Anthropology and aesthetics

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Leonardo and sfumato

ALEXANDER NAGEL

Le cas particulier de Léonard de Vinci nous propose une de ces coincidences remarquables qui exigent de nous un retour sur nos habitudes d’esprit et comme un réveil de notre attention au milieu des idées qui nous furent transmises.

—Paul Valéry

I

Although the word sfumato is familiar, its exact meaning is unclear. It seems almost appropriate when using the word to allow it a certain indeterminacy. Taken literally, sfumato describes not merely the appearance of smoke but its disappearance, its imperceptible diffusion in the atmosphere. Galileo applied the verb sfumare to the art of painting in order to describe a means of passing “without crudeness from one tone to the next, by which paintings emerge soft and round, with force and relief.” Although there is no comprehensive study of the early history of the word, it is clear that the use of it as a noun—for example, “Leonardo was the inventor of sfumato”—is of fairly recent origin. Only in relatively modern parlance does one speak of a “technique of sfumato.”

Renaissance writers typically used forms of the verb sfumare. When Vasari, for example, tells of how Giorgione, following Leonardo, applied sfumato in his paintings, he uses the untranslatable active form of the verb: sfumò le sue pitture.”1 When the form sfumato is used, it almost always appears as an adjectival past participle of the verb. Thus, Vasari describes the softer style made possible by oil painting as a “sfumata maniera,” the humanist Daniele Barbaro speaks of contours that are “sfumati,” and Leonardo himself describes dark shadows as “ombre oscure sfumate.”4 As a participle, the form sfumato appears in these texts as the description of an effect: it points to an indeterminacy in the relation between the actual properties of objects and the visual aspects they present to the eye.

The indeterminacy that the word describes has continually marked the word itself with ambiguity. When the form sfumato passed into use as a substantive—that is, as a “term” of art criticism—it was used indiscriminately to describe both a technique of painting and the visual qualities produced by it, both the blending of tones, or colors, in gradations of imperceptible minuteness, and the effects of softness and delicacy this produces.3 This seemingly unavoidable conflation between a mode of making and a mode of seeing has marked the use of the word until the present day—and it was, after all, exactly the effect the technique was designed to achieve. This essay investigates the practical and theoretical bases of the technique, and explores some of its consequences.

II

The verb sfumare has a long history—Cennino Cennini already used forms of it in an artistic context in


5. The shift to the term’s use as a substantive seems to have occurred, fittingly enough, in neoclassical art theory. Filippo Baldinucci (1661) acknowledges the form sfumato still only as an adjective: “Sfumato, adj. da sfumare, che à unito i colori” (F. Baldinucci, Vocabolario Toscano dell’arte del Disegno [Florence, 1681], p. 151). By the end of the eighteenth century, its primary acceptance could be given as a noun; see M. Wattelet and M. Lévesque, Dictionnaire des Arts de Peinture, Sculpture et Graveur (Paris, 1792), vol. 5, p. 739: “Sfumato (adj. Italien pris substantivement). Il consiste dans une maniere de peindre extremement molleuse, qui laisse une certaine incertitude sur la terminaison du contour.”
the late fourteenth century—but by the sixteenth century it could hardly be used without reference to the achievements and influence of Leonardo da Vinci. Leonardo gave the word new significance both through his writings and by the example of his painting. From his own time onward, Leonardo has been celebrated as the paragon of the intellectual artist: he provided an example of consummate artistic ability working in accordance with an articulated philosophical and theoretical program. If there is one aspect of his painting that has been held to demonstrate this accord, it is the so-called technique of sfumato.

Leonardo developed the technique in an attempt to perfect traditional modes of pictorial modeling. Ernst Gombrich and, more recently, David Summers have stressed the central role played by the convention of modeling in the history of Western naturalism. The use of gradations of tone to produce the effect of relief is nearly as old as Western painting itself. Sfumato can be seen as the point of greatest refinement reached by that tradition, and there is good reason to believe that Leonardo himself intended it as such. True to his principle that "practice should always be built on sound theory," Leonardo proposed to perfect the techniques of painting on the basis of a more sophisticated understanding of the workings of nature. In other words, he intended his techniques to reproduce the conditions that made the laws of nature manifest. Leonardo's reasoning was as follows: the main goal of painting is to render the impression of three-dimensional relief. The impression of relief is primarily the result of the effect of shadows on the perception of objects. In his words, "Shadow is the means by which bodies and their forms are displayed." Shadow, therefore, was for Leonardo a necessary condition of visual perception, and throughout his life he submitted it to relentless scrutiny. The longer he studied it the more complex his observations became.

