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FRANK FEHRENBACH

Leonardo's Dark Eye

With the claim that every means of communication and any science relies on images (visual signs)[1], with the concept that objects in nature continually emanate portraits of themselves[2] and that only through painting is it possible to represent the permeation of simultaneity and succession in nature[3], Leonardo da Vinci developed powerful arguments that reach well beyond the confines of the *Paragone*. We may therefore expect to find Leonardo among the enthusiastic supporters of the continuous inner production of images in the *phantasia* described by two of Leonardo's most influential authors, Aristotle and Augustine.[4] In fact, he was far from it!

In the 15th paragraph (after 1500) of his posthumous *Libro di Pittura*, Leonardo deals a devastating blow against literature, *pittura's* main rival in a culture dominated by humanism:

> The imagination (*immaginatione*) does not see as excellently as the eye sees, because the eye receives the species or similitudes of objects and gives them to the *impressiva*, and the *impressiva* gives it to the *senso comune*, and there it is judged; but the imagination (*imaginatione*) does not move out of the common sense, except to go to the memory where it stops and dies if the thing imagined is not of great excellence ("li si ferma et li muore se la cosa imaginata non è de molta eccellentia"). And indeed, the work of the poet is in the mind or the

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[1] Leonardo. *Libro di Pittura*, ch. 19, 23, 33.

[2] As pars pro toto. *Manuscript A*, fol. 86v.

[3] See the discussion of this aspect in my "Blick der Engel und Lebendige Kraft. Bildzeit, Sprachzeit und Naturzeit bei Leonardo." *Leonardo da Vinci: Natur im Übergang. Beiträge zu Wissenschaft, Kunst und Technik*. Ed. Fehrenbach, F. Munich: Wilhelm Fink, 2002, 169–206.

[4] Aristotle. *De anima*. III, 7. For the influence of Aristotle's psychology on medieval and Renaissance philosophy, see Park, K. "Picos 'De imaginatione' in der Geschichte der Philosophie." Giovanni Francesco Pico della Mirandola. *Über die Vorstellung / De imaginatione*. Ed. Kessler, E. Munich: Wilhelm Fink, 1984, 21–62. On Augustine's *genera visionum* and the importance of images for the *visio spiritualis*, see Miles, M. "Vision: The Eye of the Body and the Eye of the Mind in Saint Augustine's 'De trinitate' and 'Confessions.'" *Journal of Religion*. 63.2 (1983): 125–42.

> *imaginativa* of the poet who feigns the same things as the painter. [The poet] wishes to be considered the equal of the painter for these fictions, but in truth he is far removed, as has been demonstrated above. Therefore, with regard to these [poetic] fictions, it would be true to claim that there is the same proportion between the science of painting and poetry as there is between the body and its derivative shadow. And yet the difference is even greater than in regards to the proportion with the shadow of the body, which at least enters the *senso comune* through the eye. But the imagination of such a body does not enter into that sense, but is born in the dark eye ("nasce in l'occhio tenebroso"). O, what difference there is between imagining (*imaginarsi*) such a light in the dark eye and seeing it in action outside the darkness ("vederla in atto fuori delle tenebre")![5]

This text, with its unfamiliar terminology, needs further explanation. Leonardo bases his argument within the context of traditional faculty psychology and its insistence on the material basis of knowledge (Fig. 1; Windsor 12603).[6] The human eye perceives objects with more clarity, or intensity (*eccellentia*) than solely through imagination (*imaginatione*) because it receives the optical emanations of things directly, before forwarding them to the first ventricle of the brain. In contrast to traditional psychology, Leonardo calls this first *spiritus*-filled vessel of the human brain *impressiva*. From there, the *similitudini* of objects proceed to the second ventricle, the "common sense" (*senso comune*) where they are spontaneously "judged" according to categories like number, size, movement etc. Significantly, Leonardo does not distinguish between the image-emanation of natural and artificial objects.

In striking contrast to this natural process, the poet produces fictitious representations, "fancies," in the reader's mind, or more pre-

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[5] Transl. after Farago, C. *Leonardo da Vinci's "Paragone." A Critical Interpretation with a New Edition of the Text of the "Codex Urbinas."* Leiden: Brill, 1992, 200–1 (with significant corrections by me).

