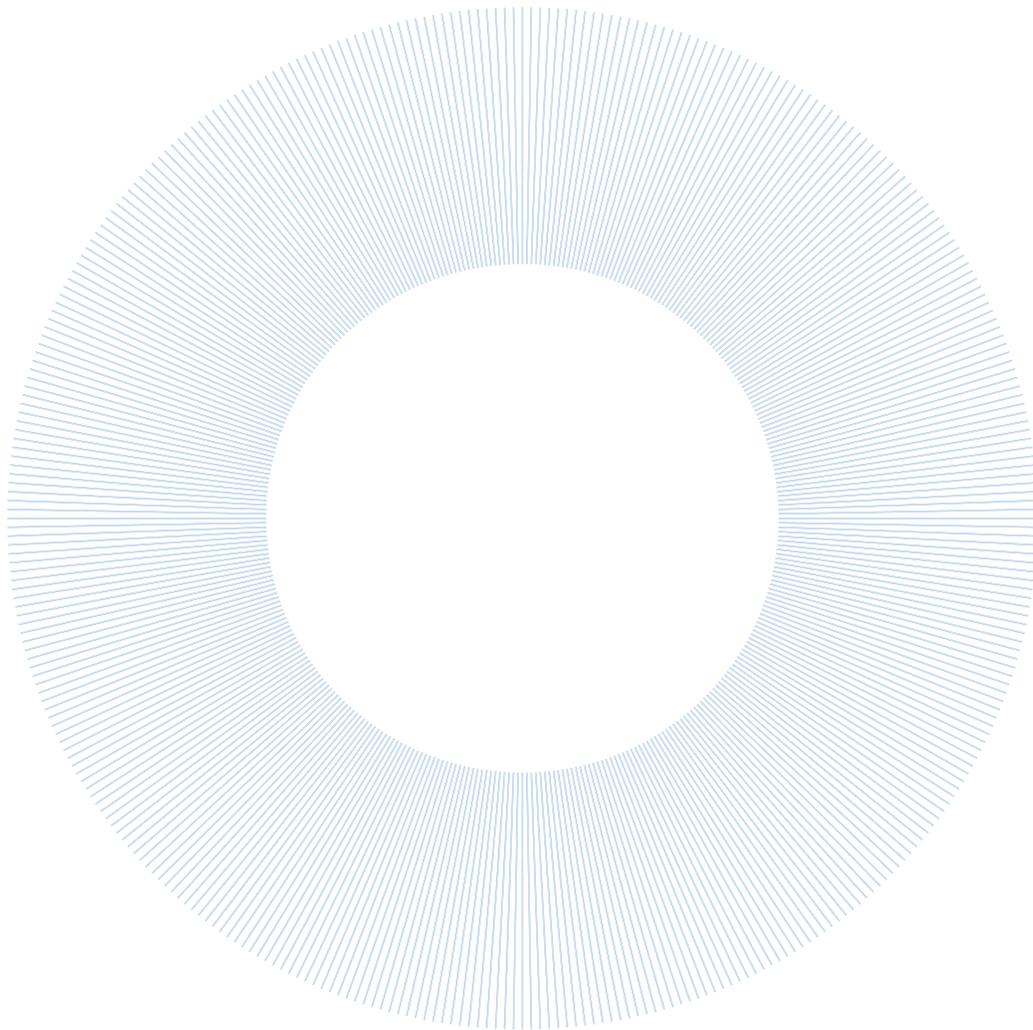


The Fading Evidence of Reality: Leonardo and the End



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THE FADING EVIDENCE OF REALITY: LEONARDO AND THE END

Leonardo da Vinci does not like the 'end'. As an artist, only on very few occasions did he finish his works, usually because forced to do so by his patrons; otherwise he was rather wont to leave them unaccomplished, as in the case of the Adoration, the Sforza horse, the Battle of Anghiari, amongst others. Rather than an inability to bring works to completion, this attitude reflects Leonardo's modern position, both as a scientist and a philosopher, towards nature and physical reality, which he conceived as in motion and undergoing perpetual metamorphosis. The same approach can be traced even in his writings, the most private and personal part of his laboratory. The textuality of Leonardo's manuscripts is a kind of 'unended' writing, without perceivable hierarchy, and virtually open to all research possibilities. Leonardo does not finish any treatise or any book ('libro'): he leaves thousands and thousands of 'open-ended' texts. Moreover, there is no 'end' (border) between text and image, as one tends to merge into the other in a complementary fashion. Leonardo's unended writing and painting correspond to his idea of physical reality as a universal 'continuous quantity'. Objects may look as if they have borders, contours (in Italian, 'fini' and 'termini'): in fact, the limit of a body is just the beginning of another body, and it is impossible to define exactly the precise juncture when one entity passes into another. So, the 'end', the 'limit', does not exist: it is 'nothing' – as are the point, the line and the surface, that is, the very principles of geometry and painting. Leonardo's paradoxical conclusion is that painting (and at the same time our knowledge of reality, and reality itself) simply proves to be based on 'nothing'.



