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Leonardo, after 500 Years

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Abstract: In this anniversary year, after so much attention paid to the memorable auction of the *Salvator Mundi* in November 2017 and after the twentieth century's prolonged fascination with Leonardo's unrealised scientific ideas, it is time for a fresh look at what Leonardo actually accomplished rather than what he dreamed of. That quest leads to the whole breadth of his drawings, now so readily available in excellent digital scans, little known to his contemporaries, long since removed from the art market, and typically in storage for their protection rather than displayed publicly. In ignoring the general recommendation of his time to make a narrative art whose greatest virtue was its clarity of meaning, he offered a new model for western art, one which honours uncertainty.

What would be the consequences of our abandoning thinking of Leonardo (1452-1519) as a great scientist and instead crediting him, simply yet amply, with imagination? He demonstrably thought about the world in the terms typical of his time (how could he do otherwise?): man was made of earth, air, fire, and water, like the earth; his bones like rocks, his veins like the ocean. Leonardo was a theoretical engineer (oxymoron though that is) of enormous range, some of whose ideas now seem prescient (the ones that never came close to fruition are easily set aside).¹ He made dissections of human bodies, but so had Pollaiuolo before him and so did Michelangelo, albeit both of those artists did so in order to refine their depiction of human form, whereas Leonardo wanted to understand how the body supported life. He was fascinated by cog mechanisms, and with them created his automata, such as his walking lion whose breast opened to divulge flowers.²

Giorgio Vasari, Leonardo's biographer in 1550, emphasized his charisma. He could convince people it would be a good idea to hoist up the Baptistery in Florence in order to insert a more elevated foundation beneath it, and it was only after they had left Leonardo's presence that they wondered how they had been persuaded by such an extravagant pipe dream. Again according to Vasari, some people thought Leonardo never intended to finish the equestrian monument in Milan, and had made it so immense and compositionally ambitious in order to forestall its realisation. Vasari didn't necessarily mean that Leonardo had intentionally done so, but simply that he was unrestrained by practicality. Leonardo's reputation is based on a record of aspiration rather than realisation; the corollary is that he is distinguished among great artists for the tiny number of successfully completed projects. Freud, in particular, was intrigued by this record of non-achievement. In an extended essay of 1910, he analysed Leonardo's inability to complete projects as prompted by an unconscious still brooding over his childhood relationship with his father, and his repeated, similar images of smiling women as precipitated by infantile memories of his lost mother (he was illegitimate, and taken into his father's household).

Forty years before Freud, Walter Pater had written lavishly and memorably of Leonardo, in particular of the *Mona Lisa* as displaying "a touch of something sinister" (a sentiment that may have reflected Vasari's description of the famous smile as *un ghigno*, "a sneer" more exactly, although he almost certainly was relying on the reports of others and never saw the painting himself). Portraits usually showed the arm candy sort of woman, all decked out in her finest; non-ruler portraiture in Italy was still something of a novelty, or one might better say, a speciality of mercantile republics. *Mona Lisa* is not arm candy. One might well wonder whether Leonardo asked her to sit, rather than she and her husband asking him to paint, especially given that the painting was never delivered. He couldn't tell a duchess how to dress, but he could instruct this Florentine housewife to wear the most discrete of garments, jewellery absent, the fabric – over her shoulder in particular – filmy, the soft and delicate valleys in the sleeves like negatives of her fingers. Rather than an assertion of social status, her presentation is a study in understatement – and yet she dominates that wild, unruly landscape such as no one in Florence had ever before seen.

In 1911, the painting was stolen from the Louvre and was missing for two years; that very year a silent comic film starring the detective Nick Winter appeared (*Nick Winter et le vol de "la Joconde"*), in which it turned out the thief had made a mistake and actually wanted a different painting. So we may conclude that Marcel Duchamp with his scurrilous painted postcard of 1919 was not the only person to think that admiration for the *Mona Lisa* might have gotten out of hand. In 1924 René Clair made a film, *Paris qui dort*, in which a scientist puts all of Paris to sleep, with the exception of a handful of people, who proceed to help themselves to the *Mona Lisa* (among other

things), sticking it in the back of the snazzy car they have acquired. *Mona Lisa* was the painting everyone knew before there was much photographic reproduction, as the *Victory of Samothrace* was the most widely recognized sculpture. Paris was the center of art, and the Louvre was the center of the history of art.