[6] See Kemp, M. "'Il concetto dell'anima' in Leonardo's Early Skull Studies." *Journal of the Warburg and Courtauld Institutes*. 34 (1971): 115–34. Klemm, T. "Übergängigkeiten. Anatomische Bilder vom Gehirn im frühen 16. Jahrhundert." *Visualisierung und kultureller Transfer*. Eds. Kramer, K. and Baumgarten, J. Würzburg: Königshausen und Neumann, 2009, 301–18. Fricke, B. "Conceptio, perception: Das 'Weimarer Blatt' von Leonardo da Vinci." *Modernisierung des Sehens. Sehweisen zwischen Künsten und Medien*. Eds. Bruhn, M. et al. Bielefeld: Transcript, 2008, 82–99. For faculty psychology, see Harvey, E. R. *The Inward Wits. Psychological Theory in the Middle Ages and Renaissance*. London: Warburg Institute, 1975. Summers, D. *The Judgment of Sense. Renaissance Naturalism and the Rise of Aesthetics*. Cambridge: Cambridge University Press, 1987.

1. Leonardo da Vinci, *Anatomical Study Showing the Internal Structure of the Human Brain*, ca. 1494, red chalk and pen, 20.2 x 14.8 cm, Windsor, Royal Library, Inv. Nr. 12603. Royal Collection Trust / © HM Queen Elizabeth II 2014.

cisely, in the *imaginativa*, a faculty that shares the second ventricle of the brain with the "common sense." From this point of origin, the poet's representation moves back into the third vessel of the brain, the *memoria*, where it fades and eventually "dies" (*si ferma e muore*). Leonardo compares the maker of inner images, the *imaginativa*, to a "dark eye" (*occhio tenebroso*), with its products lacking the intensity

of sensory images that are perceived "outside the darkness" (*fuori delle tenebre*). The words written by the poet, therefore, evoke within the reader merely bloodless, pale, and shadowy surrogates of the visible.

A more careful analysis of the text reveals four specific features that I would like to address rapidly before I conclude with a look at Leonardo's own poetic, imaginative work: the epistemological circle of perception and action and its mutilation by poetry; Leonardo's creation of a new psychological agent, the so-called *impressiva*; the adaptation of religious metaphors by art theory and epistemology; and Leonardo's model of an assimilative rather than an autonomous, free, and "inventive" imagination.

I. THE TRAJECTORY OF INNER IMAGES

Leonardo's epistemological model is inspired by a classic text, the third book of Aristotle's treatise on the human soul.[7] Aristotle differentiates between the faculties of the soul as self-preservation (nourishment, or metabolism, and reproduction), perception, self-motion, and knowledge. The five senses link the animated organism with the world, while a sixth, "common" sense spontaneously perceives the shared categories of all sensory data (size, movement, number, and time). If the object is outside the field of actual perception, another faculty of the soul comes into play: *phantasia*. With a malleable, wax-like structure, *phantasia* preserves images of past presences, thus providing a mental substitute for the absent; further, aided by the "innate heat" of the body, it separates and recombines elements of the sensory perceptions.[8] Lastly, the inner representations of objects are stored in the *memoria*. From there, they can be recalled by *phantasia*, capable of processing both actual representations and remembrances.

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[7] Cassirer, H. W. *Aristoteles' Schrift "Von der Seele" und ihre Stellung innerhalb der aristotelischen Philosophie*. Tübingen: J. C. B. Mohr, 1932. Gloy, K. "Aristoteles' Konzeption der Seele in 'De anima'." *Zeitschrift für philosophische Forschung*. 38. 3 (1984): 382–411. For Leonardo's context, see Cranz, F. E. "The Renaissance Reading of the 'De anima'." *Platon et Aristote à la Renaissance. XVIe colloque international de Tours*. Paris : J. Vrin, 1976, 259–76.

[8] *De anima* III, 4. For the concept of "innate heat," see Mendelsohn, E. *Heat and Life. The Development of the Theory of Animal Heat*. Cambridge: Harvard University Press, 1964. Freudenthal, G. *Aristotle's Theory of Material Substance. Heat and Pneuma, Form and Soul*. Oxford: Oxford University Press, 1995. On the persistence of the concept until the 18th century (Fénelon), see Lyons, J. D. *Before Imagination. Embodied Thought from Montaigne to Rousseau*. Stanford: Stanford University Press, 2005, 187.

Further developing Aristotle's model, the physician Galen, in his medical writings (most important, *De symptomatum differentiis*), locates the faculties of the soul in the brain. In his influential book on the nature of man, written at the end of the 4th century, the Syrian bishop Nemesius of Emesa specified their location in the three ventricles of the brain. They became the place where image-saturated substances bridged the material and the immaterial. The brain's *pneuma*-filled vessels were the place where the immortal human soul communicated with the material world.

