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Throughout the Middle Ages, the senses were conceived as part of a hierarchy of beings subject to the laws governing the created world; man was thus a reflection of the cosmos. Medieval diagrams of the microcosm link the stars, the four primary elements, and the seasons to the ages of man, his body parts, and his bodily humors. A figurative diagram of the microcosm in a twelfth-century German manuscript (fig. 1.1) associates the five senses with the four primary elements. Based on Honorius of Autun's *Elucidarium*, the diagram solves the numerical disparity by relating sight to fire, hearing to the air of the upper firmament, smell to the air of the lower firmament, taste to water, and touch to earth.¹ The desire to inscribe the sensorium—the instrument of human experience—into a visionary notion of the universe governed by numerical and symmetrical harmony is exquisitely medieval and serves as the backdrop for a discussion of sensation in medieval culture.

The domain of sensation—both the foundation of all knowledge and an impediment to spiritual insight—was much broader in the Middle Ages than it is today. Sensory organs were not merely the receptors of raw stimuli; they exerted a fundamental role in shaping memory and imagination, the two most important components of intellectual abstraction in medieval cognitive theory. The senses were thus instruments of faith as well as perception: they provided the raw material from which the intellect could move to higher truths. Dante Alighieri, writing at the end of the Middle Ages, encapsulates the relationship between sensation and knowledge: “It is necessary thus to address your faculties / since only in perceiving through the senses can they grasp / that which they then make fit for the intellect.”² This essay explores the mechanics of that relationship, taking as starting point the manner in which the senses were represented, imaged, or described.

The idea of the microcosm originated in Greek Platonic philosophy. In his *Timaeus*, Plato hypothesized the divine origin of the cosmos, created from preexisting chaos according to immutable mathematical rules that bound the four elements together. Man was crafted with the same elements, but the immortal soul was fastened to a body that was in constant flux, tossed about by the flood of emotions created by sensation. Consequently, the immutable rules at the root of the universe were upset, and man's order was turned topsy-turvy, “like a man upside

down, head propped against the ground with his feet up.”³ To restore man's harmony with the universe, reason needed to teach the soul to emulate the original harmony and restore the primeval perfection lost in the process of embodiment.⁴ The fourth-century philosopher Chalcidius, who introduced Plato's philosophy to the West, expanded on these concepts. He delved into the question of the rational soul and discussed the relation between intelligence and the control of emotions: the stronger the latter, the higher the former, and inversely. Among the senses, sight and hearing were identified as the primary instruments of knowledge. Sight, in particular, was the sense organ best suited to intellectual and rational pursuits.

The hierarchy of sensation is reflected in a ninth-century brooch composed of a hammered silver disk inlaid with niello in the British Museum (facing page and no. 6), the oldest known visual representation of the five senses. The center of the disc is occupied by a lozenge with a man holding two cornucopias. Smaller figures stand in the lozenges at the four corners. Each of the four figures assumes a different posture: one touches his mouth, one gesticulates toward his ear, another touches his hands, and the last holds his hands behind his back while two foliate tendrils rise up toward his nose. The figures are personifications of the five senses, with Sight holding pride of place at the center, surrounded by Taste, Hearing, Touch, and Smell. The disposition of the personifications within a roundel is meaningful; in Platonic philosophy the sphere was a sign of order and divine perfection, and in medieval iconography representations of the cosmos, such as pictures of Time and the Universe, are most often represented as circles. This is the case, for example, in the representation of *annus* with the elements and the seasons in a tenth-century sacramentary in Göttingen (fig. 1.2).⁵ The temporal diagram in the German manuscript and the English brooch present many similarities. Both comprise a central disc surrounded by smaller roundels. In the brooch, these sixteen smaller roundels form the outer border; each is decorated with an image: a winged man, a beast, a bird, and a star; the quadripartite pattern repeats at regular intervals. As in the diagram, the visual organization of the brooch conveys a sense of symmetry and order. The placement of the five personifications in a circle thus speaks to the idea of the orderly subjugation of sensation to

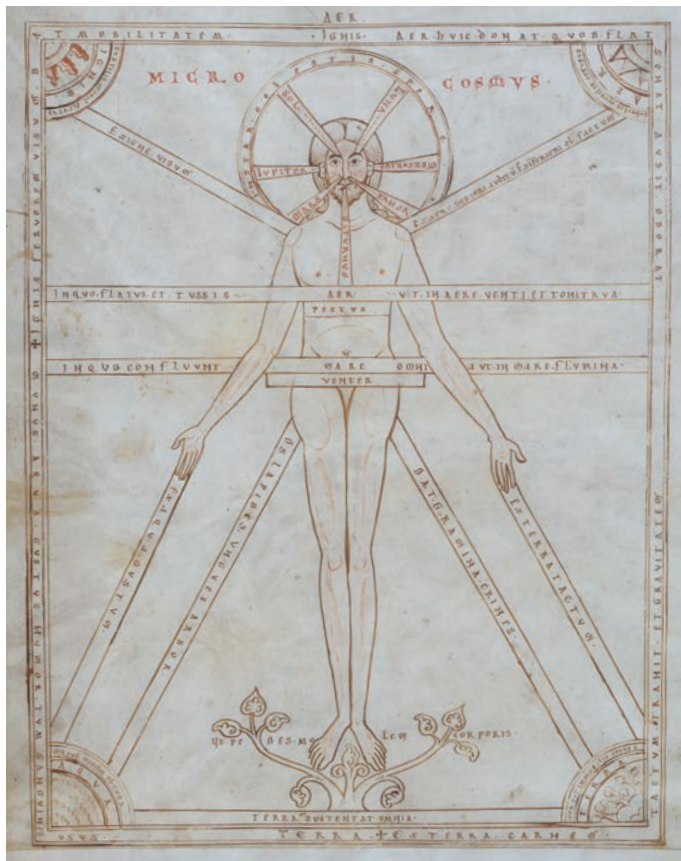


FIG 1.1 Diagram of the microcosm. From the *Glossarium Solomonis*. Germany (Prüfening), 1158. Ink on parchment, 53.5 × 36.5 cm. Bayerische Staatsbibliothek Munich (Clm 13002, fol. 7v)

FIG 1.2 *Annus* with the elements and the seasons. From the *Sacramentarium Fuldense*. Germany (Fulda), ca. 975–80. Ink and paint on parchment. Staats- und Universitätsbibliothek, Göttingen (Ms. Theol. 231, fol. 250r)

reason. Sight reigns supreme as the foremost organ of discernment and intellectual understanding, and it occupies the center. The hierarchical order is underscored by the repeating pattern of figurative roundels on the outer border, which frame each of the four “lesser” senses with four pictures: a winged man, a beast, a bird, and a star. The meaning of these images remains difficult to pin down, but, given the schematic framework of the representation, it is possible that the four sets of symbols allude to the quadripartite division of the cosmos. In his account of creation, Chalcidius, following Plato, discusses the creation of the stars and then turns his attention to the living creatures, which he divides into four types: heavenly gods, winged creatures, water creatures, and land creatures. Each type is connected to one of the primary elements: the heavenly beings with fire, the creatures of the earth that fly with air, those that swim with water, and those that walk with earth. The images of the winged man, the bird, and the animal would conform with this scheme, but the water creatures are missing.