In 2017, the monstrous sum of 450 million dollars was paid for a Leonardesque painting in parlous condition and of dubious credentials (a painting deemed by a reviewer of the 2012 exhibition in which it first re-appeared, writing in a leading journal, “repellent”).³ The scarcity of works by so esteemed an artist, saleable works but also any works at all, produced an auction that even optimistic experts found astonishing. It had been anticipated by a flurry of excitement around a fairly nondescript profile portrait on parchment, also recently attributed to Leonardo, and followed by extravagant expectations of a rather run-of-the-mill pen sketch of St. Sebastian.⁴ The collectors of our time, goaded by the highest level of advertising, get highly excited by the idea of rarity, which is of course much more readily quantified than quality. Pater had instead fixated on the image of *Mona Lisa* without a care for its rarity or even for its historical context, Vasari was deeply, if routinely, impressed by lordly patronage, and Freud inverted the whole concept of genius in prioritising limitations over abilities. Estimates of the value of the *St. Sebastian* drawing, its attribution also disputed, went up by a rather wildly delimited 18-52 million after the sale of the *Salvator Mundi*, until it vanished from the scene.⁵ The advertising video made by Christies of visitors one-by-one transfixed by the sight of the questionable but at the time unquestioned *Salvator Mundi* could well characterise our sorry time for the future,⁶ augmented by the 2018 video of Beyoncé and Jay-Z visiting the *Mona Lisa* in solitary splendour, a video includes a snippet of some random couple performing a hair grooming in the same privileged location.⁷ Extrapolating from such evidence to an understanding of the early twenty-first century will be as tricky as understanding the early nineteenth-century on the basis of Ingres’ painting of the dying Leonardo attended by King Francis I at Amboise (1818) – yet in both cases the evidence has merit. Ingres sentimentalised the mythical Leonardo of three hundred years ago (ministered to on his deathbed by a Francis I straight out of Titian’s portrait of the same, though we now know Francis I was not present at Leonardo’s death), visualising what Vasari had invented while resolutely claiming the artist for France. Beyoncé, born a generation after Sputnik and ten when the USSR dissolved, in her video doesn’t focus on the scientific drawings of helicopter-like machines or reproductive organs, but instead on the painting that is most famous, the painting that everybody knows in the museum that everybody knows. Leonardo’s fame now depends upon his being famous, more than upon his having being a genius, whether scientific or artistic. Ours is an age of celebrity, of branding, and of shocking prices; the history of art has both promoted this and been dragged into it.

We have in the process almost entirely obliterated any idea of a minor but worthy artist.

Leonardo worked for some unsavoury men: the Duke of Milan, Ludovico Sforza, was widely supposed to have done in the nephew for whom he had been acting as regent, and Cesare Borgia has the dubious distinction of having been chosen by Machiavelli as a model for ruthlessness. In his drawing after Michelangelo's *David*, Leonardo added seahorses beneath and a trident, transforming the Old Testament boy hero and emblem of republican Florence (not so long ago the underdog with respect to powerful Milan, like David versus Goliath) into the powerful Neptune. (See figure 1.) As political absolutism subsequently became established, Neptune served as a favoured statue type (along with the equestrian) of such states, in Ducal Florence, in Bologna, in Messina, the first two being cities quite far from the sea and so with little reason to honour Neptune other than a love of authority that could be vaunted with less overt aggressiveness than a statue of Zeus or Mars. Leonardo's turning the emblem of the republic (made by an artist he didn't get along with and whose statue of *David* he had recommended putting in an unfavourable position, "on the side...in a way that does not interfere with the ceremonies of state") into an emblem of authority accords with his preference for ducal and kingly patrons. He anticipated all those town squares with statues of a lordly Neptune.⁸ Freud had duly noted Leonardo's penchant for absolutist patrons; Florence may have been a bit too egalitarian for his taste. Whereas Michelangelo readily argued with imperious patrons, Leonardo charmed them, and not only as a painter. It was his lute-playing that recommended him to the Duke of Milan, Vasari tells us, and he played on a silver instrument in the shape of a horse's head, made to produce a particularly beautiful sound. Michelangelo was religiously devout and republican, unwilling to be pushed around by Popes or Dukes he recognized as fundamentally worldly; Leonardo left little evidence of any religious belief, and the emphasis Vasari puts on his Christian death has served instead to arouse suspicions. He did like to impress powerful men, that much Freud had right.