For Christian authors, *phantasia* (or, as Augustine called it, the *imaginatio*) was a suspicious place. Both a site of human freedom and of spontaneous image-generation, the combinatory power of imagination became the battlefield of angels and demons creating both celestial visions and infernal monsters.[9] The direction of *phantasmata* usually proceeds from front to back, from the *sensus communis* to *memoria*. Since the reception of Avicenna in the 13th century, the locations of the *facultates animae* became more specific, with the *sensus communis* and receptive imagination (*imaginatio*) often working in the first ventricle, the "deliberative" (Martin Kemp), more autonomous imagination (*imaginativa*) together with higher sensory-mental operations (*extimativa*, *cogitativa* etc.) in the second, and *memoria* in the third ventricle, in the back of the brain.[10] Albertus Magnus, referring back to the Syrian physician Costa ben Luca (died 923), explained the epistemological trajectory in his *Summa de Homine*.[11] According to this theory, the process starts outside the body and continues within. The material vehicle driving this process is the *spiritus* flowing from the front of the brain to the back, and subsequently through the hollow channels of the nerves in the spinal cord to the limbs, triggering physical movements – a cyclical structure, as it were, from the passive to the active, from the perception of the world to its transformation by human action, from knowledge to ethics.

Leonardo's reference to both the *imaginatione* and the *imaginativa* reveals that he was well aware of this tradition. He criticizes that the poet's products reflect only a fraction of the epistemological cycle. The inner images of poetic fantasy are not received, judged or metabolized, and eventually stored; instead, they are produced in

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[9] Cole, M. "The Demonic Arts and the Origin of the Medium." *The Art Bulletin.* 84 (2002): 621–40.

[10] Kemp, M. "From 'Mimesis' to 'Fantasia.' The Quattrocento Vocabulary of Creation, Inspiration and Genius in the Visual Arts." *Viator* 8 (1977): 347–98. For a nuanced analysis of Leonardo's increasingly critical view of *fantasia*, esp. 376–84.

[11] Park 1984 (see note 4): 38.

the second ventricle of the brain, the *imaginativa* where their lack of mobility and dynamics leads to their quick death inside the *memoria*. According to Leonardo, these inner, autonomously forged images never obtain the same degree of liveliness (*eccellentia*) as their natural siblings. They are stillborn children of the mind.

This is, of course, a slap in the face for every advocate of literary *enargeia* viz. *evidentia*.[12] For Leonardo, poetic imaginations have the power to cover only a very short distance, that is, from one ventricle of the brain to the next, just a fraction of the full cycle of outer and inner images. Indeed, elsewhere Leonardo refers to the imaginative *libera finzione* as the "weakest part" of *pittura* (*Libro di Pittura*, ch. 33). But in other passages of his writings, he demonstrates an awareness of the power of imagination. At one point he asks himself why dreams, paradigms of *fantasia's* spontaneous operations, are much more vivacious than phantasies created in an awake mental state (*Arundel* Codex, fol. 278v). Leonardo's claim that paintings can provoke laughter from the audience, but never weeping (*Libro di Pittura*, ch. 25), sounds like a note of caution, especially in comparison with a recurring event of his time, namely enormous crowds crying hysterically while listening to the "words" of a preacher who successfully manipulates their imagination.

II. IMPRENSIVA

While Leonardo's specific terminology in chapter 15 of the *Libro di Pittura* demonstrates his familiarity with the psychological discourses of his time, his realignment of the faculties in their ventricles and invention of a new agent create a new enigma. Leonardo relocated the *sensus communis* – the analytical sense and the most prominent inhabitant of the first ventricle – to the second chamber of the brain, a location heavily contaminated by the image-saturated siblings *imaginatione* and *imaginativa*. Instead of the *senso comune*, Leonardo placed a new faculty in the first ventricle, the *imprensiva* (or *impressiva*).

Leonardo's cohabitation of *sensus communis* and imagination (in its two aspects) mirrors the general tendency of Renaissance psychol-

[12] See Van Eck, C. *Classical Rhetoric and the Visual Arts in Early Modern Europe*. New York: Cambridge University Press, 2007. The collection of essays in *Evidentia. Reichweiten visueller Wahrnehmung in der Frühen Neuzeit*. Eds. Wimböck, G. et al. Berlin: Lit, 2007. esp. the article by Müller, J. D. "Evidentia und Medialität. Zur Ausdifferenzierung von Evidenz in der Frühen Neuzeit," 52–84.

ogy to reduce the sophisticated scholastic differentiations of the faculties of the soul (for instance, Niccolo Tignosi who lists *memoria*, *sensus communis*, *aetimativa*, and *cogitativa* under one label, *phantasia*).[13] This development implies a closer relationship between imaginative and rational faculties. In Leonardo's theory, the noble *facultas* of the common sense – the agent of judgment – is forced to share its space with a new roommate, or rather, twins, the two aspects of imagination with their fireworks of images. Instead, the first ventricle right behind the forehead receives a new tenant, the *imprensiva*.