Be that as it may, the presence of the personifications of sensation within a schematic representation of cosmic order expresses ideas

about control and discipline. Given the importance of self-control as a measure of intelligence in Neoplatonic literature, the Fuller Brooch can be construed as an emblem of superior intelligence. In this sense, the jewel functioned as a badge of honor and, by virtue of its sophistication and refinement, would have been appropriate for a man of high status (as presumably the owner and wearer of this brooch would have been). Brooches such as this one were commonly used to fasten cloaks over the shoulder, but the sophistication and refinement of the British Museum example indicate that it was made for a member of the ruling elite. The brooch draws attention to the important belief espoused by medieval thinkers that sensation needed to be disciplined. Following the principles established in Platonic philosophy, Christian writers often described the senses as gateways to the soul. Sensation, however, had to be trained to move beyond carnal desire and aspire to higher knowledge. St. Augustine in particular describes happiness as a “state of order” in which reason dominates the impulses of the soul.⁶ For Augustine, knowledge of God is the only worthy intellectual pursuit, and to achieve that end, the mind must free itself from carnal constraints. To

align the life of the body with that of the spirit, Augustine envisaged the notion of spiritual sensation. According to his thinking, the process of cognition was carried out by the spiritual senses on the basis of the animalistic impulses provided by the bodily senses. Perception occurred not in the body but in the soul, and the sense organs themselves operated through the life force distributed by *anima*, or the passive soul. The raw sensory data thus collected were processed by the *sensus interioris*, located in the brain, and transformed into sensorial images that were stored in memory. Cognition happened when these mental images were brought forth to be analyzed by the soul. Not only memory but also the will to recollect and store sensory images were vital to the process of cognition.⁷ What distinguished man from beast was the capacity to judge sensory impulses, distinguishing good from evil, and to decide whether to act upon them. In Augustine's phenomenological paradigm, therefore, the interior sense was construed as a gateway that allowed or denied access to consciousness, allowing or denying the stockpiling of sensory images in the memory. This idea is visualized in a thirteenth-century copy of Richard de Fournival's (1201–1260) *Bestiaire d'amour*, in which a tower represents memory; its shuttered windows, embellished with an ear and an eye, are the gateways exerted by the senses (fig. 1.3).⁸

Augustine's cognitive philosophy was extremely influential throughout the Middle Ages, and his articulation of spiritual sensation as distinct from bodily perception remained a foundation of Christian theology for many centuries. In particular, the principle that man's



FIG 1.3 The tower of memory. From Richard de Fournival, *Bestiaire d'amour*. France, 1285. Ink, paint, and gold on parchment. Bibliothèque nationale de France, Paris (Ms. français 412, fol. 237v, detail)

ability to reach God was measured by his ability to discipline the senses was a core tenet of medieval theology. A miniature in a late twelfth-century biblical miscellany produced in the monastery of Heilsbronn presents this belief in narrative form (fig. 1.4).⁹ On the right, a naked man emerges from the mouth of Nature to climb a ladder. Each rung is one of the senses, starting with sight and ending with touch. After the last rung, the ladder splits in two: one branch leads to heaven, its four steps marked with the name of the Four Cardinal Virtues. The other leads to hell, and its steps are marked by vices. Two men are depicted on the ladder. One is climbing, helped along by the Seven Gifts of the Holy Spirit emanating from Christ. The second is falling down, pushed by a devil and attracted by the false promises emanating from Satan. The inscription around the picture frame refers to the importance of freeing the mind from carnal desires and of exercising free choice to aspire to God.¹⁰ The Heilsbronn image underscores the importance of sensation as the first step in the soul's path to God.

Contrary to the conventional hierarchy of sensation, touch occupies the highest position in the miniature's hierarchy of the senses. Christian writers generally condemned touch, often considered the most carnal of the senses because of its immediacy, as a certain path to damnation.¹¹ Yet, from the twelfth century onward, the hand began progressively to be seen as an instrument of the soul. Bruno of Segni (ca. 1087–1123), for example, discusses touch as a supreme instrument of knowledge, saying that "touch is like faith: here we can hold and feel God."¹² Balduin of Ford (1185–1190) repeats this concept and compares touching with faith.¹³ It is tempting to tie these associations to the contemporaneous interest in the work of the hands expressed by important theologians such as Hugh of Saint-Victor (1096–1141) and Rupert of Deutz (1075–1130), who valued the mechanical arts as a gift proceeding from the Holy Spirit and as an instrument in the combat against vice.¹⁴ Alain of Lille's metaphorical poem *Anticlaudianus* presents a similar narrative.¹⁵ Composed sometimes between 1081 and 1084, the poem is an apology for mankind's inherent goodness and was written as a counterargument to the negative vision of humanity expressed by the fourth-century poet Claudianus in his *Against Rufinus* (*Contra Rufinum*). Whereas Claudianus had exposed the fallacy and evil nature of man, Alain sets out to describe how Nature came to craft the perfect man with the help of God, the Seven Virtues, the Seven Liberal Arts, and the Five Senses. In the poem, Nature realizes that she needs assistance to craft the "perfect man" and that only God can provide man with a soul. Reason suggests that a messenger be sent to heaven to ask God for a suitable soul. The Virtues elect Prudence as their ambassador. After some resistance, Nature accepts the difficult task. The Virtues ask the Seven Liberal Arts to fashion a cart that will take Prudence to heaven, each according to their area of knowledge. Logic, for example, "taps the very depths of her mind and activates her hand," while Rhetoric "directs her hand under the guidance of her mind."¹⁶

I shall come back to Alain's poem. For the time being, it will suffice to retain the idea of the Liberal Arts as guides for the work of the



FIG 1.4 The ladder to heaven and hell. From *Glosses on The Lamentations of Jeremiah*. Germany (Heilbronn), late 12th century. Ink and paint on parchment, 18.5 × 11.3 cm. Universitätsbibliothek Erlangen-Nürnberg (Ms. 8, fol. 130v)

hands. This notion provides the background with which to understand the assertions of the twelfth-century monk Theophilus, who associated manual skill with the advancement of the soul in his treatise on the arts. Speaking of the decoration of churches, Theophilus assures the reader that he “has committed each thing to the storeroom of his heart” and “examined them one by one with careful experiment, testing them all by eye and by *hand*.”¹⁷ The statement is interesting because it confirms Theophilus’s understanding of skillful hands as not just a measure of craft but also a measure of moral value. In his handbook Theophilus invites his fellow monks to exercise their crafts as a way to apply their right to knowledge, construing artistic talent as an inherited right, which man maintained despite his fall from grace.¹⁸ Man could

regain his likeness to God only if this right was studiously exercised. Like Rupert of Deutz and Hugh of Saint-Victor, Theophilus elevates the mechanical arts to the level of other intellectual faculties engaged in achieving wisdom.

The crafting of liturgical implements embodied these ideas. Within this category, handwarmers present a revealing case. Seldom mentioned in the art historical literature, handwarmers were commonly used by celebrants throughout the medieval period to warm their fingers so as to avoid awkward missteps during the celebration of the mass.¹⁹ They were held in the hand and were filled with fuel, which sat inside a gyroscopic core so that the fuel would not spill. This mechanism is commonly known as Cardan suspension in honor of the sixteenth-century Italian physicist Girolamo Cardano, but it had been known and used at least since late antiquity. The ingenuity of the mechanism made handwarmers special objects, worthy of notice. The thirteenth-century artist Villard de Honnecourt, for example, notes the intricacies of the interior suspension in his journal, explaining its function (fig. 1.5).²⁰ (Villard’s drawing exaggerates the complexity of the mechanism, an implicit admission of its value and significance.) Handwarmers not only ensured dexterity when it was most required; they also celebrated the beauty of *ars mechanicae* and in so doing drew attention to the power of the hands as an agent of faith. The importance of the work of hands as a reflection of knowledge and education is underscored in the decoration of an early thirteenth-century handwarmer in the Musée de Cluny in Paris, embellished with personifications of the Seven Liberal Arts (fig. 1.6).²¹ Throughout the Middle Ages the Seven Liberal Arts were construed as the emanation of philosophy and wisdom. The association is visualized in a twelfth-century drawing, in which Wisdom is shown nourishing the Seven Arts (no. 11). Within this context, the Cluny handwarmer, decorated with images of the arts and the product of skillful and knowledgeable hands, appears as a symbol of *Sapientia*. Thus, the user of the Cluny handwarmer would have appeared to hold all knowledge in his hand.

The equation of the hand with knowledge is also at the basis of late medieval mnemonic diagrams.²² Used by the laity to keep track of long sequences of prayers, these diagrams associated different parts of the hand with different prayers. One example in a fourteenth-century miscellany for lay use illustrates a guide to daily and nightly devotions (fig. 1.7).²³ The diagram is described thus: “The left hand represents the nightly meditation. There are five fingers, and each digit has one motive and three causes why one needs to fear God.”²⁴ Through the hand one learns to fear and respect God. The notion of the hand as a guide to the soul, inherent in this drawing, underscores the importance of touch in the creation and transmission of knowledge, both in the realm of liturgical ritual and that of lay devotion.²⁵

The mnemonic drawing and the handwarmer are symbols of the need to train the hands, industrious hands being less prone to lascivious wandering. Crafts and prayers were antidotes to vice: through them, reason governs sensation. Again, the *Anticlaudianus* illustrates this

association poetically. After the Liberal Arts craft Prudence's chariot, Reason yokes five horses to the cart. These are the Five Senses, described as being of varying beauty and speed: Sight is the most beautiful and swiftest, then comes Hearing, then Smell, followed by Taste, and finally, Touch, the ugliest of the horses. When all is ready, Reason mounts the horse of Sight and restrains him and his four spirited companions. The chariot led by Reason starts its journey upwards, traveling through the celestial spheres until it reaches the firmament, beyond which the horses refuse to proceed. Theology comes to the rescue. Prudence abandons her chariot and proceeds astride the second horse, that of Hearing. They continue their ascent, but again Prudence has to stop because she is blinded by light. She is revived by Faith, who accompanies Prudence for the last leg of the journey and gives her a mirror on which she can see the reflection of things too bright to behold. Finally, they reach God, who accepts Prudence's request and asks Noys (Divine Wisdom) to provide a soul. Prudence can now go back to earth with her precious gift, and Nature can craft the perfect man. But as soon as Nature's masterpiece comes into existence, he draws the envy of the Vices, who wage war on the perfect man. The Virtues come to the rescue, and a bloody battle ensues. The Virtues win, and peace and harmony reign on earth.