Raphael was picked by the Pre-Raphaelites as their line in the sand between what you might call naïve art and academic art, between the culmination of a craft tradition and the professionalized work herded into a kind of conforming non-conformity by critics and theorists. If it weren't for the chronological consequences of picking someone born in the mid-fifteenth century, they might have chosen Leonardo, for his is the career that denies the importance of craft. His biggest projects, sculpture and architecture, were never intended to be completed without the assistance of technical experts, and his paintings were often left incomplete. He liked to stay clean and gentlemanly while he worked, Vasari reported, whereas Michelangelo put his hair up in a turban and got dirty. The *Last Supper* infamously deteriorated early (Napoleon ordered a mosaic copy made, which survives in excellent condition in Vienna), and the *Battle of Anghiari* began to decay even before it was

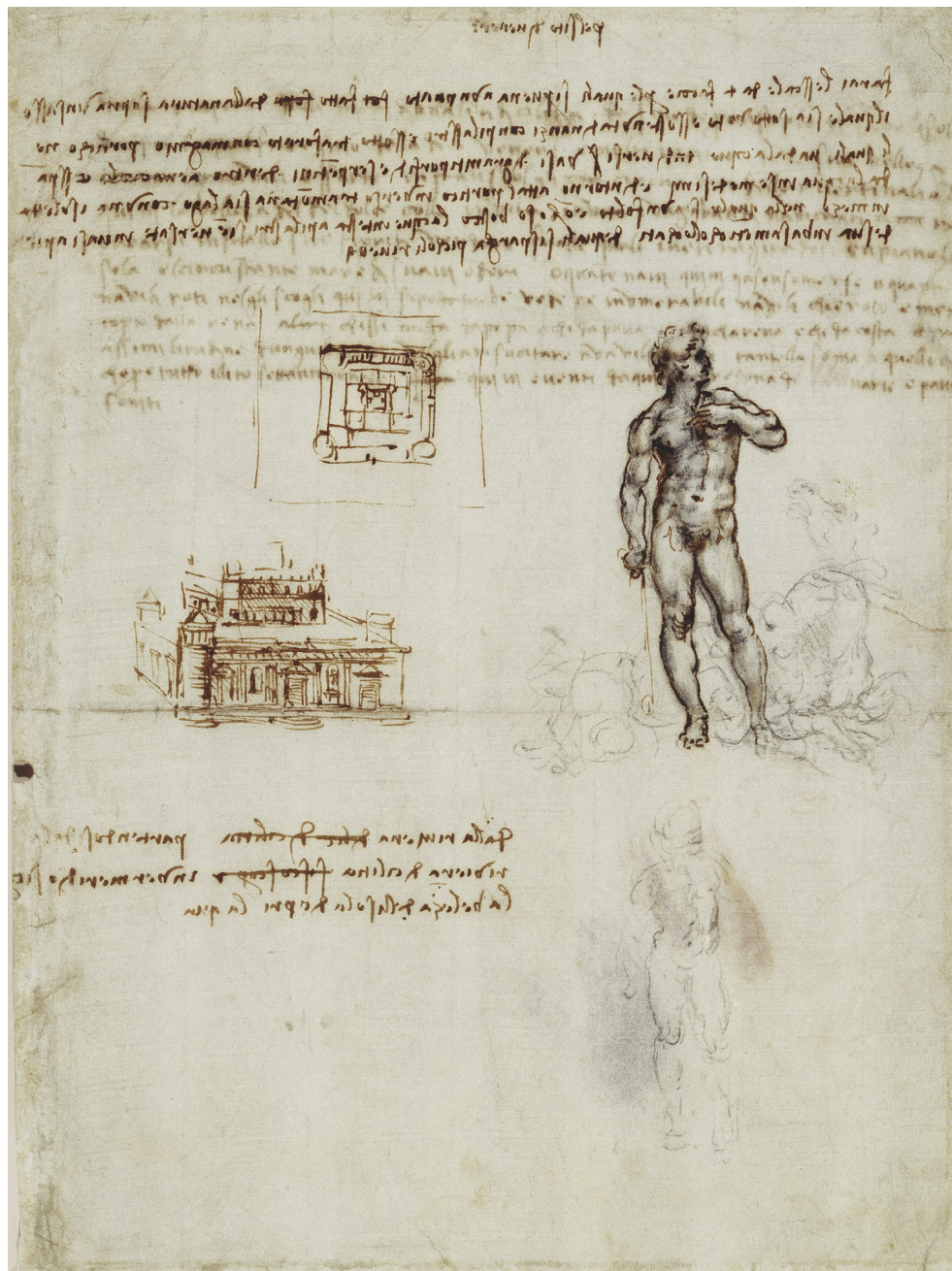


Figure 1: Leonardo da Vinci, *A palazzo, and a fountain of Neptune*, c. 1508-10, Black chalk, pen and ink, 27.0 x 20.1 cm (sheet of paper), RCIN 912591. Royal Collection Trust / Her Majesty Queen Elizabeth II 2019.

done (although one might wonder whether the prominence of the Milanese captain raised some eyebrows in Florence, and some were just as happy the work wasn't carried to completion). His notebooks were left incomplete, none of the treatises he contemplated having been made ready for the press, nor even ready enough for his heir Francesco Melzi to arrange for publication. That doomed Leonardo to a kind of failure, from which he was only partly rescued by Vasari's decision to make Leonardo the lead artist of the third and culminating period in his history of modern art, despite his being a generation older than any of the others.⁹ For Vasari, what mattered was what Leonardo could do with oil paint, the atmospheric shadows and the *sfumato* that enhanced the three-dimensionality of objects no longer flattened by their contours. Leonardo, as a Florentine, was strategically used by Vasari to diminish the accomplishments of Raphael, born in Urbino, in many ways the fulfiller of Leonardo's potential as an artist and as architect, although Raphael died, just as he turned 37, with his building projects incomplete (Leonardo twenty years older when he died). The Pre-Raphaelites undid Vasari's work on behalf of Florence, or rather, they recognized as Vasari had refused to, that Raphael, master not only of oil paint but of narrative composition, played the more foundational role – at least as judged from the perspective of the late nineteenth century.