But I ask, why finish a work of art when it is so beautiful simply to dream it? (*Ma io mi domando, perché realizzare un'opera quando è così bello sognarla soltanto?*) (Pier Paolo Pasolini, *Decameron*).

The End of the Work

Leonardo does not like the end. During his entire life, he accomplished only one great public work, the *Last Supper*. On the contrary, so many of his other projects remained unfinished: the *Adoration*, *Saint Jerome*, the equestrian monument of Francesco Sforza, the *Battle of Anghiari*, the *Saint Anne*, the *Leda* and the *Scapigliata* (the *Dishevelled*). Ancient documents witness his difficult relationships with his *committenti* or patrons – be they religious or civil institutions, princes or lords. More, there is general agreement among Leonardo's contemporaries and early biographers as to his perceived 'inability' to finish his works. According to the *Libro di Antonio Billi* and the Anonimo Gaddiano (compilations of information about the Florentine artists dating c. 1540, preserved in the manuscript Magliabechiano XVII 17 of the National Library in Florence), Leonardo, in his search for perfection, always ended up being unsatisfied, and it is for this reason that his works are very few. Paolo Giovio wrote that Leonardo 'finished very few works, always dismissing his first ideas owing to a variability of temperament and his

natural intolerance' (*paucissima opera, levitate ingenii naturalique fastidio repudiatis semper initiis, absolvit*) (Giovio, 1999, p. 234).