Alain's poem was very popular throughout the Middle Ages and its rich imagery remained a source of artistic inspiration until the end of the medieval period. Prudence's voyage to heaven is depicted in an early fifteenth-century German century manuscript in the Wellcome Library, London (fig. 1.8; see also no. 10). The volume is a miscellany of several different texts and pictures, including a glossed Apocalypse, a life of St. John the Evangelist, a series of the *Ars Moriendi*, anatomical drawings, and medical treatises, as well as a theological discussion of the virtues and vices. Taken together, the texts and illustrations of the Wellcome manuscript link the ailments of the body and those of the spirit, offering a cure for both in view of the body's inevitable demise and the soul's life in the hereafter. The image of Prudence's journey serves as a visual summation of Alain's poem, which complements a long series of images dedicated to the vices and virtues. Closely following the poem, the drawing eloquently presents the capacity of education to inform Reason and temper the senses, so that these can be used as instruments of knowledge and faith. Indeed, in the Wellcome manuscript the image of Prudence forms a diptych with the illustration on the opposite folio, which shows a Tree of Life abloom with virtues. The habit of coupling diagrams of the Tree of Life loosely based on Bonaventure's (1217–1274) *Lignum vitae* with images taken from Alain's *Anticlaudianus* was common in late medieval spiritual compendia, intended to underscore the role of free will in harnessing sensory perception to spiritual pursuits. This was not a new idea,²⁶ but unlike the Heilbronn image, Alain's poem and its later illustrations focus less on the sinful potential of the senses and more on the importance of sensory perception in the cognitive process. In her journey to heaven, Prudence acquires knowledge about the working of the cosmos—about rain and thunder, about the movement of stars. The senses are part of the engine (the chariot) that leads



FIG 1.5 Diagram of a handwarmer. From Villard de Honnecourt (French, 13th century), *Album de dessins et croquis*. Ink on parchment, 23.2 × 15.2 cm. Bibliothèque nationale de France, Paris (Ms. français 19093, fol. 9r)

FIG 1.6 Handwarmer with the Seven Liberal Arts. Northern France (Champagne or Picardie?), second quarter of the 13th century. Engraved and gilded bronze, height 4.8 cm; diam. 10.3 cm. Musée de Cluny—Musée national du Moyen Âge, Paris (Cl. 17703)

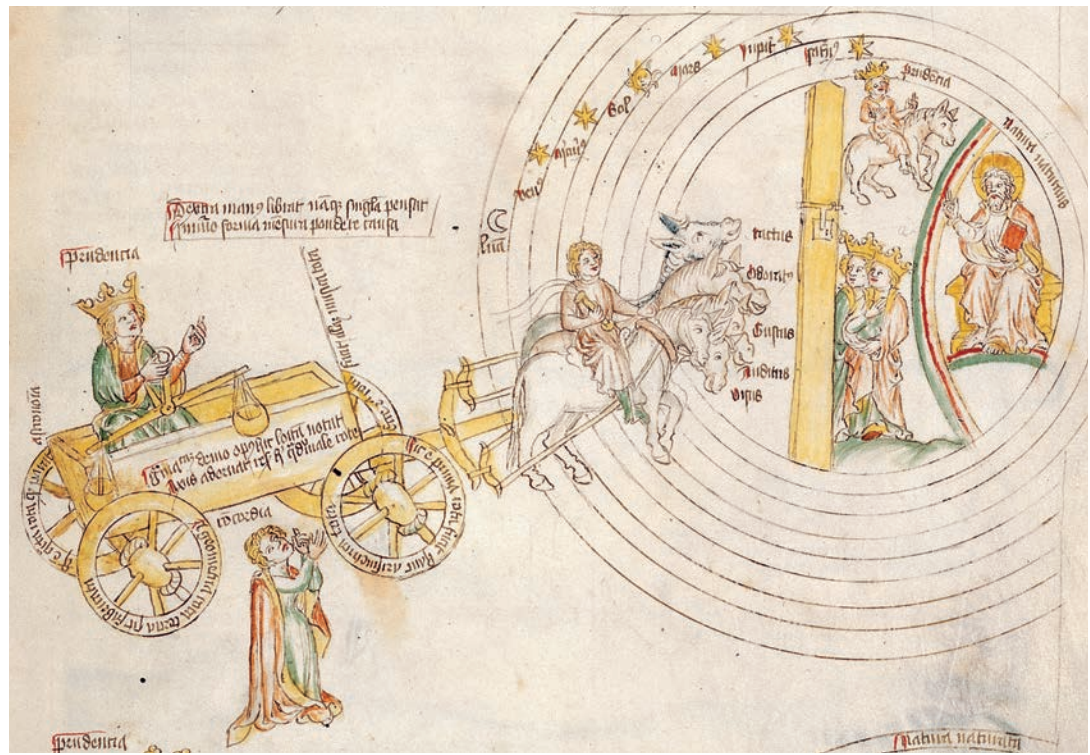
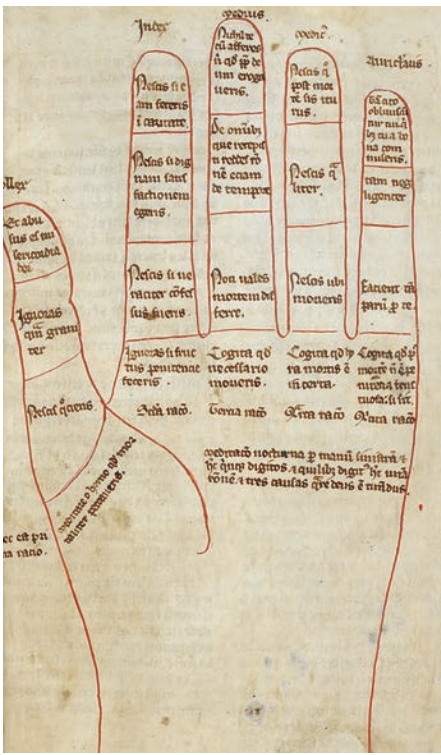


FIG 1.7 Diagram of the hand. From an Anglo-Norman compilation of religious and secular texts, first half of the 14th century. Ink and paint on parchment. The British Library, London (Harley Ms. 273, fol. 111r)

FIG 1.8 Prudence's Journey. From a German Spiritual Compendium, ca. 1420. Ink and paint on parchment. Wellcome Library, London (Ms. 49, fol. 68r, detail)

Prudence into the investigation of natural phenomena. It is only at the end of her quest that the senses (the horses) are left behind, as they cannot contemplate the divine.