The increasing complexity of Leonardo's thinking on shadow can be traced in the changing definitions he gave the word at different points in his career. Whereas in some early texts he declares shadow simply to be "absence of light" ("privazione di luce"), in later definitions he is careful to distinguish between shadow, now characterized as "diminuzione di luce," and darkness ("tenebre"), which is true "privazione di luce." His later position is perhaps most clearly expressed in the following definition: "Shadow, in the proper sense of the word, is to be called a diminishing [alleviazione] of light cast on the surfaces of bodies; its beginning is in the ending of light and its end is in the darkness." In another note from the same period (1505–1510), he wrote: "The darkest dark is absolute absence of light, and between light and darkness there is infinite variation, because their quantity is continuous." (For Leonardo, continuous quantities are most surpasses others in the skill deserves most praise. This accomplishment, with which the science of painting is crowned, arises from light and shade, or we may say chiaroscuro (La prima intenzione del pittore e' fare, ch'une superficie piana si dimostrò corpo rilevato e spiccato da esso piano e quello, ch'in tal'arte piu eccede gli altri, quello merita maggior laude, e questa tale investigazione, anzi corone di tale scienza, nasce da l'ombre e lumi, o' voi dire chiaro e scuro).

6. After describing the blending of dark, middle, and light colors in the painting of a fold of drapery, he says, "Ecos come hai incominciato, va piu e piu volte co' detti colori, me dell'uno me dell'altro, ricampeggiandoli, e ricommettendoli insieme con bella ragione, sfumati con dilicatezza." Cennino Cennini, Il Libro dell'Arte, ed. F. Brunello (Vicenza, 1971), chap. CXLV, p. 149.


8. McMahon 70: "Sempre la pratica de'essere difficata sopra la bona teoria."

9. McMahon 103: "The first task of painting is that the objects it presents should appear in relief" ("La prima parte della pittura e' chelli corpi con quella figurati si dimostrino rilevati.

10. McMahon 434: The first intention of the painter is to make a flat surface display a body as if modelled and separated from this plane, and he who


13. McMahon 580 (MS E 32v. [1513–1514]): "L'ombra e diminuzione di luce, tenebre e privazione di luce."

14. McMahon 575 (1508–1510): "L'ombra, nominata per il proprio suo vocabolo e da esser chiamata alleviazione di lume applicato alle superficie di' corpi della quale il suo principio e nel fine della luce e il suo fine e nelle tenebre." 15. McMahon 733: "... la oscurita delle tenebre e integral
characterized by being infinitely divisible.) Leonardo identified the infinite variation that occurs between light and dark with shadow. In a slightly later note, he tried, with some difficulty, to describe its properties: "Shadow is the diminution alike of light and of darkness and stands between darkness and light. . . . The beginnings and the ends of shadow extend between the light and darkness and may be infinitely diminished and infinitely increased." 17

The increasing sophistication of Leonardo’s observations on shadow progressed together with his work on optics, which are known for this period primarily from the notes contained in the small MS D (compiled between 1506 and 1508) now in the Bibliothèque de l’Institut de France. 18 Martin Kemp has shown that by the time of MS D, Leonardo had conclusively rejected the optical theory that the rays of sight converge at a single point in the eye, the theory that Leonardo associated with those “perspectival painters” whom he had come to oppose. 19 He argued instead that the visual faculty extends across the entire breadth of the pupil. He deduced from this premise that no contour could be seen with absolute distinctness. In a passage related to these observations and later introduced into the Treatise on Painting, Leonardo wrote:

The true outlines of opaque bodies are never seen with sharp precision. This happens because the visual faculty [virtù visiva] does not occur in a point . . . ; [it] is diffused through the pupil of the eye . . . and so is proven the cause of the blurring of the outlines of shadowed bodies. 20

He illustrated his point with a diagram (fig. 1): lines of sight drawn from the various points of the pupil ABC meet the edge M of object N at various points represented by the projections FED. The eye perceives the entire range between these projections, and the resulting impression of the contour is blurred.

Leonardo had in fact anticipated many of these insights in an early piece of practical advice to the painter on how to describe shadow: "When you transfer to your work shadows which you discern with

17. Richter 121 (Windsor 19076r. [ca. 1513]): "L’ombra è diminuzione di lucce e di tenebre ed è interposta infra esse tenebre e lucce. . . . Li principi e fini dell’ombra s’astendono infra la lucce e le tenebre ed è d’infinita diminuzione e d’infinita aumentazione."


20. McMahon 806:

Li veri termini di li corpi opachi mai sarano veduti con ispetita cognizione. E questo nasce perch’è la virtù visiva non si causa in punto, com’è provato nella 3a del 5o di prospettiva dove dice, la virtù visiva esser infusa per tutta la popilla dell’occhio . . . e così è provato la causa della confusione de termini ch’ano li corpi ombrosi.