Oil allowed for a freedom of stroke. In drawing it corresponded with the introduction of wash, and of messy nests of pen lines instead of a clear contour, and of friable chalk. It was at least a much of a revolution in how to create an image as the much-vaunted jolt into Cubism four hundred years later. Leonardo's teacher, Verrocchio, made paintings intended to bring the viewer close to the actual appearances of real people; Leonardo's figures, and his landscapes, were meant to make the viewer realise just how inaccessible reality is, how incomplete the evidence of the senses. He was an empiricist who studied the limits of the sense of sight. He initiates the great discontent of modernity, leaving behind the joyful innocence of the art admired by the Pre-Raphaelites, of Fra Angelico, for instance.

For Leonardo what previous artists had done was of relatively little import. He worked instead on the basis of what he had himself experienced and read. This is evident right from the beginning, from the glorious, gleaming, dreamy angel he inserted next to Verrocchio's prosaic boy in the Uffizi *Baptism*, the figure that is said to have caused Verrocchio to abandon painting, as Francia is similarly said to have put down his brushes upon seeing Raphael's *St. Cecilia* (Bologna) forty years later. He did learn from Verrocchio, but his project was always different, less narrowly mimetic. From both his drawings and his notebook jottings, we know the eagerness with which he observed. But he particularly observes what is difficult to capture in paint, the evanescent and the vague, light and mist and fog and receding planes. He didn't care much about the human figure as a statuesque, organic whole: he was fundamentally a portraitist in an age that didn't particularly glorify portraiture. He loved to

capture the sense of life in the face and hands: lifelikeness rather than likeness. Although works have been proposed as portraits or self-portraits, he remains the exceptional case of an artist famous in his own lifetime, and famous for his portraits, whose own likeness is obscure (though Vasari reports that he was very handsome). He commented critically on artists who based their figures on themselves.¹⁰ His overly famous Vitruvian man is a book illustration. The related drawings he made as variants, showing a man kneeling or sitting and still observable in geometric terms, are obscurities, whereas the drawing that follows Vitruvius servilely is as famous as anything Leonardo ever did. Much more startling is his diminutive drawing of the rain of worldly goods, alongside a note that laments, “Oh human misery, how many things you must serve for money.”¹¹ (See figure 2.)



Figure 2: Leonardo da Vinci, *A cloudburst of material possessions*, c.1506- 12, Black chalk, pen and ink, 11.7 x 11.1 cm (sheet of paper), RCIN 912698. Royal Collection Trust / Her Majesty Queen Elizabeth II 2019.