The chain of cognition at the basis of Prudence's ascent from sensory stimuli to intellectual abstraction is illustrated in an early thirteenth-century French manuscript in Cambridge (no. 4)²⁷ Bracketed by a version of *De spiritu et anima* by the Pseudo-Augustine and a condensation of Augustine's discussion of free will taken from his *De libero arbitrio*, two elaborate diagrams present the theory of cognition, the role of the exterior and interior senses, and the passions as they were articulated by Robert Grosseteste (ca. 1175–1253),²⁸ an early commentator on Aristotle who remained anchored to Augustine's framework of knowledge as divine illumination. According to Grosseteste, the human soul acts according to three modes: corporeal, sensitive, and rational, the first shared by all living beings and the latter the exclusive trait of mankind. The rational soul has the power to know all things and attain a vision of God, but it is led astray by the flesh and loses the ability to function according to its nature.²⁹ Following Grosseteste, the diagram on the verso describes the tripartite mode of the soul: corporeal (*vegetativa*), sensitive (*sensitiva*), and rational (*rationalis*). Each of these operative modes attends to specific functions and is ranked from the most basic (those that man shares with animals and plants) to the

most sophisticated (those that man can exercise to approach similitude with God). The sensitive soul has two faculties: *apprehensiva* and *motiva*: the first receives sensory stimuli, and the second reacts to those stimuli. The apprehensive faculty operates through exterior and interior senses. The drawing on the opposite page localizes the placement of the corporal and spiritual senses, according to the information provided in the diagram (fig. 1.9). The bodily senses are indicated by prominent sense organs labeled in red: *visus*, *olfactus*, *gustus*, *tactus*, and *auditus*. The head is divided into five chambers distributed over three main regions of the brain: *Sinciput*, *Occiput*, and *Inciput*—what today we call the vertex. The first two, labeled *sensus communis* and *phantasia* are where sensations are felt and sensory images created; the middle two cells (*ymaginativa* and *estimativa*) are where imagination and cognition are exercised, and the third cell (*memoria ut retentiva*) is where memory images are stored.

A similar diagram appears in an English fourteenth-century lay encyclopedia, where it illustrates a chapter titled "How man's head is constructed,"³⁰ which summarizes the works of Thomas Aquinas, Aristotle, and Avicenna (no. 5).³¹ The English diagram is not accompanied by an elaborate didactic summary as is the French one, but the drawing more persuasively represents the connection between the different parts of the cognitive process and the flow of information inside the brain. The five cells are in fact all linked by channels, in the same way that the

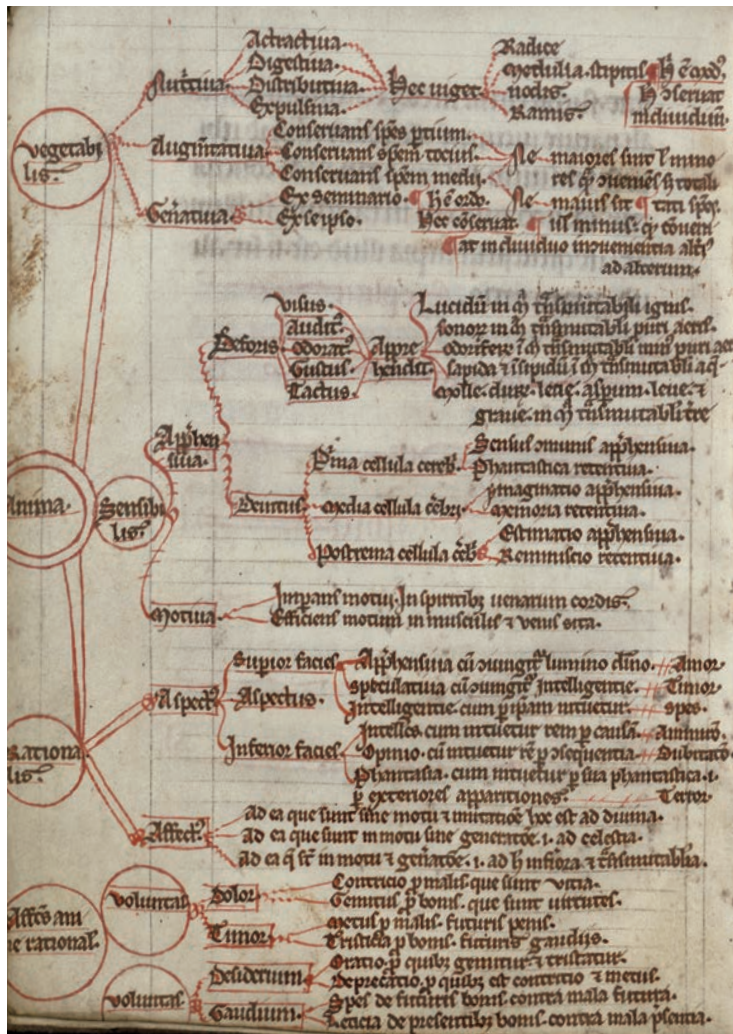


FIG 1.9 The tripartite soul. From a German spiritual compendium, ca. 1420. Ink and paint on parchment. Wellcome Library, London (Ms. 49, fol. 67v)

organ of sight is connected to the *sensus communis* through the optic nerve.³² Indeed, Thomas Aquinas recognized sensory perception as a fundamentally physical process.³³ Accordingly, raw sensory stimuli were collected in the *sensus communis*, then they were transformed into mental pictures and at the same time analyzed and interpreted by estimative faculties, which prepared them for the imagination. These processes formed multimodal sensory images, composed of diverse raw sensory stimuli. The processed mental images were at the basis of human intellect and reasoning, and they were stored in memory, from which they could be retrieved at will. The little lizard above the man's ear indicated the switch that allowed memory images to flow back to the brain when things were remembered. Although the two diagrams are substantially the same, the later one is more persuasive. The earlier diagram presents the activity of the outer and inner senses as completely separate. The bodily senses are isolated from the internal senses (the brain cells), and there is no mechanism for the flow and processing of data, as illustrated in the later picture. In addition, the caricatured identification of the

bodily senses lends them a negative connotation and sets them in opposition to the neat spatial and textual identity of the inner senses. To the contrary, in the fourteenth-century diagram outer and inner senses are represented as equally important to the creation of knowledge. The English drawing is a step closer to being “scientific,” demonstrating an interest in the actual mechanisms of brain functions which are missing from the earlier drawing. The latter remains anchored in the Augustinian notion of sensation as an obstacle to the attainment of true knowledge, which is dispensed through Grace and not derived from the stimuli provided by the material world.

Late medieval encyclopedias document a similar shift. Starting in the thirteenth century, encyclopedias began to focus on the inner workings of nature as a subject worthy of investigation. Earlier works, such as Isidore of Seville's popular *Etymologiae*, compiled examples of natural processes for use as instruments of revelation.³⁴ The aim of the compiler was to unveil the divine truth hidden in the created world, not to explain natural phenomena. For this reason, early medieval encyclopedias closely examine the nature of words, not of things; they are more interested in logic than natural philosophy. The rediscovery of Aristotelian philosophy in the thirteenth century changed this dynamic dramatically. Even when the stated goal remains the pursuit of spiritual knowledge, the authors examine the workings of nature with renewed curiosity, and the path to spiritual enlightenment is enriched with detailed observations about the physical world. In this context, sensory knowledge became a tool for “scientific investigation.” This trend was already emerging in Alain's *Anticlaudianus*: Prudence's journey to heaven is enlivened with discoveries about natural phenomena. But whereas in the twelfth-century poem the desire to know remains just that—a theoretical aspiration akin to revelation—in thirteenth-century encyclopedias it becomes the subject of careful analysis.

The shift was the result of the revolution brought about by the introduction of Aristotelian philosophy to the West.³⁵ By the mid-thirteenth century, the West had at its disposal the complete body of Aristotle's writings, and with it access to the philosopher's method of deductive inference. The introduction of Aristotelianism in the Latin West eroded the monopoly that theology held on intellectual pursuits. Truth was no longer the exclusive domain of exegetes, but of philosophers as well, who sought rational explanations for natural and divine matters through deductive reasoning. Inferences made from observations of the material world became the first step to understanding things of a higher order. Consequently, the Aristotelian revolution was of great import for the understanding of sensation, since perception stood at the root of this process of investigation. “All men desire to know. An indication of this is the delight we take in our senses”; Aristotle's high regard for the bodily senses entered Christian thought and became a tool in the search for God.³⁶

The discussion of smell in Bartholomeus Anglicus's (before 1203–1272) popular encyclopedia *De proprietatibus rerum*, is a case in point.³⁷ After discussing the anatomy of the nose and the mechanics of the

transmission of odors to the brain, Bartholomeus explains how animals use their heightened sense of smell to find food and distinguish good nourishment from poisons. He then continues: “In these therefore and in other conditions of the operations of nature the divine wisdom must be admired, which through these and other such similar things gives us to understand in a certain manner how through material sensible things our heart should little by little be caused to advance to the understanding of those things which are above sense, to the knowledge of spiritual things.”³⁸