The connection between these ideas on optics and Leonardo’s contemporaneous theories of shadow was made implicitly by Francesco Melzi, Leonardo’s friend and pupil and the compiler of the Treatise on Painting, when he integrated them into the fifth part of the Treatise, "Of Light and Shade." Pedretti (Leonardo on Painting, pp. 146ff.) also has argued that Leonardo’s writings of 1506–1508 show close links between his optics and his thought on light and shade. It is worth noting that on Codex Atlanticus 150r.-a (ca. 1500–1503), mentioned above (n. 15), Leonardo produces a diagram of a type similar to those used for these optical theories to illustrate the application of the concept of continuous quantity to the problem of shadow.
Figure 2. Leonardo da Vinci, *Female Head ("La Scapigliata")*, ca. 1506. Oil on panel, 24.6 × 21 cm. Parma, Galleria Nazionale di Parma. Photo: Courtesy of the Soprintendenza per i Beni Artistici e Storici di Parma.
difficulty and whose edges you cannot distinguish, so that you perceive them confusedly, you must not make them definite or clear lest your work look wooden as a result." But how exactly should the painter go about painting the delicate qualities of shadow? In another early passage, Leonardo hinted at a method; he tells the painter to take care "that your shadows and lights be united without strokes or marks, in the manner of smoke" ("senza tratti o segni, a uso di fumo").

III

One can see Leonardo’s technique at work in his oil study of a female head in Parma (fig. 2). Here, in accordance with his precepts, the areas of shadow show no strokes or marks. Although some slight contour lines are discernible—for example, in the profile of the nose—for the most part shadow alone is, in Leonardo’s words, “the means by which bodies and their forms are displayed.” At the turning of the left jaw, for example, a slight glimmer of reflected light softens the shadow, and this modulation alone serves to render that contour. Similarly, the profile of the right cheek is not simply drawn but emerges against an intensification of shadow, producing a turning contour that, as Leonardo would describe it, “is neither part of the body . . . nor part of the air surrounding that body.”

Although Leonardo’s head is painted in oil on panel, it derives directly from the highly finished head studies made with black chalk on paper by his master Verrocchio (fig. 3). Vasari gives special praise to Verrocchio’s head studies and states that Leonardo made his own in imitation of them. Leonardo’s head, therefore, can best be understood as a transformation of this precedent. It is precisely because the two heads are similar, especially in their function as studies in light and shade, that the differences between them are significant. Verrocchio, like his pupil, gave much attention to the shading, but in his drawing the hatching lines remain visible, and shadow is assisted in its form-revealing function by contour lines that describe all the features of the face. Thus, although like Leonardo he lightens the shadow at the left jaw and reinforces it around the right cheek, he still retraces those contours with outlines. Shadow thus plays a local function within the contours: it models the features of the face and enhances their plastic qualities.

In Leonardo’s work, shadow is investigated to the point where it assumes an entirely new role. Shadows no longer “belong” to the form but are treated as variations of a more general visual phenomenon, subject to the laws that govern all visibility. They behave as gradual modulations within a continuous range extending between “the beginnings and the ends of shadow,” that is, from light to absolute darkness. The shadow against the right cheek (“outside” the form) belongs to the same system as the shadows under the chin, on the cheek, or around the eyes; under different conditions, they might unite to swallow the entire face.
The head thus is made available to vision by participating in conditions that extend into nonvisibility. Such an effect of continuity, and the operation of consistent natural laws that it implies, was realized through the dramatic refinement achieved in the modeling, now carried out in oil paint.

The difference between the two heads is made explicit by the function that each is made to serve. Verrocchio’s contour lines are pricked in order to be transferred to the final work. Thus, no matter how subtle the modeling in the final painting, the figure painted there will have been based on a series of transcribed outlines. A pictorial practice that seeks to treat shadows and contours in the way Leonardo’s does, however, can no longer proceed in this way. The qualities embedded in any advanced study are too complex and continuous to be transferred mechanically. In Leonardo’s terms, there are no isolatable “tratti o segni” (strokes or signs) that can be grafted from study to painting. Hence, Leonardo’s head is built up in oil, on its own panel. This is a novelty in the history of Renaissance art, whether it is taken as an oil study or as itself a stage in a process that is continuous with the final work.25

A later drawing by Verrocchio in the British Museum (fig. 4) represents in several respects the midway point between these two works, and can serve further to clarify the development between them. Here a much more delicate modeling of the black chalk produces more subtle effects in the shadows and, in turn, a more complex characterization of the facial features. The investigation of problems of light and shade, and the characterization of the facial features achieved through them, have reached a degree of refinement on the sheet itself that has begun to exceed its function as a preparatory study.26 The qualities attained here are no longer immediately transferable to a painted work, and, naturally enough, the drawing is not pricked. Leonardo, one might say, recognized this development and took the next bold step: to make the head the subject of its own panel painted in oil.

This is a development of far greater consequence

25. The status of this head as an unicum in contemporary pictorial practice has been pointed out by E. Riccomini, “Il Leonardo di Parma,” in Leonardo: il Codice Hammer e la Mappa di Imola (Bologna, 1985), p. 142: “... e anzi un disegno, ma dipinto su tavola.” My thanks to Carlo Pedretti for having directed my attention to this entry.

26. Its origin as a preparatory study is suggested by the less finished study for the same head on the verso, of which it is presumably the elaboration.