What is her task? Leonardo does not clarify, but the terminology and the mechanistic background of his theory of perception imply that this faculty perceives the *intensity* of sensory representations. In the *impressiva*, the similitudes of objects press, or imprint themselves onto the subtle matter of the mind, the *spiritus*, before they are further processed. Poetic images are different: in *Libro di Pittura*, ch. 2, Leonardo explicitly states that the representations of poetry (the products of imagination) do not pass through the *imprensiva*. Who are the precursors of Leonardo's new psychological faculty? I would suggest three points of reference. Firstly, Aristotle's metaphor of the senses perceiving the form of things but not their matter, like soft wax the *form* of the signet ring, not its metal.[14] Secondly, the stoic idea that *phantasmata* act as active stimuli, as dynamic impulses causing the recipient's assent through *typosis*.[15] For instance, in Epictetus' *Enchiridion*, a widely diffused text after its translation by Poliziano, the impetus of the *phantasma* appears in an antagonistic context. The athlete of imaginations (*phantasias gymanesteos*) masters the impetus of *phantasmata*, a force attacking the inner fortress of the soul, as Marcus Aurelius put it.[16] The third point of reference appears to be classical rhetoric with its concept of the impetus of lofty speech (*pathos*) sweeping its passionate audience away.[17]

For Leonardo, the introduction of the *imprensiva* reifies the fact that perceptions (the similitudes of things) "impress" the mind. Therefore, the *imprensiva* operates as a perceptional agent receiving the intensity, clarity, and power (*eccellentia*) of sensory impressions. The

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[13] Park 1984 (see note 4) : 42. And see Pico, *De imaginatione* IV, V.

[14] See *De anima* II, 424a. For a later echo of the metaphor, see Bacon, R. *Opus Maius*, V.1 Dist.1, ii.

[15] See Verbeke, G. *L'évolution de la doctrine du pneuma du stoïcisme à S. Augustin*. Paris: Desclée De Brouwer, 1945, 352–60.

[16] Lyons 2005 (see note 8): 5–12.

[17] Dockhorn, K. *Macht und Wirkung der Rhetorik*. Bad Homburg: Gehlen, 1968, 51–2.

products of the writer – words – have no comparable impact; they are, first of all, mere signifiers of the perceived object and need to be decoded.[18] Leonardo's *imprensiva* is never concerned with codes. It is an inner sense perceiving spontaneously the world's impact on us, especially through the sense of sight, Leonardo's paradigm for perception.

In contrast to writing, only paintings close, in this perspective, the epistemological cycle of impressions; better, they transpose and reinforce this cycle on a higher level. The emanations of nature (*similitudini*) have an impact on men, striking both the eye and the *imprensiva* of the beholder. Inside the human brain, these natural representations are further processed and result in mental representations (through *imagination*) and the transformative, combinatory power of *imaginativa*; their impact on the mind increases rather than weakening. Would it be too far-fetched to assume that the power of perceived images activates further image-movements in the human nerves filled with *spiritus* – that these images are longing for action, for expression? Through the hands of the painter, these transformed emanations of nature become again a physical object, a surface emanating visual *simulacra* that strike its beholders' *imprensiva* even more effectively than their natural prototype. This is one reason why Leonardo insists that the practice of painting is more noble (*più degna*) than merely theoretical knowledge (*contemplazione o scienza*; *Libro di Pittura*, ch. 34; cf. ch. 33). As an interpreter of nature, painting is part of nature's continuous generation of images; it clarifies and renews the world.[19]

III. DARK EYES

Linked to *phaos*, light and *phainesthai*, to shine forth, the traditional notion of *phantasia* denotes the very opposite of Leonardo's *occhio tenebroso*.[20] With this metaphor, Leonardo refers to a time-honored

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[18] On Leonardo's concept of language, see Frosini, F. *Vita, tempo e linguaggio* (1508–1510). Lettura Vinciana 50, Florence: Giunti, 2011.