Quite distinct from sentiments of medieval piety, and offering instead a *cri de coeur* from the earliest stages of modern capitalism, this strange image has remained overlooked in favour of the man drawn according to Vitruvius's rigid instructions. Such are the vagaries of the historical record.

Leonardo left us two lists of his book collection, and it is poignant to see on the list Donatus, the Latin grammarian.¹² He was trying to teach himself Latin; he admitted some sensitivity about his status as "an unlettered man," an uneducated man, at least in the opinion of others. To associate with outstanding learned men of his ambient in Pavia and Milan, such as Marcantonio della Torre and Luca Pacioli, not as their full intellectual equal, must have been disturbing, more so than his childhood relationship to his parents, which was not exceptional for the time. His interests, as revealed by the booklists, are as wide-ranging as one might have guessed. Aesop, a favourite author of the period, is on the list, and plays a part in those fables that Leonardo wrote for himself, the close verbal cousin of his intriguing drawings of people and animals, rather indifferently portrayed, their movement being the most important aspect. He made miniature wax animals he could inflate so that they would fly – ever so briefly – and made wings to turn a living lizard into a dragon. Skeletons and skins interested him, across species.

His pictograms are remarkable not so much for the sentiments expressed as for the transparency of the boundary between word and image, and for that very transparency being the point. Often he sees analogies where others didn't (e.g., veins and stairs); he sees not only dichotomies but also their mutual interplay. He might have gleaned the idea of the intertwinedness of pleasure and pain from Plato, but more likely, as his allegorical drawing now in Christ Church, Oxford, suggests, from whatever it was he knew about sexual intercourse, or from experience in general.¹³ He thought in bifurcations, in antitheses, but not like a logician, rather, like a rather remotely Manichaean empiricist. He was as interested in age as in youth, as interested in deformity as in normality. His caricatures were not for amusement so much as for understanding the range of natural form, like the ever morphing patterns of flowing water that he observed and collected in his drawings. He studied the world more objectively not because he was a scientist ahead of his time but because he didn't start from the premise of a benevolent God. Nature, as he understood it, was destructive as well as creative, and that conception left him isolated amongst his peers, though it would eventually endear him to Romantics. He wasn't looking for beauty; he was simply looking.

His *Deluge* drawings, which start not from *Genesis* but from efforts to record the spectacle of storm across landscape, provided him with the sort of great epic event suited to one who didn't care much about human-centered epic heroism. While in Rome being supported by the prominent Giuliano de' Medici – a key interlocutor in Baldassare Castiglione's *Courtier* (which was still being revised and was only published nine years after Leonardo's death), the brother of Pope Leo X, and in due course the subject of Michelangelo's

Night and Day tomb in the New Sacristy, San Lorenzo, Florence – Leonardo drew his inner visions, insofar as black chalk allowed (in the earlier drawings he used some pen and ink and red chalk).¹⁴ He wrote in his notebooks what the Deluge should look like, providing a precious parallel between invented text and invented imagery, and he in his writings made the analogy between tumult in the natural elements and war. Part of the entourage of Cesare Borgia in 1502, he provided that warmonger with very useful topographical maps, and his later patron Giuliano de' Medici also was involved in military matters. But for Leonardo weather was more gripping than war, especially weather seen across the great mountain valleys that he experienced during his various periods of residency in Milan, or more precisely, in the Alps so accessible from Milan and significantly grander than the Apennines. He already saw what the Romantics would recognize three centuries later, namely the sublime aspect of landscape, the fearsome aspect of natural forces on a world scale, a topic as vivid for us now as it was for Leonardo then. Nobody seems to have taken any interest in his Deluge drawings; they had no practical use.

Perhaps it was appropriate that the Romantics anointed him with the adjective mysterious – by both Jules Michelet and Walter Pater, a rare instance of Anglo-French implicit accord. Yet Leonardo wasn't mysterious himself; instead, he granted an element of mystery to the bodies he portrayed, allowing the viewer to infer on the basis of how the body moved what the soul experienced, all the while acknowledging the necessary incompleteness, the gaps, what we might now call aporia. From that early angel in the *Baptism*, he endowed his figures with ample inner life – and actual inner life, as much as its representation, was radically evolving in this new era of book reading, religious ferment, and the grace of leisure due to some degree of political and economic stability.