In this new theoretical framework, philosophers relied on experiential knowledge as defined by sensation to evaluate matters of both physical and moral nature. Hearing, of course, was of great consequence. Both Plato and Aristotle rank it next to sight as the most intellectual sensation, and Aristotle adds that it is the most important of the senses for acquiring wisdom and developing the mind. Christian theologians attached great importance to hearing, since it was through the word that man acquired knowledge of God. In the Middle Ages scripture was mostly heard: through the dictation of texts, written and read aloud; the recitation of prayers; the singing of hymns; and the vocal articulation of the liturgy.³⁹ But the role of hearing in exploring man’s place in the universe was perceived also at a deeper and more fundamental level as having to do with the sounds that permeated the universe. The origin of this belief lay in the presumption that the heavenly bodies moving through the skies made music, which permeated the universe. This music—*musica mundana* according to the canonical distinction created by Boethius—was inaudible but represented an ideal of harmony that influenced all beings, including men. Consequently, body and soul were thought to be aligned according to musical proportions: what was known as *musica humana*. Like its celestial counterpart, *musica humana* was mostly inaudible, but it could be felt in the pulse as an operation of the soul. For this reason, medieval doctors were schooled in musical theory, so that they could recognize the music of the pulse. Although from a practical standpoint it was difficult to establish just how hearing could be brought to bear in establishing a diagnosis from an inaudible music, the mathematical proportions at the basis of life, and therefore of the pulse, were of consequence, even if they could only be felt. The relationship between hearing and touch exploited by doctors was commonly perceived to be part of the physiology of hearing. In his influential text on sensation, Aristotle draws a comparison between high- and low-pitched sounds and sharp and blunt tactile sensations: “These latter terms [acute and grave in pitch] are used by analogy, from tangible objects. For the acute, that is high, moves the sense much in a little time, while the grave or low moves it little in much time.... And it would seem that there is a certain analogy between the acute and grave to the ear and the acute and blunt to the touch. For that which is acute or pointed as it were, stabs, while the blunt as it were thrusts.” A historiated initial at the beginning of a thirteenth-century French copy of Aristotle’s *Sensu et sensato* in the Bibliothèque publique et universitaire, Geneva, illustrates

this point by depicting touch as a man playing a recorder and a bell (fig. 1.10).⁴⁰ Beyond the iconographic originality, the Geneva initial is interesting because it stresses the synesthetic understanding of the cognitive process, highlighting the fact that the *phantasmata* at the base of the intellective process were multimodal images composed of different sensations.

In the Geneva initial, the five senses are portrayed following the standard hierarchy: Sight and Hearing occupy the higher of two registers, above Smell, Touch, and Taste. Notwithstanding this philosophical tradition, these carnal senses ranked higher than Hearing and Sight on an array of topics. Smell, for example, was important in the investigation of precious stones. In the Aberdeen Bestiary (ca. 1200), agate is identified by the scent of myrrh that it exudes when placed into a fire.⁴¹ Since the bones of saints were often compared to precious stones, it is not surprising to learn that smell could also be used to identify saints. Dead saints smelled of fragrant flowers, since their spiritual purity preserved their bodies from rotting. In a miniature in the life of St. Alban by Matthew Paris, illustrating the *inventio* of the saint’s relics, an attendant to King Offa gestures to his nose while an inscription next to him reads “redolet” (fig. 1.11).⁴² The fragrance exuding from the remains of St. Alban confirms to King Offa, to his retinue, and to the reader of the manuscript that these are indeed the bones of a saint.

The association of saints with fragrant aromas underlies the use of pomanders as reliquaries. Pomanders were objects of adornment commonly used in the later part of the Middle Ages and into the



FIG 1.10 The Senses. Historiated initial from a French manuscript of Aristotle, *Sensu et Sensato*, 13th century. Ink, paint, and gold on parchment. Bibliothèque publique et universitaire, Geneva (Ms. lat. 76, fol. 327r, detail)



FIG 1.11 The discovery of the relics of St. Alban. From Matthew Paris (English, ca. 1200–1259), *Life of St. Alban*, ca. 1250. Ink and paint on parchment. Trinity College, Dublin (Ms. 177, fol. 59r, detail)

Renaissance as portable containers for fragrant substances.⁴³ They were constructed of four compartments that would close around a central shaft, or screw into an “apple.” Each compartment contained an essence. The perfumes were thought to have health benefits, serving as protection against various illnesses, including the plague. Each of the four segments of the apple in a pomander in Munich is dedicated to a saint, whose name and picture are engraved on the side; a figure of the Virgin Mary stands at the central screw (fig. 1.12).⁴⁴ In the Munich pomander, the *Odor dei* of the saints serves as a substitute for natural fragrances. Like the perfumes, the relics would have protected the wearer. Through the medium of smell, the Munich reliquary associates sensuality, spirituality, and medicine. Conversely, a bad odor was an indicator of moral corruption. Sinful rulers exuded the stench of rotten

flesh, as Galerius does in an early fifteenth-century copy of Laurent de Premierfait’s translation of Boccaccio’s *De casis virorum illustris* illustrated by the Boucicaut Master (fig. 1.13; see also no. 14).⁴⁵

In natural philosophy, smell competed with taste, which was often reputed superior for physical examinations. In the anonymous thirteenth-century compendium *Summa de saporibus*, taste is described as that sense “ordained above all the other senses as properly and principally the investigator of the nature of things.”⁴⁶ In a fifteenth-century miniature from the French translation of Bartholomeus Anglicus’s *De proprietatibus rerum*, taste is illustrated as a scene of daily life (the first of its kind), with people eating around a table while a doctor tends to a sick man in the adjacent room.⁴⁷ Most of all, taste was the preferred tool of discernment for matters of the spirit. Sweetness was associated

with God, and its taste heralded mystical unity. The correlation of God with a sweet taste comes from the Bible, specifically verse 9 of Psalm 33: "Taste and see that the Lord is sweet." In his Sermons on the Song of Songs, Bernard of Clairvaux (1090–1153) used these words to argue that spiritual things can be tasted and touched. Bernard's somatic language to describe mystical union with God became very influential in monastic mysticism.⁴⁸ The experience of *dulcedo* thus became the hallmark of spiritual communion with God. Caesarius of Heisterbach (1180–1240), for example, reported that a devout anchorite was rewarded with the taste of sweetness as her saliva turned into honey when she recited long sequences of prayers.⁴⁹ To favor the mystical experience, in fifteenth-century Florence dolls of the Christ Child were sometimes made of sugar so that the devout playing with them and kissing with them would taste his divine presence.⁵⁰

More important, taste was invoked to help the faithful comprehend the true spiritual import of the Eucharist. By the later Middle Ages, the Eucharist was the central sacrament of Christian life.⁵¹ Administered by the clergy alone but offered to the entire community of the faithful, the Eucharist represented the moment when Christ's presence could be experienced by all. Although the laity were encouraged to partake of the Eucharist at least once a year, communion was valid only if taken

with the full understanding of Christ's sacrifice and of the miraculous nature of the sacrament. Complete empathy with Christ's suffering and surrender to the dogma of faith were necessary for the miracle of transubstantiation to occur; otherwise the communicant would consume mere bread and wine, not the body of Christ. An early thirteenth-century paten in the collection of the Metropolitan Museum of Art (no. 23) alludes to this teaching. An inscription around the rim reads: "the bread that you blessed now is the flesh of Christ, this you ate if you truly believe that it is the flesh."⁵² To invest a tasteless wafer with Christ's presence required some imagination, and to train this thought process the communicant was encouraged to rely on taste to signal the miracle happening at the altar. In his influential liturgical treatise *De sacris altaris misterio*, Innocent III (1160 or 1161–1216) made that connection explicit when he stated that God offered his flesh as food to us so that by ingesting his humanity, we can be saved by his divinity so that we taste spiritually.⁵³

From the thirteenth century onward, sermons propagated these ideas among the laity. Preachers often encouraged communicants to

FIG 1.12 Pomander with statuette of the Virgin. Germany, ca. 1470. Gilded silver, diam. 5 cm. Bayerisches Nationalmuseum, Munich (MA 3072)





FIG 1.13 Boucicaut Master (French or Flemish, active ca. 1400–1430) and workshop. The putrefaction of the flesh of the dying emperor Galerius. From *Des cas des nobles hommes et femmes*, ca. 1413–15. Tempera colors, gold leaf, and gold paint on parchment. The J. Paul Getty Museum, Los Angeles (96 MR 17 [Ms. 63], fol. 258r, detail)

understand the Eucharist through their senses—literally teaching the laity how to “make sense” of it. In one of his sermons for Maundy Thursday, Jacobus of Voragine (ca. 1230–1298) enlisted the senses of hearing and taste in addition to sight as a way to celebrate the memory of Christ’s Passion.⁵⁴ Jacobus explains how sight was roused by images of the Passion, hearing by the words of the preachers, and taste by the savour of the host. In his sermon the three senses (sight, hearing, and taste) are used to distinguish among different phases of understanding: seeing the Passion stirred the faithful; hearing of Christ’s torments moved them even further; but it was tasting the communion wafer that most affected them. Even though Jacobus here refers to a taste that can be apprehended only by the spirit, since the host had (and has) no taste, the experience is discussed in somatic terms.

