteenth century.60 (Fig. 15) Its petal-like forms look rather like those of a rose window, but in fact one should imagine the wheel more along the lines of a

59 The *Compendium totius logice* (1493), in fact based on a summary of Peter’s work, the *Parvulus antiquorum*. For Aristotle’s *Categories* in the late Middle Ages, see G. PINI, “Reading Aristotle’s *Categories* as an Introduction to Logic: Later Medieval Discussions about its Place in the Aristotelian Corpus”, in *Medieval Commentaries on Aristotle’s Categories*, Brill’s Companions to the Christian Tradition 10, Leiden, 2008, pp. 145-181.

mechanism with rotating gears. As, if not more important than the individual terms attached to each part of the diagram, which, as we have seen, are interchangeable, are the rules that govern manipulation of the mechanism. The wheel invites the viewer to turn its various parts over in his mind so as to contemplate all the combinations it can generate and, no less important, the principles according to which it does so. In short, like all diagrams, it supplies a tool for thinking.

Many of the terms filling the upper part of Lindner’s page (e.g., the four elements) as well as the relations that govern them (principally homo- and heterogeneity) derive from Aristotle’s discussion of mixtures in *De generatione et corruptione*, which provided the foundation for the science of mereology, that is, the study of the relations of parts to whole and the relation of part to part within a whole.\(^{61}\) Beyond its basic utility as a philosophical exercise, mereology played an important role in scholastic discussions of such metaphysical questions as identity and persistence, which is why Lindner, in keeping with his sources, might have been so interested in it.\(^{62}\) As was Fludd; indeed, the very last section of his work is entitled *De tertiani macro- et microcosmo principiis, hoc est, de causis meteorologicis [sic], & compositioni propinquioribus*. That his focus, at least in this context, is mereology, not meteorology is clear from the opening of his discussion, which, just like Lindner’s notes, focuses on the relationship of heat, dryness, cold, and humidity.\(^{63}\)

---


}\(^{63}\) Fludd, *Utriusque cosmi* [as in n. 4] Vol. 2, section 1, portion 2, part 3, ch. 1, p. 177: “De principiis primaris seu metaphysici atque increatis: Similiter de illis secundaris seu psicis et creatis; ex quibus dueae qualititates primare
No less than Lindner, university students would have required a basic introduction, not only to the terms of such arguments, but also to the relevant methodology. A certain Master Albert (not Albertus Magnus) obliged in a short tract by the name of *Termini physicales*. The tract, which survives in only two manuscripts, almost certainly did not serve Lindner as his source. It nonetheless remains representative of the kind of introduction on which he would have drawn and of which his annotated diagram serves as a summary. The text draws the same twofold distinction of elements according the categories *simbola* and *dissimulba* distinguished below the square of opposition, according to which elements that share a primary quality belong to the first category (*symbola*), those that do not, to the second (*dissymbola*). Albert’s discussion further accounts for the distinction, mapped out farther to the right, between those characteristics that are active (*caliditas, frigiditas*), i.e., those that are primary in that they generate other qualities, and those that are passive or secondary (*humiditas, siccitas*) in that they result from a mixture of primaries.

From all this, it should come as no surprise that Lindner’s miscellany in fact is not medical or principally physiological in nature, but rather a collection of classic texts on logic by Aristotle (*Analytica priora* and *posteriora*), Porphyry (*Isagoge*) and Peter of Spain (*Dialectica*), the latter illustrated with array of logic diagrams, including variants on the square of opposition. (cf. Figs. 14A–14B) Also included is the *Liber de sex principiis* on categories of predication, often attributed, erroneously, as in this case, to the twelfth-century logician Gilbert de la Porée. These texts are conjoined with works by Aristotle on the soul, the senses, and the heavens. In brief, Lindner’s compendium represents precisely the kind of text book with which Fludd was likely schooled a little more than a century after its compilation.

No less than Fludd’s, Lindner’s annotated diagram maps out the correspondences between inner and outer worlds, on the one hand, the world of the senses, on the other, that of

---


the intellect. Far from being incidental to the diagram beneath it, the upper part of Lindner’s page is integral to its operations (as is the verso, which, as in the Cambridge copy of De spiritu et anima, complements the image with a stemmatic text, which in this case provides what appears to be an outline of Thomas Aquinas’ commentary on Aristotle’s Metaphysics, including its consideration of the categories of signification and predication, as well as its listing of the views on the subject of various ancient philosophers, among them Diogenes, Democritus, Empedocles, Anaxagoras, Plato, and Aristotle. (Fig. 16) The recto as a whole conjoins presentations of how the minds works (the rules of reason, laid out in its upper half) and what it works on (sensory data, to whose collection the lower half is dedicated). In fact, both constituents—the inner and outer worlds to which the title of Fludd’s Utriusque cosmi also refers—are present in the upper, purely textual part of the page. Whereas the diagrammatic square stands tout court for the power of reason, the terms that fill it stand for the world of sense impressions that constitute the stuff on which reason and, hence, memory, go to work. The terms that surround and extend the square could easily be substituted for those that already occupy it; in effect, they function like sets of punch cards that can be plugged into a simple computer,
which is how we might think of the square in the first place: a machine for thinking that operates according to the rules of reason.