His oeuvre finds various parallels in that of Dürer, a generation younger, who, if he knew Leonardo's work, didn't know much. The overlooked cousin of Dürer's intriguing *Monument Commemorating the Victory over the Peasants*, a woodcut book illustration of 1525 which shows a peasant seated atop a triumphal column, sword in his back – seemingly some deeply ironic response to the troubling Peasants War ended that very year – is Leonardo's pen and chalk drawing of a bent labourer atop a delicately bedangled column (c. 1513). (See figure 3.) A design for a fountain and apparently for a kind of quasi-perpetual motion flow of water, this skilful display of balancing parts owes little to classical compositional norms. It vaguely accords with the twin baptismal fonts in Verona designed (Ridolfi said) by Paolo Veronese's father (c. 1495), which feature a loaded, hunched peasant, again with nothing classical about the design. It may also be considered to anticipate Michelangelo's bent slaves or prisoners for the tomb of Julius II, which although they owe something to the Laocoön sons, at the same time curiously share that bent, non-axial posture so alien to the general run of ancient statues. Leonardo also made a chalk drawing of a stooped and ragged prisoner, as beautifully

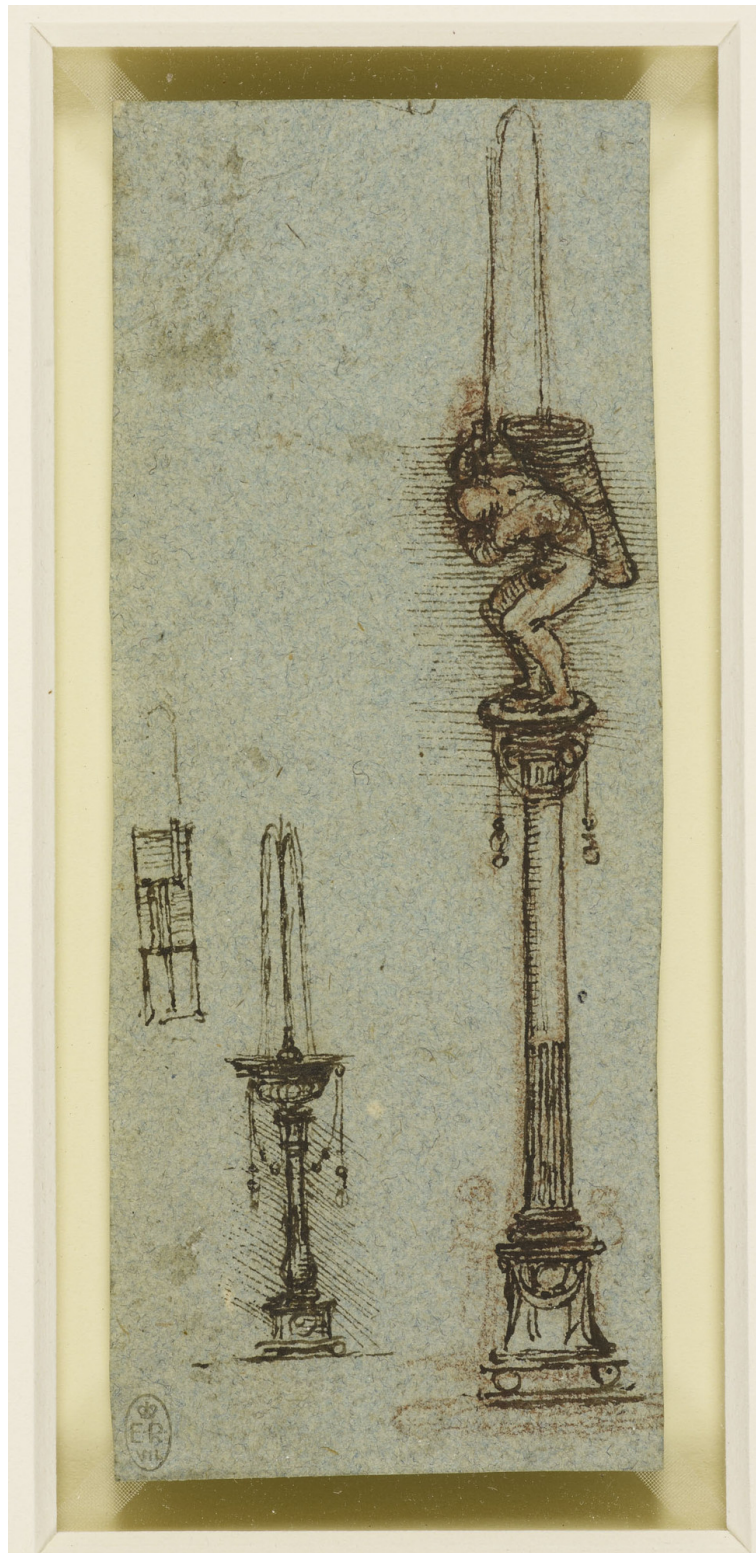


Figure 3: *Designs for a fountain*, c. 1513, Red chalk, pen and ink, on blue paper, 15.0 x 6.0 cm (sheet of paper), RCIN 912690. Royal Collection Trust / Her Majesty Queen Elizabeth II 2019.

finished in its indistinct way as the pageant costume designs that are similar in technique. Presumably it records, at whatever distance of remove, street life rather than some neo-chivalric vision.¹⁵

Leonardo, who (as these drawings demonstrate) was barely interested in anything from antiquity, was nevertheless made by Jules Michelet into the defining character of the Renaissance (“rebirth”), the period dubbed as such by Michelet himself. Michelet, like Ingres before him, appropriated Leonardo because he finished his career – gloriously even if crippled by a stroke – in France. Jacob Burckhardt in his 1860 cultural history of the Renaissance emphasized the importance of non-specialisation, a concept that developed into the oft-invoked “Renaissance man,” and which came to be applied with frequency to Leonardo, though Burckhardt had been thinking more of the earlier Leon Battista Alberti and, in general, of humanists more than artists. In the twentieth century, Leonardo morphed into the patron saint of science, someone who had, by virtue of sheer force of genius, escaped the limitations of his pre-Newtonian world view. We might well rethink this revered titan now, at the quincentenary of his death, paying more attention to what he actually accomplished than to what he might have done had he had access to synthetic materials, a greater variety of tools, and motors.