This is also the approach taken by Robert of Sorbonne (1201–1274) in his treatise *De saporibus*, in which he distinguishes among a rich scale of thirty-two tastes that the Eucharist can elicit.⁵⁵ It is tempting to link Robert’s interest in the variegated nature of divine taste with the contemporaneous vogue for cookery books, in particular those devoted to the making of sauces. (In medieval Latin, *sapor* meant *taste* but also *sauce*.) Very often these manuals, such as one attributed to Magninus

Mediolanensis, were medicinal in nature, presenting sophisticated combinations of ingredients intended to counterbalance the negative effects of certain foods according to the theory of the humors.⁵⁶ The sauces that these cookery books proposed required a number of exotic spices that would have made them impractical and prohibitively expensive. More than guides, then, these books, like Robert of Sorbon’s spiritual *opusculum*, served to regale the readers with the imaginary: an unattainable “healing” taste.

The examples discussed so far call attention to the fact that in the Middle Ages, the senses were inscribed in a new geography of knowledge that was written on the body and for the body. In this context, sensation was harnessed to make sense of both the material and the spiritual world. The following chapter discusses how art played with this ambiguity.

- 1 Bayerisches Staatsbibliothek, Munich, Clm 13002, fol. 7v. The image appears in the *Glossarium Solomonis*. On this text and its cycle of miniatures, see Adam Cohen, "Making Memories in a Medieval Miscellany," *Gesta* 48, no. 2 (2009): 1–18. On images of the microcosm including this one, see Fritz Saxl, "Macrocosm and Microcosm in Medieval Pictures," in *Lectures*, 2 vols. (London, 1957), 1:58–72 and 2:34–42; Bruno Reudenbach, "In mensuram humani corporis: Zur Herkunft der Auslegung und Illustration von Vitruv III im 15. und 16. Jahrhundert," in *Text und Bild: Aspekte des Zusammenwirkens zweier Künstler der frühen Neuzeit*, ed. Christel Meier and Uwe Ruberg (Wiesbaden, 1980), 651–88; Marie-Thérèse d'Alverny, "L'homme comme symbole: Le microcosme," in *Simboli e simbologia nell'alto Medioevo*, 3–9 aprile 1975, 2 vols., *Settimane di Studio del centro Italiano di Studi sull'alto Medioevo* 23 (Spoleto, 1979), 1:123–83.
- 2 "Così parlar conviene al vostro ingegno, / però che solo da sensato apprende / ciò che fa poscia d'intelletto degno." Dante, *Paradiso*, Canto 4: 40. I am using Jean and Robert Hollander's recent translation (New York, 2007).
- 3 Plato, *Timaeus* 42c–44a, ed. and trans. Donald J. Zeyl (Indianapolis, 2000), 321.
- 4 Plato, *Timaeus* 40e–42b, Zeyl trans., 29.
- 5 Staats- und Universitätsbibliothek, Göttingen, Ms. Theol. 231, fol. 250r. See Anna C. Esmeijer, *Divina Quaternitas: A Preliminary Study in the Method and Application of Visual Exegesis* (Assen, 1978), fig. 6. Gregor Richter and Albert Schönfelder, *Sacramentarium Fuldense saeculi X: Cod. Theol. 231 der K. Universitätsbibliothek zu Göttingen: Text und Bilderkreis* (Farnborough, 1980); Éric Palazzo, *Les sacramentaires de Fulda: Étude sur l'iconographie et la liturgie à l'époque ottonienne* (Münster, 1994).
- 6 Augustine, *De libero arbitrio* 1.8.18.64, trans. Peter King, in Augustine, *On the Free Choice of the Will, On Grace and Free Choice, and Other Writings* (Cambridge, 2010), 16.
- 7 Augustine, *De trinitate libri XV*, ed. W. J. Mountain and F. Glorie, *Corpus Christianorum Series Latina* 50, 2nd ed. (Turnhout, 2001), bk. 11, 1: 32–33. On this I follow the discussion of Mary Carruthers, "Intention, sensation et mémoire dans l'esthétique médiévale," in *Cahiers de Civilisation Médiévale* 55 (2012): 367–78.
- 8 The *Bestiaire* is a tale of unrequited love told as a bestiary. The words and pictures are intended to sway the author's unresponsive lover by appealing to her sense of sight and hearing and thus create an everlasting memory. See no. 7. For an in-depth discussion of Richard's intellectual framework, see Elizabeth Sears, "Sensory Perception and Its Metaphors in the Time of Richard de Fournival," in *Medicine and the Five Senses*, ed. W. F. Byrum and Roy Porter (Cambridge, 1993), 17–39.
- 9 Universitätsbibliothek Erlangen-Nürnberg, Ms. 8, fol. 130v. See E. Lutze, *Die Bilderhandschriften der Universitätsbibliothek Erlangen* (Erlangen, 1936, repr. 1971), 1–5; Torkel Eriksson, "L'échelle de la perfection," *Cahiers de Civilisation Médiévale* 7, no. 28 (1964): 439–49; Éric Palazzo, *L'invention chrétienne des cinq sens dans la liturgie et l'art du Moyen Âge* (Paris, 2014), fig. 1; Richard Newhauser, Introduction, in *A Cultural History of the Senses in the Middle Ages* (London, 2014), 1–22.
- 10 "Dum sedem mentis vexant fantasmata carnis / ad celum tendens suspirat / Christicole mens / arbitrii dextrum ramum pete. Sperne sinistrum / Nam dextre celum tibi pandit. Levus Abyssum." On the importance of free will in Augustine's theory of sensation, see Carruthers, "Intention, sensation et mémoire" (note 7); Charles H. Khan, "Discovering the Will: From Aristotle to Aquinas," in *The Question of "Eclecticism": Studies in Later Greek Philosophy*, ed. J. M. Dillon and A. A. Long (Berkeley, 1988), 234–59.
- 11 On the history of touch, see Constance Classen, *The Deepest Sense: A Cultural History of Touch* (Urbana, Ill., 2013); Daniel Heller-Roazen, *The Inner Touch: Archaeology of a Sensation* (New York, 2007). For a review of the representation of touch, see Carl Nordenfalk, "The Sense of Touch in Art," in *The Verbal and the Visual: Essays in Honor of William Sebastian Heckscher*, ed. Karl-Ludwig Selig and Elizabeth Sears (New York, 1990), 109–30.
- 12 "[T]actus animae fides est: hac enim dominus tenetur et tangitur." S. Brunoni Astensis Episcopi Signensis, *Commentaria in Mattheum*, parte IV, cap. xxv, *Patrologia Latina* 165: 281. On this, see Jean-Yves Tilliette, "Le symbolisme des cinq sens dans la littérature morale et spirituelle du XIe et XIIe siècles," *Micrologus* 10 (2002): 15–32.
- 13 Balduinus Cantuariensis Archiepiscopus, *Tractatus diversi*, *Tractatus IV*, *Patrologia Latina* 204: 438: "Tactus fidei est. Fidem enim comprehendit."
- 14 This is especially so in the writings of Hugh of Saint-Victor and Rupert of Deutz: see Jerome Taylor, *Didascalicon of Hugh of St. Victor: A Medieval Guide to the Arts* (New York, 1961); Rupert of Deutz, *De sancta trinitate et operis eius*, 2.3, ed. R. Haacke, *Corpus Christianorum Continuatio Medievals* 21 (Turnhout, 1971), 187.
- 15 Alan of Lille, *Anticlaudianus*; or, *The Good and Perfect Man*, trans. and commentary by James J. Sheridan (Toronto, 1973).
- 16 *Anticlaudianus*, trans. Sheridan, 96–97.
- 17 Theophilus, *On Diverse Arts*, ed. and trans. John G. Hawthorne and Cyril Stanley Smith (New York, 1979), 47.
- 18 On the importance of craftsmanship in twelfth-century thought and the arts, see Martina Bagnoli, "The Stuff of Heaven: Materials and Craftsmanship in Medieval Reliquaries," in *Treasures of Heaven: Saints, Relics, and Devotion in Medieval Europe*, ed. Martina Bagnoli et al. (Baltimore and London, 2010), 137–47.
- 19 On medieval handwarmers, see Günther Schiedlausky, *Kühlkugel und Wärmepfand*, *Forschungshefte* (Bayerisches Nationalmuseum) 9 (Munich, 1984).
- 20 Bibliothèque nationale de France, Paris, Ms. Français 19093, fol. 9r. Carl F. Barnes, *The Portfolio of Villard De Honnecourt (Paris, Bibliothèque nationale de France, Ms. Fr 19093): A New Critical Edition and Color Facsimile* (Farnham, 2009). The manuscript is digitized at <http://gallica.bnf.fr/ark:/12148/btv1b10509412z>.
- 21 Schiedlausky, *Kühlkugel* (note 19), 50; Anton Legner, *Ornamenta Ecclesiae: Kunst und Künstler der Romanik: Katalog zur Ausstellung*, 3 vols. (Cologne, 1985), 1:69 (A 15/16); Élisabeth Taburet, *L'orfèvrerie gothique, XIIIe–début XVe siècle, au Musée de Cluny: Catalogue* (Paris, 1989), 72–74.
- 22 For hand mnemonic diagrams in general, see Claire Richter Sherman et al., *Writing on Hands: Memory and Knowledge in Early Modern Europe*, exh. cat., Carlisle, Pa.: Trout Gallery, Dickinson College; Washington, D.C.: Folger Shakespeare Library (Carlisle, Pa., 2000).
- 23 British Library, London, Ms. Harley 273, fol. 111r. The manuscript is a miscellany of composite texts mostly in Anglo-Norman. See *A Catalogue of the Harleian Manuscripts in the British Museum*, 4 vols. (London, 1808–12), 1: no. 273; S. H. A. Shepherd, "The Middle English Pseudo-Turpin Chronicle," *Medium Aevum* 65, no. 1 (1996): 19–34 at 32n26.