[19] On the semiosis of nature (following mainly Jonas, H. and Maturana, H. R.) see Weber, A. *Natur als Bedeutung: Versuch einer semiotischen Theorie des Lebendigen*. Würzburg: Königshausen und Neumann, 2003. Bredekamp, H. *Theorie des Bildakts*. Berlin: Suhrkamp, 2010, 317–23. For the relationship between Leonardo's theory of imagination and his concept of painting, see also Pardo, M. "Leonardo da Vinci on the Painter's Task. Memory, Imagination, Figuration." *Leonardo da Vinci and the Ethics of Style*. Ed. Farago, C. Manchester: Manchester University Press, 2008, 58–95.

[20] See Pico, *De imaginatione* I. On the etymology of *phantasia*, Lyons 2005 (see note 8): 2.

religious topos, an adaptation not unusual for his literary practice both as an advocate of painting and as a technologist.[21] Paraphrasing Scripture, Leonardo turns the holy paradigm of writing against the medium itself. In the Bible, the dark eye represents blindness, old age and imminent death, so in *Genesis* 27, 1: "When Isaac was old and his eyes were so dark (*caligaverunt oculi*) that he could no longer see, he called for Esau his older son and said to him, 'My son.'"[22] Similarly, in the *Legenda Aurea* the darkening eyes mark the exitus of Christ: "those eyes who were brighter than the sun, became dark" (*oculi lucidiores sole caligant in morte*).[23] But dark eyes also feature prominently in wrathful execration, for instance in Psalm 69 (68), 23–24: "May their eyes be darkened so they cannot see, and their backs be bent forever. Pour out your wrath on them; let your fierce anger overtake them." Generally, every eye is "dark" before the future Kingdom of Justice: "Then the eyes of those who see will no longer be dark (*caligabunt*), and the ears of those who hear will listen." (Isaiah 32:3).

Dark eyes signify a lack or even the inability of knowledge and wisdom; desire darkens the eyes of the heart.[24] Dark eyes are a metaphor for the moral corruption of their owners, according to Augustine and Gregory the Great.[25] To call the imagination an *occhio tenebroso* is thus a poisoned dart in the context of Leonardo's *Paragone* and its larger epistemological claims. With his metaphor, Leonardo cleverly adopts a time-honored criticism of imagination by religious authorities themselves. Leonardo's coeval, Gianfrancesco Pico della Mirandola, still warns against the deathly shadows of imagination (*mortiferas imaginationum tenebras*) and recommends the enlivening rays of the Bible[26] in order to expel their darkness. Leonardo, however, does not refer to Scripture as a remedy to overcome the obscurity of mental im-

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[21] For the religious language in Leonardo's studies on human flight, see Fehrenbach F. "Taking Flight. Leonardo's Childhood Memories." *Renaissance Studies in Honor of Joseph Connors*. Eds. Israels, M. et. al. Cambridge MA: Harvard University Press, 2013, 264–76.

[22] See *Deuteronomium* 34, 7. 1 Samuel 3, 2–3. See Schleusener-Eichholz, G. *Das Auge im Mittelalter*. Munich: Wilhelm Fink, 1985, 160–4. (with additional references).

[23] Jacobus de Voragine. *Legenda aurea*. 1890. Reprint. Ed. Grässe, T. Osnabrück: Otto Zeller, 1965, 226.

[24] Schleusener-Eichholz 1985 (see note 22): 161–2. (with references to Bonaventure et al.).

[25] Schleusener-Eichholz 1985 (see note 22): 163–4.

[26] See Pico, *De imaginatione* XII.

ages. Instead, it is the glory of the eyes of the body to receive the emanations of objects in light and thus to reveal the Divine Law in nature.

IV. ASSIMILATION

Leonardo's rejection of poetic imagination should not be confounded with a general denial of imagination. Indeed, Leonardo repeatedly refers to *fantasia* as a part of the science of painting, as for instance in his argument against the less imaginative genre of sculpture (*come la pittura è più bella et di più fantasia*; *Libro di Pittura*, ch. 38) or with his demand that painters should be able to reproduce the effects of nature by using their fantasy (*fare di fantasia a presso alli effetti di natura*, *Libro di Pittura*, ch. 39).[27] Leonardo's main criterion for successful painting – accuracy – is indeed embedded in his celebration of variety, including the novel and unseen, the imaginary. The painter is *Signore e Dio* of all the real (present) or imaginative (past and future) objects of the universe, "cio ch'è nel universo per essenzia, presenzia o imaginazione" (*Libro di Pittura*, ch. 13). Leonardo's critique aims at the *imaginativa* rather than at *imaginazione*; his main antagonists are the *libere finzioni* (ibid. ch. 33), the spontaneous fancies, subconscious projections and hybrid re-combinations detached from the paradigm of nature. These free creations of fantasy (caused by the powerful influence of the specific physical body on the mind)[28] are merely "weak" in poetry, but dangerous in science. In a later passage, Leonardo warns against the *cose mentali* that are not grounded in sensory experience; they are harmful in medicine, and responsible for the aberrations of alchemy and the *perpetuum mobile* – an obsessive delusion of the younger Leonardo.[29]