We might begin with his love of improvising on the lute. Leonardo brought music into the *paragone*, the theoretical discussion of the values of respective arts (usually the competition was between painting and poetry, or painting and sculpture). Vasari tells us he had music played for Mona Lisa so that she wouldn’t look bored like other portrait sitters. Doubtless the painter was listening to the music, too, as he created mood and organized parts into a whole. Not least among his contributions, Leonardo started us on the road to the model of music as the closest parallel to painting, and thus can number among his aesthetic descendants both Whistler and Kandinsky. When we watch movies in which songs have become not mere ornament but the backbone, we should remember Leonardo, who made images imbued with implicit movement and who thought about making visual images as a pair to music, expressive via rhythm, color, and tonality.

If we could hear the Deluge drawings, we would not be far from Romantic music, and so perhaps it is not totally unfair to suppose that, had Galileo and Vesalius read the notebooks, Leonardo’s scientific prowess would not have been wasted. That Leonardo was remembered despite being known mostly for what he left unfinished, or verging into ruin, is owed in great part to Vasari, who needed him for his history of Florentine style and for his regal patronage. The gulf between Vasari’s Leonardo, honoured as painter but also used to set off the (to Vasari) greater career of Michelangelo, and the Leonardo we tend to hear about now, the unconventional genius who anticipated the inventions of the machine age (and the reference for whom is used to validate and unify the greatness of those machines), or who is associated with a record-breaking auction price, leaves ample room for a revised understanding of Leonardo.¹⁶

For many centuries manipulated by historians puzzled by how to explain failure as a kind of success, now his reputation needs to be rescued from the marketers of artistic reputation. Making things to look at – whether by drawing, painting, modelling, or by pasting wings onto a lizard – was for him a stimulus to thinking, as humanists read the books of the ancients. His artist predecessors had been much more straightforwardly suppliers of the images they knew patrons wanted. He instead expanded the possibilities of thought via visual imagination, an accomplishment which could not be embodied in any one fabulously valuable object.