- 24 "Meditatio nocturna per manum sinistram. Et habet quinque digitos, et quilibet digitus habet unam rationem, et tres causas quare Deus est timendus."
- 25 Later examples include the diagrams that appear in Stephan Fridolin, *Schatzbehalter der wahren Reichtümer des Heils* (Nuremberg, 1491), fol. 298r. I consulted the copy at the Walters Art Museum (91.1086). See also Peter W. Parshall and Rainer Schoch, *Origins of European Printmaking: Fifteenth-Century Woodcuts and Their Public* (Washington, D.C., and New Haven, 2005), 78, 258–59; Dominik Bartl and Miriam Gepp-Labusiak, *Der mainzer Schatzbehalter: Ein Koloriertes Andachtsbuch von 1491* (Darmstadt, 2012).
- 26 Fritz Saxl mentions two examples: Munich Clm 8439 and Vienna Vind. 2511. See his "A Spiritual Encyclopedia of the Later Middle Ages," *Journal of the Warburg and Courtauld Institutes* 8 (1942): 82–142.
- 27 Trinity College Library, Cambridge, Ms. O.7.16, fols. 46v–47r. The manuscript is digitized at <http://sites.trin.cam.ac.uk/james/viewpage.php?index=871>. See no. 4 in this volume.
- 28 The diagrams refer to Grosseteste's discussion of the rational soul found in his *Deus est* (*De confessione* II), lib. 2. A. 3a. The text is available online as part of the Digital Grosseteste at Saint Louis University at: www.grosseteste.com. The *De spiritu et anima* was thought to be by Augustine, an attribution discredited by Thomas Aquinas, who assigned it to Alcherus of Rielvaux. This diagram has been discussed by Jens Ruffer in relation to Thomistic philosophy. See his *Orbis Cisterciensis: Geschichte der monastischen ästhetischen Kultur im 12. Jahrhundert* (Berlin, 1999), 228. However, given the early thirteenth-century date of the manuscript, the Augustinian nature of the text and the Cistercian production, the association of the diagram with Thomas is untenable.
- 29 For a discussion of Grosseteste's ideas on the soul, see James McEvoy, "Grosseteste on the Soul's Care of the Body: A New Text and New Sources of the Idea," in *Aspectus et Affectus: Essays and Editions in Honor of Richard C. Dale* (New York, 1993), 37–56. See also Richard C. Dale, *The Problem of the Rational Soul in the Thirteenth Century* (Leiden, New York, and Berlin, 1995), 38–39.
- 30 "Qualiter caput hominis situatur."
- 31 Thomas's discussion of the soul is found in his *Summa theologiae*. I use the English translation by the fathers of the English Dominican Province, *St Thomas Aquinas Summa Theologiae*, 3 vols. (New York, 1947–1948), 1: question 78.
- 32 Cambridge University Library, Ms. Gg. 1.1. The manuscript is digitized at <http://cudl.lib.cam.ac.uk/view/MS-GG-00001-00001/1>. On this, see Paul Binski, Patrick Zutshi, and Stella Panayotova, *Western Illuminated Manuscripts: A Catalogue of the Collection in Cambridge University Library* (Cambridge, 2011), 390. For this diagram in particular, see Carruthers, "Intention, Sensation" (note 7); Mary J. Carruthers and Jan M. Ziolkowski, *The Medieval Craft of Memory: An Anthology of Texts and Pictures* (Philadelphia, 2002), 120–21, figs 6.1–6.6; Michael Camille, "Before the Gaze," in Robert S. Nelson, ed., *Visuality Before and Beyond the Renaissance: Seeing as Others Saw* (Cambridge, 2000), 197–223. Thomas's ideas about the internal senses were indebted to the philosophy of Avicenna and Avveroes. On the internal senses, see Pekka Karkkainen, "Internal Senses," in *Encyclopedia of Medieval Philosophy between 500 and 1500*, ed. Henrik Lagerlund, 2 vols. (Dordrecht, 2010), 1: 564–67.
- 33 Thomas understood sensation as a physical event. Since perception was at the basis of cognition and consequently the mind's ability to abstract bodily experience, the realm of the physical was a participant in understanding and knowledge. Thomas's understanding of sensation was deeply influenced by Aristotle, whose model of perception was based on the notion of hylomorphic change occurring between the organ of perception and the perceived object: The affected organ receives the form of the agent that affects it, becoming like the agent so that the organ of perception and the object become isophormic.
- 34 *The Etymologies of Isidore of Seville*, ed. and trans. Stephen A. Barney, W.J. Lewis, J.A. Beach, and Oliver Berghof (Cambridge, 2006).
- 35 A good summary of the history of the medieval reception of Aristotle's writing is given by Charles H. Lohr, "Aristotelianism" in *Medieval Science, Technology, and Medicine: An Encyclopedia*, ed. Thomas Glick, Steven Livesey, and Faith Wallis (London, 2014), 42–46.
- 36 Aristotle, *Metaphysics*, 980a, a. 1, in *The Complete Works*, ed. and trans. J. Barnes (Princeton, 1984).
- 37 Book III, 19:55–70. See James Long, *Bartholomeus Anglicus on the Properties of Soul and Body: De proprietatibus rerum libri III et IV* (Toronto, 1979), 48–49.
- 38 "In his ergo et in aliis operationis nature conditionibus admiranda est divina sapientia, que per ista sensate materialia as intellectum eorum que sunt supra sensum sint paulatim/cordis interior as intelligentiam spiritualium promovenda." *De proprietatibus rerum libri III*: 65–70; Long ed., 49.
- 39 On the importance of hearing and the spoken word in the liturgy, see chapter 2 in this volume.
- 40 Bibliothèque publique et universitaire, Geneva, Ms. Lat 76, fol. 327r. See *L'enluminure de Charlemagne à François 1er: Manuscrits de la Bibliothèque publique et universitaire de Genève*, ed. Bernard Gagnebin et al., exh. cat., Geneva: Musée Rath, 1976, 57–60 (no. 21); *Katalog der datierten Handschriften in der Schweiz in lateinischer Schrift vom Anfang des Mittelalters bis 1550*, ed. Beat Matthias von Scarpatetti et al., 6 vols. in 3 (Zurich, 1983), vol. 2 book 1, p. 210, no. 651. The manuscript is digitized at www.e-codices.unifr.ch/en/description/bge/lat0076.
- 41 University Library, Aberdeen, Ms. 24: "Acates lapis... Alius est qui odorem habet mirre quando ponitur in igne." The Aberdeen bestiary is digitized in Colin McLaren's transcription and translation at www.abdn.ac.uk/bestiary/translat/101r.hti.
- 42 Trinity College Library, Dublin, Ms. 177, fol. 59r. On this manuscript, see Florence McCulloch, "St. Albans and Amphibalus in the Work of Matthew Paris: Dublin Trinity College Ms. 117," *Speculum* 56, no. 4 (1981), 761–85; Cynthia Hahn, *Portrayed on the Heart: Narrative Effect in Pictorial Lives of Saints from the Tenth to the Thirteenth Century* (Berkeley, 2001), 311.
- 43 For pomanders in general, see R. W. Lightbown, *Mediaeval European Jewellery: With a Catalogue of the Collection in the Victoria & Albert Museum* (London, 1992).
- 44 Bayerisches Nationalmuseum, Munich, ca. 1470. On this pomander, see Lightbown, *Mediaeval European Jewellery* (note 43), 357.
- 45 J. Paul Getty Museum, Los Angeles, Ms. 63, fol. 258. On this manuscript, see *Imagining the Past in France: History in Manuscript Painting, 1250–1500*, ed.