Giorgio Vasari, the great author of the *Lives of the Artists*, explained Leonardo's lack of satisfaction as a consequence of the excess or surplus of his genius, always varied and unstable (*vario et instabile*), which never stopped 'raving' (*Quel cervello mai restava di ghiribizzare*): 'One can see that Leonardo, because of his intelligence of [the secrets of] the art, initiated a quantity of things and never finished one' (cf. Vecce, 2006, pp. 359–60 and 367–8). As an example of unfinished work, Vasari told the story of the portrait of Mona Lisa, called *La Gioconda*: 'Leonardo undertook to execute, for Francesco del Giocondo, the portrait of Mona Lisa, his wife; and after toiling over it for four years, he left it unfinished; and the work is now in the collection of King Francis of France, at Fontainebleau. In this head, whoever wished to see how closely art could imitate nature, was able to comprehend it with ease' (Vecce, 2006, p. 374). Vasari never saw the painting, at that time in the royal collection at Fontainebleau, and nowadays in the Louvre. He is referring to *Gioconda's* earliest stage (Florence, c. 1503–1504), when Leonardo just began the head of the lady. The story has been confirmed by a newly discovered document, a note by Agostino Vespucci (an assistant of Machiavelli in the Florentine chancery) written in the margin of a copy of a fifteenth-century edition of Cicero's *Familiar Letters* (Heidelberg, Universitätsbibliothek, inc. 481, f. 11r) (Probst, 2008). Cicero, evoking a wonderful portrait of Venus made by the Greek master Apelles, stated that 'Apelles excellently made the head and the upper part of the breast, but he left just begun and unfinished the rest of the body' interrupted by his own death (*Apelles Veneris caput et summa pectoris politissima arte perfecit, reliquam partem corporis incohata reliquit*) (Cic. *Fam.* 1, 9, 15). Vespucci added in the margin of his book: 'Apelles the painter. Leonardo da Vinci does the same in all his paintings, as in Lisa del Giocondo's head and Anna, mother of the Virgin. We'll see what he is going to do in the Room of the Great Council, about which he has already talked with the Chancellor in October 1503' (*Apelles pictor. Ita Leonar/dus Vincius facit in omnibus suis / picturis, ut est caput Lisae del Gio/condo, et Annae matris Virginis. / Videbimus quid faciet de aula / Magni Consilii, de qua re convenit iam cum Vexillifero 1503 Octobris*). Cicero's quotation was a *locus communis* in ancient literature, and a similar thought is expressed in Cicero, *De off.* 3, 2, and in Pliny the Elder, *Natural History* 35, 36, 92 and 35, 40, 145. It led to a positive evaluation of the 'unfinished' (*incompiuto*), a notion that in the Renaissance could be referred to artists such as Leonardo or Michelangelo (the best account about 'unfinished' in Leonardo and Michelangelo is now Bambach, 2016).

Since his youth, Leonardo had developed a personal idea of nature, which was partly derived from the ancient philosophers whose ideas had been disseminated in Florence by such humanists as Ambrogio Traversari and Marsilio Ficino, and from Ovid's *Metamorphoses*. He regarded nature as a universal and continuous movement, in an endless process of transformation (Frosini and Nova, 2015). Nature itself is eternal and infinite, without borders, without beginning and without end; in other words, a 'continuous quantity', always varying its appearances under the lordship of time. At the end of Ovid's *Metamorphoses*, Pythagoras affirms that death does not exist, and that universal life goes on from one creature to another by merely changing its exterior shapes. Thus, a work of art that is never finished has a better chance to approach and imitate, that is, to get closer to the mystery of the immense work of nature, which is master and teacher to the artist (*maestra Natura*).

The artist may defeat the force of time by saving the appearance of beauty and life even beyond the 'end' of the physical and material model, as we can read in the *Book on Painting*: 'How many paintings have managed to retain the simulacrum of divine beauty, whereas Time or Death have shortly destroyed their natural exemplars! And the work of the painter has thus proved itself

worthier than the work of Nature, his teacher' (Pedretti and Vecce, 1995, ch. 30); 'O wonderful Science [of Painting], you keep alive the ephemeral beauty of mortals, so that they last longer than the very work of Nature' (Pedretti and Vecce, 1995, ch. 29). However, this triumph can soon turn out to be an illusion, because artworks too are subject to the domination of time. The same thought, to be sure, has inspired countless literary works – one should only think of Petrarch's *Triumphs*, where Time eventually overcomes and destroys every form of human glory (love, beauty, fame), expression or artefact (writings, paintings, sculptures, architectures, towns, civilisations). In the manuscript of *Madrid I* Leonardo wrote: 'Do as you like, because everything has its death' (*fa come ti piace, ché ogni cosa ha la sua morte*) (f. 1r).

The 'end' of the work will be a 'second death' for the author, whom circumstances may even force to witness the destruction or decay of his own works, as indeed Leonardo experienced more than once. This was the fate of the Sforza Horse Monument, left unrealised to repurpose the bronze in which it would have been cast; and of the *Last Supper*, which almost immediately showed signs of deterioration. In his meditations about the end, one notes different ways of understanding what the 'end' means to him. This may be the 'biological end', or individual death (called on one occasion 'sweet death', *la dolce morte*); or the 'artistic end', the decay and the destruction of the work; or else, and supremely, the 'collective end', the end of mankind, as told in those famous writings and drawings known as the Deluges.