Figure 4. Andrea Verrocchio, Head of a Woman with Elaborate Coiffure, ca. 1480. Black chalk with white heightening, 32.5 × 27.3 cm. London, British Museum, Department of Prints and Drawings. Photo: Courtesy of the Trustees of the British Museum.

than a simple refinement of technique normally would lead one to expect. It entails important differences in the status of these heads. Verrocchio’s early head is in every sense a fragment: the bust is cut off by the irregularly cut edge of the sheet, indicating that it belongs to a full figure, and presumably to a larger composition. No matter when the sheet was trimmed, the posture and expression alone confirm the impression that this is a detail of a larger work: the cocked head, the cast gaze, and the bouncing locks register a response to events occurring in the figure’s surroundings, and the viewer is given to understand that only in that larger narrative setting can the figure’s attitude be fully understood. The later head study in the British Museum was at least initially conceived as the detail of a larger whole (the line of the right shoulder, for example, slight as it is, implies the extension of the figure beyond the limits of the sheet), but then was elaborated to a point beyond the limits of a preparatory function.
Leonardo's head shows almost no ornamental elaboration, but presents itself more clearly as an independent work, conceived within the limits established by the panel. The head seems to "know" that the edge of the panel exists. The forms, especially the left shoulder and the chest, lose definition as they approach the edges, and the line of the right shoulder stops well short of the corner. The head hovers in the middle of the panel, surrounded by an aura of incompleteness that paradoxically asserts its self-sufficiency. Although one might see relations with full-figure compositions (for example, the Leda), this head stands quite on its own: one is not left asking what will become of the rest of the figure. A type of head that began as a study, as one stage in the preparation process, has become a work in its own right. This is not to say that it has been made to look like other formal and finished paintings of the period. On the contrary, it preserves much of the unfinished quality of a study and belongs to no genre of panel painting known at the time: it is neither a portrait, nor a figure from legend, nor a close-up from a larger scene. Rather, the boundaries of panel painting have been stretched to include a highly expressive head of indeterminate subject and uncertain finish. It is in an attitude of stable repose rather than active response. The eyes do not focus on any outward object, and they give the impression that they will remain where they are: they see through the filter of an inner state, rather than receive immediate impressions from the outside world. It is the attitude of a being suspended in a state of mind beyond specific thought—unaware, even, of its own body. One might say that as a result of his investigations Leonardo discovered an alternative to the familiar Albertian theory that in painting the movements of the soul are displayed solely through the movements of the body: here an inner life is suggested by a new order of pictorial effects, without recourse to action or narrative. The intimation of an interiority held in reserve, not necessarily externalized in the rhetoric of

gesture, thematizes the claim to autonomy.

This panel is the outcome of a development that gave increasing importance to the study of shadow in the conception and investigation of form. Taken beyond a certain point, this development absorbed panel painting, hitherto reserved for the finished presentation of established subjects, into the phase of study and investigation that had so expanded Leonardo's preparation process. In so doing it made panel painting the site for explorations of form and expression in advance of the explicit representation of subject matter. Leonardo's pictorial practice thus led him to produce a type of work beyond the categories of contemporary theory and practice. Rather than simply proclaim it a panel painting without a subject, it would be more accurate to say that the intimate connection that his technique had discovered between the subtlest problems in the perception of form (light and shadow) and the very possibilities of expression—the preconditions, as it were, for the expression of a subject's meaning—had themselves become problems to be worked out in painting. This, in turn, explains how subjects entirely unrelated from an iconographic point of view could find, in the generation of Leonardo's works, intimate and inextricable filiation—an occurrence most famously exemplified, at the end of his career, in Angel of the Annunciation and Saint John the Baptist. This development did, however, set the stage for the eventual practice of presenting works as nothing more (and nothing less) than the exploration of expressive possibilities, independent of prescribed subject matter.

Needless to say, the ekphrastic mode of artistic description, predominantly employed in Renaissance writing on art in emulation of classical literary models, no longer was adequate to describe works produced in this way. A writing that claimed to be the perfect transcription in words of a painting, conceived in turn

("Quella figura è più laudabile che ne l'atto meglio esprime la passione del suo animo"). Or, even more trenchantly, McMahon 403: "(If the figures do not express the mind they are twice dead").

If the figures do not perform lively actions, and express the concept of their minds with their limbs, those figures are twice dead, because they are dead to begin with, since painting is not in itself alive but expressive of live things without being alive in itself, and if it does not add the vividness of action, it becomes twice dead.

(Se le figure non fanno ati propri, e quali co' le membra isprimono il concetto della mente loro, esse figure son due volte morte; perche morte son principalmente, che la pitura in se non è viva ma isprimatrice di cose vive senza vita, et se non segli aggiungie la vivacità del atto, essa riman morta la seconda volta)."
as the pictorial transposition of a text, no longer could be used successfully to describe a kind of painting that had made its own processes an integral part of its inventions. It is ironic, and a significant indication of the embeddedness of this development within the practice of painting, that Leonardo himself, obsessed as he was with the defense of painting in the paragone among the arts, did not articulate in these terms the very independence that his own painting had achieved: such an argument evidently had no place within a debate itself determined by the literary topos of ut pictura poiesis. But this is to anticipate the argument.