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NOTES

1. Work has been done fairly recently on the giant and unwieldy crossbow, conceived in a time already being overtaken by cannon; see Matthew Landrus 2010. For an analysis of Leonardo's place in the history of science, see Fritjof Capra 2013. Cf. Martin Johnson 1949, Part Four, 137-90. On the continuing interest of the fossil formations in Italy that attracted Leonardo's attention, see Francis Gooding 2019, 11-13, and recently on Leonardo's anatomical studies, Tubbs et al. 2018.
2. On the importance of clock mechanisms to early modern thought, see David Wootton 2018, Ch. 6, 'The State: Checks and Balances'.
3. Charles Robertson 2012, 132-33. The *New York Times* first published expressions of doubt about the attribution on 30 March 2019. See also, Landrus, 2018, *The Art Newspaper*, 3 Sept. 2018, <https://www.theartnewspaper.com/feature/salvator-mundi-why-bernardino-luini-should-be-back-in-the-frame>.
4. Katarzyna Krzyżagórska-Pisarek 2015, 61-89.
5. Scott Reyburn 2018; idem 2016. The excitement over this drawing has since diminished and its projected sale not held: <http://artwatch.org.uk/tag/leonardo-saint-sebastian-drawing/>. See also <https://www.apollo-magazine.com/leonardo-expert-declines-to-support-attribution-of-salvator-mundi/>. Recently, the rumour has been that the *Salvator Mundi* may be on the yacht of the notorious Mohammed bin Salman, who has been widely reported to be the buyer, through a proxy. <https://www.cnn.com/style/article/salvator-mundi-leonardo-da-vinci-whereabouts/index.html>. The painting had been expected to figure in the Fall 2019 Louvre exhibition observing 500 years since the death of Leonardo, and before that, to be displayed at Louvre Abu Dhabi, neither of which is now anticipated.
6. <http://www.christies.com/features/The-world-is-watching-8723-3.aspx>. Christies sold the painting in an auction of contemporary art because prices for contemporary art have been consistently record-breaking. The estimate was \$100 million.
7. <http://www.youtube.com/watch?v=kbMqWXnpXcA>, 'Apes**t', currently with nearly 194,000,000 views after 18 months. The Louvre offers instructions to visitors who want to follow in the trail of the video: <http://www.louvre.fr/en/routes/jay-z-and-beyonce-louvre>.
8. Klein and Zerner 1966, 42, although recently an autograph pen sketch has been claimed as a self-portrait: <https://www.theartnewspaper.com/news/sketch-portrait-of-leonardo-da-vinci-discovered-in-britain-s-royal-collection>. Carlo Pedretti and others have supposed that Bramante's Milanese fresco of Heraclitus (Brera) is mod-

- eled on Leonardo.
9. The artist Vasari admitted to having difficulty placing was Donatello (c. 1386-1466), whose style so approached perfection that he might have been put in the third period.
 10. www.rct.uk/collection/search#/1/collection/912726/a-portrait-of-leonardo, for the best evidence we have of what an elderly Leonardo looked like, although recently an autograph pen sketch has been claimed as a self-portrait: <https://www.theartnewspaper.com/news/sketch-portrait-of-leonardo-da-vinci-discovered-in-britain-s-royal-collection>. Carlo Pedretti and others have supposed that Bramante's Milanese fresco of Heraclitus (Brera) is modeled on Leonardo.
 11. See the invaluable website for the Royal Collection, Windsor, <http://www.rct.uk/collection/search#/16/collection/912698/a-cloudburst-of-material-possessions>.
 12. Carlo Vecce 2017; Jean Paul Richter 1970, vol. II, no. 1469, 442-45.
 13. Joost Keizer 2012, 433-55. See also Bambach 2003.
 14. The curator at Windsor Castle has recently adjusted the dating on these drawings to the French period rather than the preceding Roman residency, but we know that Leonardo was ill while in France and these do not appear to be the work of an ailing man. See Clayton 2018, 231-41, where he interprets the set of drawings as a meditation on the artist's own mortality, and also <https://www.rct.uk/collection/search#/page/1>, and Bambach 2003, 627-31, where she responds to Clayton's dating by suggesting a compromise of 1515-17, while acknowledging that they have alternatively been dated as early as 1512.
 15. <http://www.rct.uk/collection/912573/recto-anbspcostumenbspstudy-ofnbspa-prisoner-verso-a-nude-male-figure>.
 16. Beginning in 1951, IBM sponsored touring exhibitions of models of Leonardo's ideas for machines; see Heydenreich 1951. A still useful summary is provided by Benesch 1943, 311-28; for an extreme example, see Buffet 1909, 731-7, complete with portrait and a putative quotation from François Premier.

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