It may be helpful to go back to the idea of nature and life as perpetual movement and transformation – something that can be observed mostly in the element of water. The real challenge for the artist (but also for the writer or the philosopher) is to understand life – to capture, represent, to narrate life – on condition that its 'movement' is not lost in the process. In spite of his contemporaries' unfavourable judgement, one can begin to appreciate why Leonardo may have preferred to leave his paintings unfinished – they must have looked like open-ended laboratories to him. As a matter of fact, he continued to work on them over the years. 'Finishing', putting an end, was for him a traumatic moment because it meant the separation of a creature from his maker, from the live *continuum* of his world and thought

The End of the Word

Leonardo's habit of leaving things unfinished appears to be testified to by the most intimate part of his intellectual laboratory; that is, by the evidence provided by his manuscripts. If compared with contemporary Renaissance exemplars, they offer a unique example of 'open textuality'. His writing is 'infinite', endless, with no perceivable hierarchy, aimed at fostering countless possibilities in the realms of scientific, technological, linguistic and cultural response. As a matter of fact, even as a writer Leonardo never finished any work, any treatise, any book (*libro*) of his. We are confronted with thousands and thousands of texts which rarely expand beyond the size of a page or a sheet, *recto* and *verso*, or are organised in a sequential, let alone definitive, order. There is no 'end' (border) separating one text from the other, or a text from an image, apart of course from the use of the different medium: one tends to merge into the other, in a symbiotic relationship (Vecce, 2003).

In a situation like the one that has just been described, virtually every structuring of the page and – one would assume – of its guiding principles, becomes possible. The text is in perpetual motion. 'Books' (*libri*), as he calls them, even when meticulously planned in the greatest of detail, are always characterised by an 'open-ended' outlook. Every text looks like some sort of interchangeable element, in a combinatory relationship with all the other elements, just – as has been observed – like the files of a modern hypertext. Especially in the years of the second

Florentine period and after (from 1502 onwards), Leonardo makes a habit of writing on loose double leaves, which are left open on the artist's writing desk while he attends to a continuous rearrangement of his scientific and technological acquisitions through reading and transcribing former thoughts into new manuscripts (for example in *Codex Arundel*, or in *Codex Leicester*), in a perpetual cycle of writing-reading-writing. Even when assembled in the shape of a 'book', these sheets keep their characters of individuality, as well as of openness or 'open-endedness'. In the *Codex Madrid II*, book-planning seems to be inspired by a need to localise, to find again texts and drawings, as for Leonardo himself that manuscript must have looked more and more like a chaotic labyrinth.

Textual composition customarily occurs in Leonardo under special conditions. At first, there are single large sheets, primarily assigned to host the drawing, in which the writing conquers its own space thanks to a textual 'framing' that is also visual, similar to the framing that is sometimes possible to recognise in the drawings. It is, essentially, a visual technique of *mise-en-page*, which Leonardo also kept in his later notebooks. One is struck by the total absence of any system of ruling, as is generally the case in coeval manuscripts. Rather than the conventional phrases 'writing field' or 'writing area', one should perhaps describe this type of layout as 'textual window' – once again, one is led to use a terminology familiar to those who wish to describe a specific function visualised on our computer screens. Sometimes, the last word of a text is simply an *eccetera* (normally abbreviated: *ecc.*, *ec.*), that in Latin means 'all the other things that I don't write or tell, but that you, my reader or my listener, could easily find elsewhere'. *Eccetera* means exactly not to end, but to delay, to postpone a mental discourse that continues somewhere else. In his late years, Leonardo did not have enough time to finish his writings, so he used more and more *eccetera*. One striking example is given by one of his last sheets, in *Codex Arundel* (c. 1518). Leonardo left unaccomplished a geometrical demonstration with an *eccetera*, then he added why: 'because the soup is getting cold' (*perché la minestra si fredda: Codex Arundel*, f. 245r) (Pedretti, 1975; Vecce, 1998).