IV

Leonardo’s prescription to depict shadow “without strokes or marks, in the manner of smoke” leads us to the decisive feature of the new technique. It was a technique designed to leave no traces. From the curtain of Parthasios to Alberti’s window, the art of realism had always claimed the invisibility or transparency of its own devices. Leonardo’s “manner of smoke” went so far as to eliminate the minuter element of pictorial work—what Leonardo literally called the “mark” or the “sign”—and in this sense can be seen as the crowning achievement of the mimetic tradition. By dissimulating the work of the artist’s hand, it was designed to realize the age-old dream of a pure, unmediated manifestation of nature in art. Paradoxically, it had exactly the opposite effect. It is well known that as a result of Leonardo’s efforts the work of art acquired a new autonomy as an object of attention and a source of experience in its own right. Some would argue that in so doing Leonardo’s works only rediscovered the deepest and original ambitions of the mimetic project: rather than insist on a reference to an original other than themselves, they asserted that something meaningful was there as itself. In realizing their intended aims, Leonardo’s pictorial practices evidently accomplished more than had been foreseen by the theories that had motivated them. How did this happen?

If one principle guided Leonardo’s methods, it was that which he called “experience.” “Wisdom,” he famously stated, “is the daughter of experience.” Throughout his writings, he continually appealed to the authority and value of esperienza, and never ceased to rail against those who, blind to empirical truth, worked on the basis of ideas received from authorities. His theories almost always were made on the basis of careful observation and experiment, and thus the senses, and above all the eye, were sacred to him as the sources of all knowledge: “All our knowledge,” he wrote, “has its foundation in our sensations.” The anti-Platonic and in general anti-idealist thrust of these statements often has been pointed out.

Painting was therefore of special importance in Leonardo’s overall project (fig. 5). Leonardo’s appeals to use direct observation over received wisdom often were directed at the conventional or idealizing painter who simply manipulated inherited pictorial formulas. Painting assumed a new importance in Leonardo’s work not only because he gave pictorial practice a more “scientific” basis (as has often been stated) but because he made painting the privileged laboratory of his investigations. Painting was the most exalted altar of the senses. Of all the arts, only painting could provide the perceptual conditions, the full richness of experience, in which truth can be known. And as a setting to work of the process by which knowledge is gained through the senses, painting became the object of a

32. Kemp, op. cit., quotes a significant passage by Pico della Mirandola (De ente et uno, V): “Sensory knowledge is imperfect knowledge, not only because it requires a brute and corporeal organ, but also because it only attains to the surface of things. It does not penetrate to the interior, but is vague, uncertain and shifting.”
33. See the remarks made in the context of the paragone, for example, in McMahon 6:

If you scorn painting, which is the sole imitator of all the manifest works of nature, you will certainly be scorning a subtle invention which with philosophical and subtle speculation considers all manner of forms: sea, land, trees, animals, grasses, flowers, all of which are enveloped in light and shade. And truly it is a science and the legitimate daughter of nature.

Se tu sprezzaresti la pittura, la quale è sola imitatrice di tutte l’opere evidenti di natura, per certo tu sprezzaresti una sottile invenzione, la quale con filosofica e sottile speculazione considers tutte le qualità delle forme: mare, siti, piante, animali, erbe, fiori, le quali sono cinte d’ombra e lume, e veramente questa è scientia e legittima figlia di natura.

For a consideration of Leonardo’s preoccupation with light and shade in relation to the paragone with sculpture, see J. Shearman, “Leonardo’s Colour and Chiaroscuro,” Zeitschrift für Kunstgeschichte.

28. For the fictive curtain of Parthasios, which fooled his rival Zeuxis into demanding that it be drawn to reveal the painting behind, see Pliny, Historia Naturalis, XXXV, 36. For Alberti’s metaphor of painting as “aperta finestra,” see On Painting, op. cit., bk. 1, par. 19.
new kind of inquiry—and a new source of answers. Leonardo’s techniques—with sfumato, one might say, at their most fundamental level—were the means by which this process was realized.

Although it is easy enough to find the theoretical imperative for sfumato in Leonardo’s writings, it can be seen just as easily as the full realization of the possibilities inherent in the technique of oil painting, as it was handed down and developed in the workshop tradition.\(^{34}\) Leonardo’s very conception of the “infinite diminishing and infinite increasing” by which shadow reveals form is, as it were, built into the logic of the oil technique. As the extreme refinement of a technique, sfumato in fact belongs to a very traditional craft ethic: it is an example of patient, selfless labor working toward an end of elaborate perfection.\(^{35}\) The technique led him to pursue ever more delicate effects of modeling, effects well beyond the possibilities of painting in one paint layer, no matter how subtle the hand. The use of translucent layers of oil paint, however, allowed Leonardo to compound modeling on the surface by what could be called modeling in depth. From Leonardo’s notes and from the results of technical analysis, it is known that his paintings are composed of multiple layers of oil medium, each mixed with only the smallest amount of pigment.\(^{36}\) Leonardo continually devised new formulas for oil media in an effort to make them better able to suspend such a low density of pigment, and to allow for greater ductility in modeling between areas more and less saturated.\(^{37}\) He exploited the translucency of glazes, scumbles, and varnishes to allow for the operation of natural optical effects.\(^{38}\) Perhaps the fairest way to describe the development of his technique throughout his career would be to say that increasingly delicate effects of translucency yielded

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34. It is known that Verrocchio’s shop was particularly well informed about the techniques of Flemish oil painting. For an example of the shop’s firsthand knowledge and use of a specific Flemish model, see L. Campbell, “Memling and the Followers of Verrocchio,” Burlington Magazine 125 (1983): 675–676.