It is in this context that the previously noted deviation from the square of opposition assumes relevance. The diagonals of the square are customarily framed in terms of contradiction. In Lindner’s version, however, they are labeled, respectively, Ignis inmissio and Aqua inmissio. The word inmissio (apparently, an error for inmissio, the acting of sending in or of allowing to enter) substitutes for intensio (intension), based in part on its contrary term, remissio (remission). The two terms refer to the intensio and remission of forms, a topic discussed at length in the Parvulus philosophiae naturalis and a staple of philosophical debate well into the modern period, but especially in the fourteenth century.68 The debate revolved around the problem of how accidental forms change or intensify (by definition, substances, it was agreed, did not admit of more or less), including how accidental forms or qualities (such as hot and cold) transformed into their contraries according to the general principle articulated in the Parvulus philosophiae naturalis: Alteratio est mutatio a qualitate contraria in qualitatem contrariam vel in mediam.69 Central across various disciplines from theology and philosophy to medicine and natural science, the concepts were critical to understanding processes of change and motion in terms of qualitative increase or decrease and played, it has been argued, an important role in the development of mathematical physics insofar as “the quality itself, not the degree of participation, was taken as the variable.”70 In Lindner’s notes, the bracketed notation to the left of the square also references the problem of change. In terms established by Aristotle in the third book of the Physics, he distinguishes between actus (energeia or actuality) and potentia (dunamis, potentiality), a dynamic of which, as in his square, transformations from cold to hot and hot to cold serve as primary examples.71

---

68 Fols. 5r–5v: Motuum alius naturalis, et est culus principium intra se est natura. Et taliis est in principio remissus et in fine intensus, etc. For a useful summary, see E. Jung, “Intension and Remission of Forms”, in Encyclopedia of Medieval Philosophy: Philosophy Between 500 and 1500, H. Lagerlund (ed.), Dordrecht, 2020, pp. 848-853.


71 For applications of these concepts in late medieval and early modern thought, see D. Des Chene, Physiologia: Natural Philosophy in Late Aristotelian and Cartesian Thought, Ithaca, NY, 2018. See also C. Hughes, “Matter and Actuality in Aquinas”, Revue Internationale de Philosophie, 52 (1998), pp. 269-286.
The notations on the left-hand side of the page prefacing the *Parvulus philosophiae naturalis* regarding the latitude of species also acquire specific resonance in this same context. Lindner employs the term “latitude” in a manner distinct from that which pertains in the debate over the *latitudinis formarum*, part of the discussion over the extent to which properties (i.e., forms) can have degrees.72 Species—in Lindner’s manuscript represented by the different levels on the scale of being—cannot be transformed substantially one into another through increase or decrease; they can only change through the intensification or remission of accidental qualities. Diverse species, even if incomparable per se, could, however, be compared on the basis of a third term that they possessed in common. In these ways problems in ontology are expressed in terms of logical categories and terminology.73

The French natural philosopher Nicole Oresme (ca. 1320/1325–1382) had developed a sophisticated means, akin to graphs, to express change over time, which he called the “doctrine of the configuration of qualities and motions”, but which now are simply named after him, Oresme-diagrams.74 In contrast, Lindner resorts to old-fashioned Aristotelian ideas expressed in an equally antiquated manner: by using the Pythagorean tetrad within the matrix offered by the square of opposition to express relationships among the four elements and the means by which they can be converted one into the others.75 Whereas in the canonical square of opposition, intersecting diagonals define the antagonism between, on the one hand, fire and water and, on the other hand, air and earth, which stand, simultaneously for the forces of corruption and degeneration that push the primordial elements apart from one another, in Lindner’s diagram, the diagonals, rather than denoting contradiction, represent a consequent or entailment (the second half of a hypothetical proposition), a topic derived, at least indirectly, from Boethius’ commentary on Aristotle’s *Peri hermeneias* and that received extended


75 For the tetrad in various diagrams, including some from Fludd, see S. K. Heninger, Jr., *The Cosmographical Glass: Renaissance Diagrams of the Universe*, San Marino, 1977, pp. 81-143.