Leonardo does not like to mark the end of a text (as was usual in medieval ages and Renaissance books with the words *finis*, or *explicit*). On the other hand, one finds several cases of *incipit*, of beginnings of treatises and manuscripts, marked also by precise dates, and by the deliberate use of the verb 'to begin' (*incominciare*): 'In December 1478 I began the two Virgin Maries' (<dice>mbre 1478 incominciai le 2 Vergine Marie) (Florence, Uffizi, Gabinetto dei disegni, 446v); 'On the 2nd of April 1489 book entitled "human figure"' (*A dì 2 d'aprile 1489 libro titolato de figura umana*) (Windsor, Royal Library, 19059r); 'On the 23rd of April 1490 I began this book and started again the Horse' (*A dì 23 d'aprile 1490 cominciai questo libro e ricominciai il cavallo*) (*Codex C*, f. 15v); 'Begun in the house of Piero son of Braccio Martelli on the 22nd of March 1508' (*Cominciato in Florence in casa Piero di Braccio Martelli addi 22 di marzo 1508*) (*Codex Arundel*, f. 1r); 'Beginning of the treatise of water' (*Cominciamento del trattato de l'acqua*) (*Codex A*, f. 55v); 'Beginning of the book of waters' (*Principio del libro dell'acque*) (*Codex I*, f. 72v). One of the few examples of an 'end-text' (where the word 'end' is obsessively repeated) occurs in the *Codex Madrid II* (1503), when Leonardo (wrongly) believed that he had found the solution to the geometrical problem of the squaring of the circle: 'In the night of St. Andrew I found the end of the squaring of the circle, at the end of the lamp and of the night and of the paper where I was writing it was finished, at the end of the hour' (*La notte di Santo Andre' trovai il fine della quadratura del cerchio, e in fine del lume e della notte e della carta dove scrivevo fu concluso, al fine dell'ora*) (f. 112r).

The End of the Figure

S*fumato* is an Italian word introduced at the end of the Middle Ages, widely used today by art critics all over the world. It comes from the verb *sfumare*, in turn derived from *fumo*, 'smoke': a *sfumato* landscape looks as if a cloud of smoke were passing between the landscape and the observer and causing the indeterminacy of the outline (Ullrich, 2002). At the same time, another feature of smoke is that it has no precise borders, while shapes are continuously moving and changing aspect. For this reason, the word *sfumato* is usually associated with visual perception. Not only the smoke but also the atmosphere may cause a reduction in the clarity of the edges, details and colours of an object situated very far from the observer, such as mountains, buildings, horizons or clouds. It is a matter of both perception and representation. As Janis Bell stated: 'Leonardo used *sfumato* and metaphors of smoke to describe all conditions of indistinct vision. These he connected through universal principles of visibility, founded in the science of optics and the practice of acuity perspective' (Bell, 2008; see also Bell, 1997 and 2013).

Leonardo believed that painting, in order for it to be a true science, needed to be validated by mathematical demonstrations, and the study of perspective proved to be his attempt to order the clarity of vision according to mathematical principles. The technique of *sfumato*, even if not invented by him, became the ultimate feature of his style, still today associated with his name (Nagel, 1993; Fehrenbach, 2002; Bell, 2002; Zöllner, 2013). In fact, it was for him much more than a simple technique, or a problem of visual perception or representation of the reality as influenced by the optics of the Arab scientist Alhazen (Bell, 1992; Fiorani, 2008, 2013). It was the deepest form of imitation of nature, because nature itself proves to be *sfumato*: something without beginning and without end.

At the very origin of drawing and painting there is the point, that moving on the surface creates the line; the moving line creates the surface, and the moving surface creates the space. But the line is made of infinite points, and its infinite division leads to the immaterial nature of the point (Fehrenbach, 2013, 2015). The point is merely an imaginable entity, devoid of concrete substance and evidence, and yet it represents the primary principle of the 'science of painting': 'the first principle of the science of painting is the point, the second is the line, the third the surface, and the fourth the body covered by that surface' (*Il principio della scienza della pittura è il punto, il secondo è la linea, il terzo è la superficie, il quarto è il corpo che si veste de tal superficie*) (*Libro di pittura*, ch. 3).