Leonardo's increasing focus on dynamic relations, on antagonistic processes in nature reveals his ideal of *imaginatio* as an assimilative

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[27] On the role of the *imaginativa* for sketching, see *Libro di Pittura*, ch. 76; on the training of an accurate *imaginativa*, ch. 67/72.

[28] See Gombrich, E. H. "Leonardo's Methods of Working out Compositions." *Norm and Form*. London: Phaidon, 1966, 58–63. Kemp, M. "Ogni dipintore dipinge se: A Neoplatonic Echo in Leonardo's Art Theory." *Cultural Aspects of the Italian Renaissance: Essays in Honour of Paul Oskar Kristeller*. Ed. Clough, C. H. Manchester: Manchester University Press, 1976, 311–23.

[29] "Le cose mentali che non son passate per il senso son vane e nulla verità partoriscano se non dannosa" (Windsor, Royal Library fol. 19070v / Keele-Pedretti fol. 113r).

faculty of the soul, as a pure mirror of nature. Traditionally, *phantasia* referred to two rather static aspects of mental representations, the image of an absent object and the re-composition of imaginative hybrids. In a famous passage of his *Libro di Pittura*, Leonardo recommends to exercise the painter's mind (*modo d'aumentare e destare lo 'ngegnio a varie inventioni*) by carefully observing stains on humid walls, or of ashes, clouds, and mud, a vague echo of passages in Aristotle's *De somniis*, Philostratos, and even Lorenzo de' Medici.[30] These amorphous objects gain shape only through an active imagination, but Leonardo's sequence of "inventions" provided by *macchia* is significant: "combats, both of animals and men, or landscapes and monstrosities, like devils or similar things." Monsters are indeed the classical topos of the combinatory *imaginativa*, but with battles, Leonardo's fantasy projects dynamics and violence into amorphous perceptions. After ca. 1500, major fields of Leonardo's science like hydrology, botany, geography, and anatomy foreground change, process, and often antagonism, with competing actors on a stage ruled by the laws of mechanics.[31] This emphasis on process is mirrored in impressive, sometimes exceedingly long descriptions[32], forcing the imagination of the reader thereby to participate in the flow of events. This is, to be sure, neither the static stockpile of film stills traditionally provided by *imaginatio*, nor the free recombination of visual elements by *imaginativa*.

Instead, Leonardo postulates that the painter-scientist should transform himself into the mirror of nature, into a dynamic *seconda natura*, a mirror continuously changing "colors" (*Libro di Pittura*, ch. 58a; cf. ch. 56). Following the model of the sense (lover) moving with the sensible (beloved) (*Codex Trivulziano*, p. 11), Leonardo challenges the mind of the painter to *move* with the proper similitudes of objects (*Manuscript A*, fol. 99r). Again, Leonardo's concept of the mind refers back to the beginning of the third book of *De anima*, where Aristotle defines *phantasia* as "a movement caused by actual perception."[33] But Leonardo transforms a psychological statement into a distinctive quality of the painter. As a painter and as a scientist,

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[30] *Libro di Pittura*, ch. 60. Kemp 1977 (see note 10): 377 note 152.

[31] See Fehrenbach, F. *Licht und Wasser. Zur Dynamik naturphilosophischer Leitbilder im Werk Leonardo da Vincis*. Tübingen: Wasmuth, 1997, 193–256.

[32] On Leonardo's poetic hydrology, see Vecce, C. "Leonardo e il 'cantico delle acque'." *Acqua. Storia di un simbolo tra vita e letteratura*. Eds. Garufi, G. et. al. Ancona : Transeuropa, 1997, 124–31.

[33] *De anima* III, 3. See Pico, *De imaginatione* IV.

he became increasingly aware that perception must be permeated by active imagination in order to fully comprehend the temporal dimensions of nature.