Codex Aquilarensis 37/2021, pp. 41-78, ISSN 0214-896X, eISSN 2386-6454
treatment in medieval logic. In this configuration, heat and cold as active qualities generate dryness and humidity respectively. The sides of the square, defined by the associated qualities of heat, humidity, dryness, and cold, conjoin the otherwise disparate elements in dynamic harmony and explain how each one, by a series of steps, can be transformed into the others.

These relationships received canonical expression in the Protomathesis (Paris: Gerard Morhy, 1532, fol. 103r) by the French mathematician and cartographer Oronce Finé (1494–1555), of which La sphere du monde, proprement dicte Cosmographie (Paris: Michel Vasco- san, 1551, p. 2) represented an abbreviated translation of the Protomathesis, part III: De cos- mographia, sive mundi sphaera, and of which the paper presentation copy (Cambridge, MA, Harvard University, Houghton Library, MS Typ 57), signed, painted, and illustrated (escritpe, painte, et pourtraictce) by Finé himself and dated 1549, is addressed to Henry II, king of France. (Fig. 17) The central roundel contains an inscription, not included in the Latin original, that reads La figure des elements et premières qualités, et de leur discord et convenance. The terms summa and remissa are rendered as forte (strong) and débile (feeble).


Debates over the nature of change had significant applications in theological discourse, for example, in the controversy over the commensurability of charity as well as that over transubstantiation, according to which the substance, but not the accidents of the offering was transformed. The discourse of intension and remission also had a bearing on Trinitarian theology insofar as the affiliations among the three persons of the Trinity and their distinctive qualities were framed in terms of relations, as was done by Dominicans, or emanations, the terminology preferred by Franciscans. Each approach lent itself to its own form of logical expression. Trinitarian relations were expressed in terms of opposition, as in the classic square, but in this context, as in the Scutum fidei, adapted to a triangle. In the words of Russell Friedman,
“as the relational account of personal distinction developed over time, a stress came to be laid upon the fact that not only are these relations that constitute the persons real, they are also opposed”.82 In contrast, emanation lent itself to expression in terms of identity; in Friedman’s words: “On the emanation account of the distinction or constitution of the persons, the Father, the Son, and the Holy Spirit are the very same divine essence in three irreducibly distinct ways, these three different ways being how each one originates. … Thus three irreducibly distinct emanational properties account for the fact that the three divine persons are emanationally distinct, yet essentially identical”.83

Fludd’s image, which maps the workings of the mind, memory, and the senses, culminates in what might be called a Trinitarian Venn diagram which, employing the language of logic, reconciles the principles of opposition and identity.84 In keeping with the Western doctrine of the Filioque, added to the Nicene Creed in the late sixth century, according to which the Holy Spirit proceeded from the Son as well as the Father, the image locates the Spirit between Father and Son, adding for emphasis immediately below the central zone of intersection: *Ab utroque procedens* (proceeding from both). As in a square of opposition, except now in approximately triangular form, Fludd’s construction diagrams the distinctions between the three persons along lines of intersection that converge at the center even as it simultaneously unites them along the curve of the circumference designated by three inscriptions: DEVs at the top, *Vt genitas* (like the begotten), connecting the Holy Spirit to the Son, and *Vt genitor* (like the father), connecting it to the Father.

**FLUDD’S SYNCRETISM**

Fludd’s fantastic image transforms traditional materials into something particular to his own vision of mankind’s place in between “two worlds, namely the greater and the lesser”, to quote from the prolix title of his *magnum opus*. Like the rest of his thought, his diagrammatic method is syncretic. To the extent he thought of cognition as capable of reflecting divine realities, he was a dyed-in-the-wool neo-Platonist. His faith in diagrams as a means of capturing not simply the products but also the very process of cognition, however, makes him no less an Aristotelian.