Leonardo investigated the shared nature of boundaries, writing that the edge (the 'end') of a body is not part of that body but the beginning of another body. This blurring of outlines (*confusione de' termini*) is also explained by his new theory about the eye (exposed in *Codex D*, c. 1505), according to which the visual faculty does not converge in a single point of the eye but extends across the entire breadth of the pupil (*Libro di pittura*, ch. 741).

In the footsteps of his friend Luca Pacioli, one of Piero della Francesca's pupils and a leading mathematician, Leonardo followed Euclidean geometry, which dictates that the point is a rational abstraction and does not have real substance. It is useful to compare this view with that of his Quattrocento predecessors. For example, Leon Battista Alberti asserts that:

We must know the point to be an indivisible sign. I call 'sign' whatever lies on the surface for everybody to see. As for the things we cannot see, no one denies that they in no possible way concern the painter, who cares to depict only what he

actually sees'; and the body is 'covered' by the surface like a skin, a 'dress', that gives the body its appearance (*figura*) (*De pictura*, ch. 1–2).

According to Piero, 'the point [is that thing that] has no parts, according to [the opinion of] geometers, who say it is purely imaginative. They say the line has length without width. [...] Thus, I'll say the point is so small a thing that an eye can barely comprehend it'. Finally, Francesco Di Giorgio wrote in his treatise of architecture (owned and read by Leonardo): 'Firstly, it is to be known that 'point' is that part of which [the result] is nothing. 'Line' is length without width' (*ponto è quella parte de la quale è nulla*) (Florence, Biblioteca Laurenziana, Ashburn. 361, f. 27v).

Now, while Alberti, Piero and Francesco seem to halt on the threshold of all that is visible and perceivable, Leonardo goes beyond that limit. It is just there, around the interrelated notions of point, line and surface, that Leonardo's meditation on the infinite and the unfinished acquires unprecedented depth. A meditation that might look paradoxical, because it seems to unfold simultaneously at different conceptual and cognitive levels, linking together by way of analogy his theoretical and logical speculations, his natural philosophy, his optics, the science of speech and ultimately the science of painting and of visual representation as he saw them.

Our keywords 'end', 'term', 'border', 'contour', 'outline', are rendered, in Italian (and Leonardo's) language, with just two synonymous words, *fine* and *termine*. Tracing the *termini* of a figure was the first goal of the teaching of painting in Renaissance workshops (*botteghe*) – this is what Alberti called *circoscrittione*. But Leonardo harshly criticises the technique of edging sharp and definite outlines, mostly in landscaping, as is done by many other contemporary painters (for example, Botticelli):

Do not edge their contours with a definite outline, because the contours are lines or angles, and because they are the last of least things, they are invisible, not only from a distance, but also close at hand. If the line and also the mathematical point are invisible, the outlines of things, also being lines, are invisible, even when they are near at hand. Therefore, Painter, do not give contours to objects far from the eye (*Libro di pittura*, ch. 694).

The pictorial technique used to represent the loss of *notitia* is the *sfumato*, worked out in such a way as to fit well into Leonardo's working habits. It consists of the patient overlapping of layers of transparent or translucent colours, laid by microscopic brushes, which aim at blurring the sense of an 'end', outline or border. If the limit of a body is the beginning of another body, it is impossible to understand exactly where the precise point of transition lies. Reality looks like a *continuum*, where forms change one into the other, in space and time. The 'end', the 'limit', therefore, is no part of the body it surrounds. It occupies no space; *ergo*, it is a 'nothing'. 'Nothing' are points, lines, surfaces, which constitute, as has been seen, the principles of the science of painting. Leonardo's paradoxical conclusion is that painting (as well as reality, together with our knowledge of reality) is merely and essentially based on 'nothing'.