35. This connection was perceived by Paul Valéry: “[The] patient process of nature was once imitated by men. Miniatures, ivory carvings, elaborated to the point of greatest perfection, stones that are perfect in polish and engraving, lacquer work or paintings in which a series of thin, transparent layers are placed one on top of the other—all these products of sustained, self-sacrificing effort are vanishing” (emphasis mine). Indeed, for Valéry, such a technique would have been one of the last great expressions of this ethic: “It is almost as if the decline of the idea of eternity coincided with increasing aversion to sustained effort.” Quoted by W. Benjamin, “The Story Teller,” in Illuminations (New York, 1969), pp. 92–93.


37. See J. Dunkerton et al., Giotto to Durer: Early Renaissance Painting in the National Gallery (New Haven and London, 1991), for the suggestion that Leonardo used diluents to this end. An early experiment in the use of extremely dilute glazes, with unfortunate results, can be seen in the portrait of Ginevra de’ Benci (Washington, National Gallery), where in the drying process a characteristic crinkling appeared on the surface. My thanks to David Bull for having permitted me to examine the painting at length and under various lighting conditions while it was undergoing cleaning.

38. For an account of Leonardo’s experiments with dark varnishes, and their relation to an explicit rivalry with the achievements and ideals of ancient painters, see the excellent remarks in K. Weil-Garris Posner, Leonardo and Central Italian Art, pp. 17–22.
an increasingly large role to the operation of these natural optical conditions.\textsuperscript{39}

Leonardo’s technique was thus an extreme refinement of the painterly craft, but to the paradoxical end of overcoming the physical conditions of painting itself: to make disappear the dense intractability of its material, and with it the evidence of the artist’s labor in manipulating it. For Leonardo, indeed, the trace of the artist’s “hand” in the work was an index of his failure to accomplish the goals of naturalism. It resulted from a lazy tendency to impose personal judgment on the phenomena of experience: “This judgment,” he says, “is so powerful that it moves the painter’s arm and makes him imitate himself.” It is a weakness that leads the artist into the error of developing a recognizable personal style, of leaving the imprint of his own person in the work—a pitfall, he implies, more successfully avoided by the oil painters of the North: “It is a common defect of Italian painters that one recognizes the expression and figure [l’aria e figura] of the artist through the many figures painted by him.”\textsuperscript{40}

The technique of sfumato was an extreme attempt to resist this tendency. It is ironic that Leonardo’s project to raise painting to the status of a liberal art should have been carried out through an uncompromising instrumentalization of the act of painting: the most important practical consequence of the technique was, in effect, to distance the pictorial result from the act of painting that produces it. The individual stroke of the brush, the direct marking of the panel by the artist, is submersed in the vast, virtually impersonal operation out of which the pictorial forms arise. The technique subjects the artistic will to what might be called the “objective intention” of a practice driven to perpetuate its own refinement.\textsuperscript{41} Instead of the traditional sequence of ground, paint layer, and varnish, Leonardo’s technique aspired, through infinitesimal increment, to make itself continuable ad infinitum.\textsuperscript{42} One might say his painting practice came to embody the “continuous quantities” that it aimed to represent: by becoming infinitely divisible, it became indefinitely extendable; and by continually deferring the moment of finishing, it remained always open to further adjustment. Leonardo is the prototype of Balzac’s Frenhofer. His notorious inability to finish paintings was the consequence of an artistic practice that strove to make the work of painting embody the infinitely subtle workings by which nature makes itself manifest to the senses. In other words, his technique embodied the principle of infinity to such an extent as to make it impossible to establish when a painting could be called finished—and naturally the debates on this question continue today.\textsuperscript{43} By embodying the infinite work of nature, Leonardo’s technique realized a new kind of mimesis, fraught with new implications.

The seamlessness attained through sfumato was Leonardo’s answer to the infinitely subtle continuities that he saw in nature, and that in his view had been only imperfectly rendered in earlier painting; but if the technique was designed to erase all traces of the process of painting, the continuity it achieved gave the pictorial field a new unity and, paradoxically, a new density. The Quattrocento obsession with transparency produced sfumato, and yet sfumato gave painting an

\textsuperscript{39} See the X-radiographs published by M. Hours, “Radiographies de tableaux de Léonard de Vinci,”\textemdash Revue de l’Art (1952): 227–235, which show the extreme transparency of the paint in his later works. This increasingly delicate technique seems to have coincided with the new sophistication evident in Leonardo’s theories of shadow and optics after 1505, as outlined above. The notable exception in this development would be the London Madonna of the Rocks, which shows many areas of lead white opaque to the X-rays. Its technique would indeed be easier to explain if the painting had been begun in the 1490s, one of the hypotheses (still) allowed for by the documentation.