Fludd would have been familiar with this way of thinking about diagrams from Aristotle’s *De memoria et reminiscencia*. In a copy that belonged to another neo-Platonist, Nicholas of Cusa—part of a compendium of writings attributed to the Stagirite written in England during the period when his influence on the curriculum was at its height—Aristotle contemplates the figure of man, itself a representation of anthropology, mocked by the monkey in the margin, who both eats and clutches his posterior, a scatological motif that suggests that, rather than rational thought, it is capable only of bodily processes that generate excrement.85 (Fig. 18) All

---

82 Friedman, “Gabriel Biel” (as in n. 80), p. 102.
83 Ibidem.
84 Fludd, *Utriusque cosmi* (as in n. 4) includes other Trinitarian diagrams based on the triangle and circle, e.g., the *Demonstratio Caenum trinitatis*, vol. 1, tract 1, bk. 1, 20.
the illuminator needed to paint this initial were the schematic prompts of which one can still see traces in the lower margin. The juxtaposition of man and beast, however, is more than just play. Aristotle distinguishes between memory, common to mankind and animals, and remembering, which, in his view, is uniquely human. Unlike memory, remembering involves the active recollection of the “unqualifiedly intelligible objects … that form the objects of theoretical reason” and that “include mathematical objects, scientific theorems, and the immaterial essences of perceptible particulars”, all of which explains why the initial portrays him contemplating a naked man (effectively a representation not of any particular person but rather of the universal, mankind). The reason why recollecting belongs to man alone is that recollecting resembles a kind of reasoning. Hence, just as in a syllogism one arrives at a conclusion from some starting points, so in recollecting.

---

Fig. 18. Aristotle, *De memoria et reminiscencia*. Oxford (?), ca. 1250–1275. London, British Library, Harley MS 3487, fol. 197r (Photo: © British Library Board)

---


collecting one reason by a certain procedure that he has seen, or heard, or perceived something in some way before, arriving at this conclusion from a certain starting point. … This process of a person seeking to come upon something else is found only in those who have a natural power of deliberation, because deliberation is also achieved through a procedure of reasoning.

In fact, in making his case, Aquinas, following Aristotle, uses what he specifically designates as a demonstration “of varying proportion by means of a diagram through letters” to argue that the soul derives its knowledge of magnitudes of size and time from proportions extrapolated from sensory data.88

For Aquinas as for Aristotle, diagrams prove critical, not only to the distinction he wishes to draw, in this case, between animals and humans, but also to understanding the very nature of thought itself. Having affirmed that “it is not possible to think without an image”, Aristotle adds: “For the same effect occurs in thinking as in drawing a diagram” (De memoria et reminiscientia 449b31–4501a). Thinking requires sensory perception, but in and of themselves, sense impressions are insufficient. The images have to be processed according to certain rules. It is in this context that the proportionality of diagrams comes in.89 Aristotle does not claim that in order to think one has to draw. Nor does he maintain that drawing diagrams helps with thinking (although it does). Rather, to distinguish thought from imagination and memory (and humans from animals), he underscores the “effect” that thinking and generating a diagram have in common: the requirement to work things through step-by-step. In comparing cogitation to the process of drawing, Aristotle goes beyond asserting that a diagram represents the content of thought; rather, the procedure of producing the diagram resembles and even enables the process of thought. Both, in his view, involve a method of defining and drawing relationships that point towards particular conclusions. If drawing a diagram and the process of thinking represent two sides of the same equation, then it is not simply a matter of thought generating diagrams, but also of diagrams generating thought. Rather than a representation, the diagram structures the patterns according to which one thinks. More than a mere representation, the diagram assumes an active, operative role.90

The long reach of Aristotle’s diagrammatic understanding of cognition shaped Lindner’s crude yet telling annotations, visual as well as verbal, to his compendium on logic. One would think from the modest literature on the image, not to mention the fact that it is housed at the Wellcome Collection, that it illustrated a treatise on physiology, medicine or the senses. Yet, as we have seen, Lindner’s interest lay less in any particular topic than in logic per se, in other

88 AQUINAS, “Commentary on Aristotle” [as in n. 87], p. 183.
89 D. L. SEPPE, “Aristotelian Proportioned Images and Descartes’s Dynamic Imagining”, in Image, Imagination, and Cognition: Medieval and Early Modern Theory and Practice, C. LUTH, C. SWAN, P. BAKKER, C. ZITTEL (eds.), Intersections 55, Leiden-Boston, 2018, pp. 275-299, esp. 281: “In sum, these passages make clear that thinking, which for Aristotle requires phantasms in order to occur, is not simply gaping at a present image. Thinking involves taking the phantasm in a certain way, against one background rather than another. … Imagining requires not just an image, but identifying that image as representing something in an appropriate field or context of concerns. The ability to change that field or context of concern is something that reason does with images.”
90 These observations echo those in J. F. HAMBURGER, Diagramming Devotion: Berthold of Nuremberg’s Transformation of Hrabanus Maurus’ Poems in Praise of the Cross, Chicago, 2020, p. 221.
words, in the rules of reasoning, which, while dependent on data provided by the senses, enabled the mind to process those sense impressions and draw correct inferences from them. The two halves of the page have to be read as a whole.