This idea of 'nothing' (*l'essere del nulla* 'the essence of nothing') appears in some sheets of *Codex Arundel* (at the British Library) around 1500–1503, rewritten several times by Leonardo in an effort to improve his style, but also giving a new foundation to natural philosophy in its entirety (Marinoni, 1974; Frosini, 2003). Initially Leonardo merely notes that the 'terms' are not part of the bodies they surround: they are at the same time the 'ends' and the 'beginnings' of adjacent bodies, and that nothing is in between, without any interval. If the 'end' coincides with the 'beginning', the terms do not occupy any space, and, from the point of view of quantity, they, too, are 'nothing': 'the end (*termine*) of a body is the beginning of another; beginnings and ends (*principi e fini*) are of the same nature; therefore, the beginnings are not part of any body.

The ends (*termini*) of bodies are not parts of those [very same] bodies [...] the ends are nothing, and the surface is nothing' (*Codex Arundel*, f. 130r).

On the example of air and water, the universal elements which are always in contact, 'nullification' extends to the surface – the surface being the two-dimensional entity which is the basis of painting, the 'dress' that covers the substance of bodies according to Alberti. The same thought unfolds on the left page of the same sheet: 'What we call 'nothing', is not part of anything; thus, surface, line and point are nothing, because they are not part of the whole' (*Codex Arundel*, f. 133v). In another page Leonardo repeats his idea that the 'end' of a thing is the 'beginning' of another: 'The point is not divisible, so it doesn't occupy space / all things that don't occupy space, are nothing / the end of a thing is the beginning of another / [...] what has no end, has no figure' (*Codex Arundel*, f. 132r). On the opposite page the same sentences are written in a numbered list: '1 The surface is end of the body / 2 The end of a body is not part of the same body / 4 the end of a body is the beginning of another / 3 That is nothing, which is not part of anything / That is nothing, which occupies no space' (*Codex Arundel*, f. 131v).

Then Leonardo turns the sheet, and formulates the final consequences of his reasoning. At first, he questions the meaning of the word 'nothing': its 'being' (*essere*) is not in this universe (*apresso di natura*), but in time (between past and future), and among the words (which could also signify impossible things, which do not exist); it is merely a 'thinkable being', of a virtual nature – akin to the entities discovered by the modern sciences and mathematics (irrational numbers, quanta, etc). Nevertheless, despite their 'non-being', these entities are necessary to understand the universe (*Codex Arundel*, f. 131r). At the end, we find the extraordinary text on the 'being of the nothing', rewritten several times, as a synthesis of all precedent sentences: 'Between the greatneses of the things existing among us, the essence of nothing is the most important, and its office extends among the things that do not have the being, and its essence resides beside the time, between the past and the future, and does not have nothing of the present. It has its part equal to the totality, and the divisible to the indivisible, and its power does not extend among natural things, because this nothing, lacking the emptiness, loses the being, because the end of one thing is the beginning of another one' (*Codex Arundel*, f. 131r).

Beginning with analysis of the basic elements of geometry and the science of painting (the point, the line, the surface), Leonardo was thus able to obtain a paradoxical result. If reality has no existence, no evidence, the figure itself dissolves: 'That which has no end, has no figure' (*ciò che non ha termine, non ha figura alcuna*) (*Codex Arundel*, f. 132r). It is an intellectual process which could explain the creative crisis recorded in Leonardo's artistic career at the beginning of the sixteenth century, coinciding with a strong interest in geometry (*furore geometrico*). In the same years, the human figure was vanishing in front of his eyes, both in *sfumato* representation and in anatomical practice. But Leonardo managed to transcend this crisis and to create his last masterpieces, *Saint Anne*, *Mona Lisa*, *Saint John*. These visions were his ultimate effort to represent a reality without 'boundaries', without 'end'.

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Insights

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