V. SWALLOWED UP

Compared to Leonardo's verdict of fantasy as an *occhio tenebroso*, his paintings and writings demonstrate a remarkable affinity for darkness. His "dark manner" emerged as early as his unfinished *Adoration of the Magi* (1481/82) and culminated in his late *Saint John the Baptist*.[34] Beginning in his earliest notebooks he was fascinated by shadows and acknowledged that their power exceeded the force of light.[35] Giorgio Vasari framed Leonardo's career with three works powerful enough to blind the audience with fear – an early panel depicting a dragon; a head of Medusa, then in the Medici *guardaroba*; and the late manipulation of a living monster, the Vatican lizard. In none of these three cases would Leonardo have argued that the *imaginativa* of the beholder was involved. The terrorized reaction was spontaneous, solely caused by the impact of the image on *imprensiva* and *imaginatio*. In his most prestigious secular painting, Leonardo thematizes the *occhio tenebroso* in a literal sense. The central group of fighters in his *Battle of Anghiari* represents the very instance before the rider on the far right will stab his spear into the eye of the second rider from the left – a contest of aiming eyes (of both the riders and the beholders, as it were), with blindness equivalent to ultimate defeat.[36]

Leonardo's most imaginative works reveal an intimate relationship between imagination and violence. The background of his *Adoration of the Magi* comes to mind, with fighting horsemen and others riding frantically through ruins. Leonardo's early studies for a *Madonna with a Cat* fathom the delicate border between tenderness and the possibly violent reaction of the feline (Fig. 2; British Museum 1856–6–21–1, verso). As argued above, Leonardo's projections on amorphous

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[34] Weil-Garris, K. *Leonardo and Central Italian Art, 1515–1550*. New York: New York University Press, 1974.

[35] On shadows: Stoichita, V. I. *A Short History of the Shadow*. London: Reaktion Books, 1997.

[36] Fehrenbach, F. "Much ado about nothing. Leonardo's Fight for the Standard." *Bild/Geschichte. Festschrift Horst Bredekamp*. Eds. Helas, P. et al. Berlin: Akademie, 2007, 395–410.

2. Leonardo da Vinci, *Study for a Madonna with Child and a Cat*, ca. 1480, pen and ink, 13.2 x 9.5 cm, London, British Museum, Inv. Nr. 1856–6–21–1, verso. © The Trustees of the British Museum.

stains on the wall result in images of violence as well. Immediately after his lines about poetry's *occhio tenebroso* in the *Libro di Pittura*, ch. 15, Leonardo refers to the representation of a battle. Leonardo's own *imaginativa* naturally gravitates towards disturbing images of catastrophe and transgression (Fig. 3; Windsor 12332). In one of his

3. Leonardo da Vinci, *Scenes of a Battle*, ca. 1511, red and black chalk, 14.8 x 20.7 cm, Windsor Royal Library, Inv. Nr. 12332. Royal Collection Trust / © HM Queen Elizabeth II 2014.

most important *profezie*, written around 1505 on a page mainly about weight and the "overcoming" of other weight in the context of experiments with scales, Leonardo lists themes of dreams in the following sequence: ruins in the sky, flight, flames in the sky, talking animals, instantaneous movement across enormous distances, powerful lightning in the dark ("vedranno nelle tenebre grandissimi sprendori"), falls from great heights, torrents sweeping the dreamer away, and finally, incest with mother and sisters, and conversations with animals about knowledge ("userai carnalmente con madre e sorelle, parlerai colli animali di scienzia"; *Codex Atlanticus*, fol. 393r). The unleashed *imaginativa* creates images of disaster and transgression (but also knowledgeable animals revealing their secrets, a hint at Leonardo's contemporary studies on the flight of birds).

More importantly, Leonardo's fragments of literary fiction demonstrate a close relationship between imagination and death. They aim at the "great excellence" that would allow their images to live on in the mind of the reader; still, their power is a result of violence, of horror. Literary images survive as vampires feasting on the fading lives of their subjects; they owe their *eccellentia* to the darkness of their