\textsuperscript{42} It is in this that Leonardo’s technique, a combination of glazing and smudging, differs most significantly from van Eyck’s system of pure glazing, which achieves a closure in the modeling between the highlights reflected from the white ground and the darks established in the underdrawing. My thanks to Jill Dunkerton for clarifying this point, and for discussing Leonardo’s technique with me on several occasions.

\textsuperscript{43} Although strictly the opposite of Leonardo’s painstaking, brushwork-effacing technique, later styles, showing a willful lack of finish and a vigorous display of brushwork, were among the most surprising consequences. The claim to bring into being an unsubstitutable visual experience, and the claim of artistic originality that it implied, had arisen in Leonardo’s works as the somewhat paradoxical result of an attempt to raise painting above the bodily and material conditions of its making, and thus to achieve in it a “styleless,” unmediated manifestation of reality. Once such claims had been made for painting, however, they then were openly and consciously parodied as the result of the direct intervention of the artist. The patient quest for infinity had become a deliberate celebration of the non finito.
opacity, a pictorial density, that was never to leave it. Later experiments with the material thickness of the paint itself were a literal exploration of this essential change in the nature and status of the picture. Objects were not shown in their absolute form, but within conditions that also obscure them—that is, within a process of revealing and concealing that could have meaning only in the experience of a viewer. Painting no longer was treated as a transparent medium onto an external reality; rather, it claimed to have internal depths in which visual experience unfolds (figs. 6, 7).

Contemporary writing on art was slow to grasp these changes, whose significance was precisely to assert the primacy and untranslatability of the visual experience. One notable exception is a passage by the Venetian humanist Daniele Barbaro, in which he searchingly describes the effects of sfumato and declares them to be the goal of all “perfect painting.” A painting made with contours soft and “sfumati,” he writes, brings one “to understand what one does not see,” to experience “a most gentle receding, a delicacy on the horizon of our sight which both is and is not” (“un fuggir dolcissimo una tenerezza nell’orizzonte della vista nostra che è et non è”). Here, it may be noted, “the horizon of our sight” refers to the limits that vision encounters in the perception of all objects, rather than to a literal horizon in a landscape and effects of atmospheric perspective alone. Barbaro’s text is a significant variation on a celebrated passage in Pliny, where the painter Parrhasios is praised for delimiting his figures with a contour that “suggests [promittat] the other parts behind it, and shows even what it hides.” In adapting Pliny’s passage, Barbaro was advertising how far the techniques of modern painting had surpassed those of the ancients: the clear outline had been superseded by new and more subtle effects, embodying a new understanding of the relation between the visible and the invisible. In Pliny the careful contour gives a clear idea of what is not shown; in Barbaro a gradual recession reveals the horizon of understanding itself. Rather than providing a clearer window on the world, sfumato made painting, like nature, a place where experience continually comes up against the limits of its knowledge. Leonardo’s famous statement “Nature is full of infinite causes which were never in experience” became applicable to his works. Sfumato implied that fictions, too, contain “infinite causes,” approachable only through sensual experience and yet ultimately beyond its reach. It was thus a means by which painting claimed an inner depth into which its secrets

44. D. Barbaro, I Dieci Libri dell’Architettura tradotti e commentati da Daniele Barbaro (Venice, 1556), bk. 7, cap. V (“Della ragione di dipingere negli edifici”), p. 188 (quoted in Gombrich, Art and Illusion, pp. 220–221):

in somma poi (che è cosa di pochissimi, et a nostri di non è a pena considerata, et è la perfettione dell’arte) fare i contorni di modo dolci, et sfumati, che ancho s’intenda, quel che non si vede, anzi che l’occhio pensi di vedere, quello che egli non vede, che è un fuggir dolcissimo una tenerezza nell’orizzonte della vista nostra, che è, et non è et che solo si fa con infinita pratica, et che diletta a chi non sa piu oltra, et fa stupire, chi bene la intende.

My translation as well as my interpretation of this passage differ in certain respects from his.

45. Indeed, it is perhaps the greatest accomplishment of the Louvre Saint Anne (fig. 7) to have found a means of treating the foreground figures and the distant setting according to the same optical principles. This achievement has been most eloquently described by Shearman, op. cit., p. 34.

46. Pliny, Historia Naturalis XXXV, 68.
withdrew. But it was not simply a new device to represent the metaphysical unknown; rather, it asserted that the known always and everywhere leads to the unknown, and by a passage infinitely gradual. The process of manufacture, rather than being eliminated from Leonardo’s painting, became its own most powerful symbol. Leonardo’s late Saint John the Baptist (fig. 8), looking knowingly at the viewer while pointing into the submerging darkness, deepens its theme by an uncanny moment of artistic self-description.

In celebrating the gradual and unbroken passage by which experience is drawn to understanding, sfumato designated painting as the source of its own truth.