**CONCLUSION**

At stake in reading Fludd and Lindner’s diagrammatic representations of the human faculties is how each construed the age-old philosophical question concerning the relationship of experience to knowledge. Current scholarship on medieval images emphasizes not just sight but the full sensorium as a framework informing medieval responses (and not just to works of art (and but to much else besides)).

Medieval philosophers, especially of the High and later Middle Ages, also stressed the embodied dimensions of experience, but they never limited their accounts to sensory experience alone. The senses alone did not suffice, whether for memory or for judgment. Peter of Dresden finishes his work, which begins with the same issues of generation and corruption that had preoccupied Aristotle, with a summation of the Aristotelian perspective on these problems: whereas the divine intellect at the summit of the *scalum entis*, in comparison to whom nothing is simpler, “knows itself and things in themselves” (i.e., without the mediation of the senses), the human intellect knows things by abstracting their species from the particulars of sense impressions. In contrast, neo-Platonists assigned the mind a less passive role, seeing it as an active agent, sometimes informed by divine inspiration, that inquired into the world through the senses.

---


92 *Parvulus philosophiae naturalis*, fol. 15r: *Intellectus autem diuinus se ipsum et se ipso res cognoscit, et Sed intellectus humanus res per species abstractas a rebus particularibus per sensum prius cognitis. Sed deum non cognoscit per species abstractas que similitudo abstracta simplicior est isto a quo sit abstraccion. Deo autem nihil est simplicius.*

Fludd’s worldview, encapsulated by his diagrammatic rendition of the *anima sensitiva* scheme, amalgamates both points of view, embodied and disembodied alike. Like its medieval antecedents, Fludd’s figure grants equal importance to the exterior and interior senses, reason and, higher still, the intellect, illuminated by the divine. Filling the top half of the page, the disembodied rules of reason, expressed in language arrayed within a diagrammatic armature, complement the body, including the workings of the mind, below.

Kepler was among the first to dismiss Fludd’s theories as so much hocus pocus or, to use his derisive term, “hermeticism”. His figure, however, still carries some lessons. If Magnus Hundt, who introduced the word anthropology into the modern lexicon, meant by it the whole of the human person, not just the senses but also the intellect, then historical *Bildanthropologie* should enlarge its purview beyond the triad of image, medium, and body (as in Hans Belting’s formulation of its terms) to include mind and memory and, further still, what Fludd and his predecessors would have called soul (for which we might substitute intellect). In this context, diagrammatic procedures played a critical role: they not only emblematized, they also exemplified those patterns and procedures of critical thought that were believed to distinguish human beings from other animals without which the evidence of the senses would have remained unexamined.

A vast gulf separates various medieval from modern understandings of the mind, especially when it comes to issues of embodiment. Kant, however, might have agreed with Fludd at least in so far as the categories as he conceived of them—a priori procedural rules (not images) derived from perception but independent of them, without which sense impressions could not be comprehended—indicated that the senses alone proved insufficient to account for the character of cognition. In this context, one would do well to bear in mind the sophistication of medieval accounts of sensory experience in relation to cognition and mental repre-

---

94 An amalgamation for which there are medieval precedents; see, e.g., M. Karnes, *Imagination, Meditation and Cognition in the Middle Ages*, Chicago, 2011, who argues that Bonaventure represents a synthesis of Aristotelian accounts of cognition with Augustine’s Trinitarian psychology.


98 What counts as evidence is itself a complicated question; see, in relation to the diagram, R. Campe, “Shapes and Figures: Geometry and Rhetoric in the Age of Evidence”, *Monatshefte* 102 (2010), pp. 285–299. The Popperian view according to which in the pursuit of scientific laws conjectural hypotheses subject to empirical falsification prove
Medieval philosophers debated such questions as “do the senses merely transmit information (moderns would say data) to the intellectual faculties?”, and “Are such rational operations as drawing inferences, syllogizing, recognizing patterns and purposes the purview of the intellect alone?”. Today, as in the Middle Ages, whether in whether logic and philosophy or computer and cognitive science, the cognitive and representational dimensions of diagrams remain central to the discussion of such questions. Their importance derives, in part, from their uncanny ability to engender as well as mimic mental processes, in other words, to create as well as merely replicate or reproduce knowledge. Herbert Kessler’s voracious appetite for images, combined with his piercing intellect, reminds us that, even as we look to the future, we should also, like Robert Fludd’s cosmic man, look back and, in so doing, reflect on the ways in which the history of diagrammatic modes of representation forces the question: what exactly do we mean when we speak of the image?