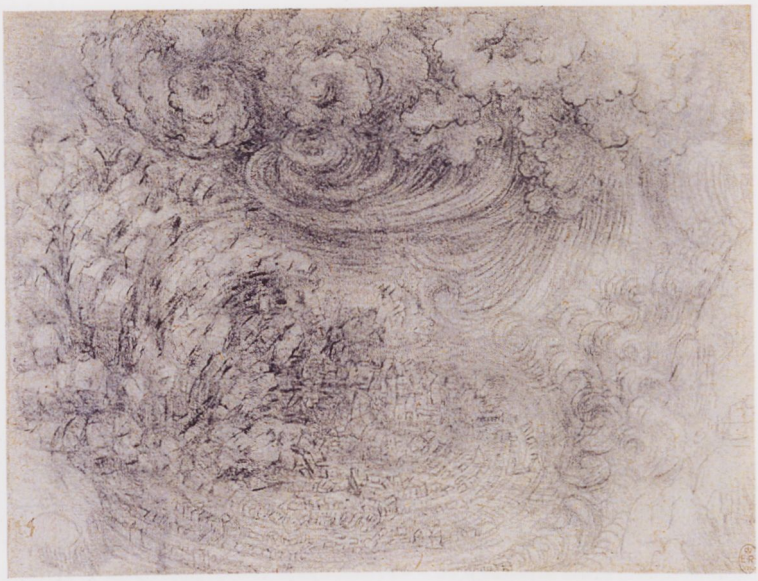
topics. Two of Leonardo's most ambitious texts conclude in the dark, with the *occhio tenebroso* of total oblivion. Already in his famous early text about the fictitious discovery of the fossils of a giant fish in a cavern high in the mountains, Leonardo combines the motives of light, the blinding darkness of the cavern, fear, and the death of the animal, vivified by the historical imagination of the visitor who considers the former life of the fish in an ocean that had disappeared over time (*Arundel Codex*, fol.156r). A few years later, in Milan around 1490, Leonardo wrote a fictive letter to his friend Benedetto Dei, a great traveler and explorer of the Orient and friend of Luigi Pulci, the author of *Morgante*.[37] Leonardo's letter is in the form of a report recounting events of the East (*qua de levante*), namely about a giant from the Libyan desert who threatens an entire population with extinction. Men hide like insects in the dark cavities of the earth, but in vain; in the end, all are doomed. Now, through a characteristic acceleration of the imaginative mind, the giant has even captured the writer himself who composes his report headlong inside the giant's throat, almost as a caricature of Leonardo's sacrosanct eyewitness principle. The text is deliberately fragmented, becoming the supposed last words of the reporter entering the dark bowels of his killer; significantly, the text ends with the word "stomach" (*ventre*; *Codex Atlanticus*, fol. 265v).

Darkness is a precondition for, yet at the same time a natural enemy of painting. In a passage dated June 6, 1505, Leonardo describes the opposite of an epiphany, the sudden tempest that overcame Florence at the very same moment he started working on the walls of Palazzo Vecchio. The violence of the *maltempo* prohibited the realization of the large battle piece (a special case of a *Paragone* between an envious nature and the artist). The cartoon was torn apart, a great rain started pouring down – and the day became dark as night (*e stette il tempo come note*; *Madrid Codex* II, fol. 2r).

Leonardo's constant inclination to combine imagination with the figure of the end (of life, of narration) later culminates in his fictitious letter to the "Devadar of Syria" (ca. 1508; *Codex Atlanticus*, fol. 573r).[38] Again, a pragmatic report mutates into a series of nightmarish images describing events that preceded the imminent cataclysm of *Monte Tauro*, a mountain tall enough to cast a shadow, in winter, as long as a thirty days journey. This is a letter about the end of the world. After the *gran caos* at the beginning of time the

[37] Vecce, C. *Leonardo*. Rome: Salerno, 2006, 96–9.

[38] Vecce 2006 (see note 37): 277–82.



4. Leonardo da Vinci, *A Cataclysm*, ca. 1515, black chalk, 16.3 x 21 cm, Windsor, Royal Library, Inv. Nr. 12378. Royal Collection Trust / © HM Queen Elizabeth II 2014.

elements were separated, but are imminently reuniting their powers and rage in order to destroy the human species. Everybody expects the end. The impetus and furor of winds horrify the people, majestic mountains are already collapsing, a deluge of water and devastating thunderstorms filled with rain, sand, mud, and stone hit the country, and lightning then sets it on fire. But all this is *nothing*, the letter concludes, compared to the unspeakable evil that is waiting. The imminent horror cannot be described, as the text implies, both because the author will be dead soon and because language cannot capture the utter violence of these events. *Pittura*, however, can, as Leonardo's later *Deluge series* demonstrates (Fig. 4; Windsor 12378).

Leonardo's best literary fictions reflect the concept of the *imaginativa* as a laboratory of transgression, of violence, and ultimately, of death. These are documents of the *occhio tenebroso*. These texts suggest an intimate relationship between literary invention and darkness. With their emphasis on the end, on the death of both "author" and language, Leonardo claims that texts, like most mental images, ultimately and in contrast to painting "come to a halt and die."