Rather than standing as a sign for meanings to be sought apart from it, painting claimed to be its own path to meaning. Eliminating all evidence of the work and process of painting, sfumato likened painting to divine creation, which brought things forth from nothing. It also invoked the example of the unmediated manifestation of the divine in the legendary image of Christ “made without human hands.” Sfumato thus radically dissociated painting from the work of the painter and gave to painting the status of an autonomous creation. A new and unfathomable gap between work and maker only gave a new mystery to the artist’s activity as creator. The understanding of
naturalist tradition was brought back to its origins in religion, and to the original Greek understanding of truth as a revealing (aletheia). The experience of truth in art realized through sfumato was, however, of a new kind. Only later was it to be designated and theorized as “aesthetic.”

If one asks whether this is in fact the response that Leonardo’s paintings have provoked, the modern altar on which the Mona Lisa now stands speaks eloquently enough for itself, and the history of its career provides the most irrefutable documentation. Suffice it to say that for centuries she has been believed to withhold secrets to which she alone gives access, and that her withdrawal inward has come to be considered somehow emblematic of the nature of the artwork in the West. Sfumato, one might say, is the figure of that withdrawal.

V

The technique of sfumato was introduced to adjust vision to a new level of subtlety in the perception of sensate phenomena. In so doing, it made the understanding of painting that much more dependent on the particular conditions in which the painted forms arise. The technique demanded that every figure, every theme, every setting, be fashioned ab origine, and then be understood in the manner and to the extent that the painting revealed it. Sfumato thus stipulated the emergence of meaning in and by the artwork. Through the work of art claimed to provide a kind of knowledge that could not be obtained by any other means, whether philosophical, literary, or scientific.

48. Leonardo gave his own vivid, almost anthropological, description of this practice in Christian worship (McMahon 18):

Do we not see paintings that represent sacred deities always covered with cloths of the greatest value? And before they are unveiled, great ecclesiastical solemnities are first celebrated, with many chants and sounds of music, and at the unveiling the great multitudes of people assembled there immediately throw themselves on the ground adoring and praying to Him who is represented there . . . just as though the living idea were actually present

(Hor non si vede le pitture rappresentatrici delle divine deità essere al continuo tenute coperte con coperture di grandissimi prezzi e quando si scoprono prima si fa grande solennità ecclesiastiche di vari canti con diversi suoni, e nello scoprire la gran multitudine de popoli che qui si concorrono immediatamente si gittano a terra quella adorando, e pregando per cui tale pittura è figurata . . . non altra mente che se tale idea fosse li presente in vita).

50. For the prehistory of this claim in medieval art, see the classic
Slumato dissolved the quasi-organic links among art, nature, and language presumed by the very ideas that gave it theoretical justification. Art became the site for the elaboration of as yet unrealized ideas, and thus a “medium of self-knowledge and self-activation for man.” This new status, rather than having been granted by the dispensation of higher humanist authority, was realized by developments internal to pictorial practice; indeed, it opened up possibilities to painting beyond the humanist conceptions of art as the imitation of nature and of the antique. Slumato asserted the autonomous status of painting, but at the same time released it from its own objecthood. It claimed that each artwork was a unique and untranslatable form of experience, that each work (as the phrase goes) “opens up a world never before there.” This, of course, is the premise of aesthetics. I would argue that historically it was its precondition: the language of aesthetics was developed in response to the artistic autonomy realized by Renaissance works like these. When the work of art claimed to come first, the need was felt to supplement the prescriptive language of art theory with a new language of response, critically concerned with questions of taste and thus of judgment.

When in the eighteenth century Alexander Gottlieb Baumgarten gave the name “aesthetics” (from the Greek verb “to sense”) to a new branch of philosophy, independent of abstract logical thought and entirely dedicated to the analysis of sensory cognition, he took the experience of the fine arts as the highest form of such knowledge. The lessons learned from art thus were introduced into the philosophical investigation of cognition. It remained for Kant, in the Critique of Judgment, to establish aesthetics on entirely independent philosophical grounds: he distinguished aesthetic judgment as a moment of response referred to a subject’s feeling, and thus different from either objective cognition or moral reasoning. Aesthetic judgment, he claimed, is a cognitive power in which “critique takes the place of theory.” It is “an ability to judge forms without using concepts,” a faculty exercised in the experience of the beautiful in nature as well as in the fine arts. Kant’s successors, most notably Hegel, shifted the concerns of aesthetics entirely to the sphere of art and the concept of genius. The various “aesthetic movements” of the nineteenth century then made this understanding of art the basis of a universal experience of nature and the world. But it was perhaps Martin Heidegger who drew the furthest conclusions from the aesthetic tradition, by putting it at the center of philosophical inquiry. Meditation on the self-abiding nature of the work of art became his path to the “question of Being.” With an intended reference to the Greek aletheia, he proposed an understanding of Being as “unconcealment” (Unverborgenheit). One might say that all these claims were implicit already in Leonardo’s painting. That it took so many centuries for philosophy to articulate them only confirms the very premises of aesthetics and the nature of its origins.


53. Ibid., part I, sec. 42, p. 167.