- Elizabeth Morrison, Anne D. Hedeman, and Élisabeth Antoine (Los Angeles, 2010), 220–22 (no. 37), with further bibliography.
- 46 “Solutus ergo gustus proprie et principaliter ad rerum naturas investigandas pre ceteris sensibus est destinatus.” The text survives in three thirteenth-century manuscripts and one fifteenth-century copy. The thirteenth-century manuscripts are Bodleian Library, Oxford, Bodley 679; Biblioteca Laurenziana, Florence, Ashburnham 143; and British Library, London, Ms. Harley 3849, from which I take the quotation. See Charles Burnett, “The Superiority of Taste,” *Journal of the Warburg and Courtauld Institute* 54 (1991): 230–38. The Harley manuscript also contains the text of the *De saporibus et odoribus* (fols. 75v–77r) by the Salernitan doctor Urso of Calabria. On this, see C. E. Wright, *Fontes Harleiani: A Study of the Sources of the Harleian Collection of Manuscripts in the British Museum* (London, 1972), 254, 296, and 436.
- 47 The miniature appeared on the antiquarian market in 1992; its present whereabouts are unknown. I thank William Voelkle for alerting me to its existence and showing me photographs.
- 48 Gordon Rudy, *The Mystical Language of Sensation in the Middle Ages* (New York, 2002).
- 49 On the specifics of the notion of sweetness as an attribute of God, see Franz Posset, “Christi Dulcedo”: The Sweetness of Christ in Western Christian Spirituality,” *Cistercian Studies Quarterly* 27, no. 4 (1995): 245–65; Rachel Fulton, “Taste and See That the Lord Is Sweet” (Ps. 33:9): The Flavor of God in the Monastic West,” in *Journal of Religion* 86, no. 2 (2006): 169–204; Mary Carruthers, “Sweetness,” *Speculum* 81, no. 4 (2006): 999–1013; Caesarius of Heisterbach, *Dialogus miracolorum*, ed. Joseph Strange, 2 vols. (Cologne, 1857), 2: 69–70. The Dialogue has been translated into English by Henry von Essen Scott and Charles Swinton Bland: *The Dialogue on Miracles*, 2 vols. (New York, 1929) 1: 533–34.
- 50 Christiane Klapisch-Zuber, *Women, Family and Ritual in Renaissance Italy* (Chicago, 1985), 310–20, esp. 317.
- 51 The importance of the Eucharist in late medieval culture has been explored by Miri Rubin, *Corpus Christi: The Eucharist in Late Medieval Culture* (Cambridge, 1991); Kristen Van Ausdall, “Communicating with the Host: Imagery and Eucharistic Contact in Late Medieval and Early Renaissance Italy,” in *Push Me, Pull You: Imaginative, Emotional, Physical, and Spatial Interaction in Late Medieval and Renaissance Art*, ed. Sarah Blick and Laura Deborah Gelfand, (Leiden, 2011), 447–86; Kristen Van Ausdall, “Art and Eucharist in the Late Middle Ages,” in *A Companion to the Eucharist in the Middle Ages*, ed. Ian Christopher Levy, Gary Macy, and Kristen Van Ausdall (Leiden, 1911), 541–604.
- 52 QVE[M] BENEDIXISTI PANIS NVNS EST CARO XPI [CHRISTI] + HV[N]C SANE COMEDIS SI QVOD SVA SIT CARO CREDIS +. Metropolitan Museum of Art, 47.101.27. The paten is part of a set including a chalice and a straw and was made for the Benedictine monastery of St. Trudpert at Münstertal, near Freiburg im Breisgau, Germany. On the liturgical set, see Peter Barnet and Nancy Wu, *The Cloisters: Medieval Art and Architecture* (New York, 2005) 77 (no. 42); Margaret English Frazer, “Medieval Church Treasuries,” *The Metropolitan Museum of Art Bulletin* 43, no. 3 (Winter 1985–86).
- 53 Innocent III, *De sacris altaris misterio libri sex*, IV, 44: “Sapientia Dei que per visibilia manifestat, volens evidenter ostendere quod ipsa cibus est animarum quod carnem assumptam proposuit in edulium, ut per cibum umanitatis invitaret ad gustum divinitatis, de quo dicit psalmist: Gustate et videte quoniam suavis est dominus. Totum ergo Christus se exhibet nobis in cibum, ut sicut divinitate nos reficit, quam spiritualiter gustamus corde,
- ita nos humanitate reficiat, quam corporaliter ore comedimus, et ita de visibilibus ad invisibilia, de temporalia ad eterna, de terrenis ad celestia, de humanis ad divina nos transferat.” *Patrologia Latina* 217: 884 C–D.
- 54 Jacobi de Voragine, *Sermons aurei in omnes Quadragesimae dominicas et ferias*, ed. Rudolphus Clutius, 2 vols. (Augsburg and Krakow, 1760), 5, fol. 1, p. 167: “Quarto debet probare digne recipientium fructum quante sit utilitatis. Que quidem utilitas attenditur in vita et in morte. In vita enim, est dimissum nobis in memoriale passionis Christi et in medicamentum curationis. Habemus igitur triples memoriae passionis dominice. Unum est in visu, scilicet passio Christi depicta, et illud debe affectum nostrum multum movere. Secundum est in suditu, scilicet passio Christi audita vel predicata, et illud debet nos movere magis. Tertium est in gustu, scilicet passio Christi in hoc sacramento tam veraciter et tam singulariter expressa, et illud debet nos movere maxime.” On this and other sermons dedicated to the Eucharist, see Nicole Beriou, “L’eucharistie dans l’imaginaire des prédicateurs en Occident (XIIe–XVe s.),” in *Pratiques de l’eucharistie dans les églises d’Orient et d’Occident (Antiquité et Moyen Age): Actes du séminaire tenu à Paris, Institut catholique* (1997–2004), ed. Nicole Beriou, Beatrice Caseau, and Dominique Rigaux (Paris, 2005), 880–925, esp. 908. On the importance of sensory perception and the Eucharist, see also Ann W. Astell, *Eating Beauty: The Eucharist and the Spiritual Arts of the Middle Ages* (Ithaca, N.Y., 2006).
- 55 The text of Robert of Sorbonne’s treatise is found in a manuscript at the Bibliothèque nationale de France, Ms. Lat. 15954, fol. 274r. It is unpublished but has been studied by Nicole Beriou, “L’eucharistie dans l’imaginaire” (note 54), 881–85.
- 56 Lyn Thorndike, “A Medieval Saucebook,” *Speculum* 9 (1934): 183–90. Magninus’s manuscript is in Naples, Biblioteca nazionale, Ms. VIII D. 35, fols. 52–53. On the manuscript, see also Terence Scully, “Opusculum de Saporibus of Magninus Mediolanensis,” *Medium Aevum* 54 (1985): 178–207. On the proliferation and use of these books in the later Middle Ages, see Bruno Larioux, “Entre savoir et pratiques: Le livre de cuisine à la fin du Moyen Âge,” *Médiévales* 14 (1988), 59–71.