

Industry and Ideas

Jacques-Fabien Gautier, or Gautier d'Agoty

Here is an anecdote about the death of Jacques-Fabien Gautier, later known as Gautier d'Agoty.¹ In 1785, he quarreled with officials of the Dijon Academy (the Académie des sciences, arts et belles lettres de Dijon), an institution of which he was a member. Tempers rose to such a degree that the secretary arranged for his exclusion. Gautier learned of this dismissal through its published announcement, he immediately suffered a collapse, and died soon after.

Physicien, Anatomiste, Peintre, Graveur, ses ouvrages, dans tous ces genres, prouvent que la dextérité des mains sert avec avantage le génie, & qu'ils peuvent s'associer dans le même individu. Depuis près de cinquante ans, il parcourt la double carrière des sciences & des arts; & non-seulement il a tracé aux Artistes, aux Savans, des routes nouvelles, mais encore il leur offre pour l'avenir des guides sûrs, & des secours assurés. Quatre fils, dont il a formé les talens, marchant sur ses traces, transmettront à la postérité un nom illustré par un siècle de travaux & de gloire.

Jean-Félix Watin, *Supplément* (Paris, 1773), 19.

It is true that Gautier was so proud of his election to this prestigious provincial society that the mortification of rejection could have caused his death. It would have been uncharacteristic, however. It was rare for anyone to best this man, especially in his own eyes: He was fearless and tireless in the defense of his work and his ideas, even when ridiculed by established and well-respected experts. As Watin's remark suggests, Gautier's varied exploits brought him a large circle of artisan and scientific acquaintances and attracted support as well as derision within those communities. Gautier's achievements must be balanced against his grandiloquent writing, his demands that his scientific and practical endeavors be treated with equal seriousness, and by his artistic abilities, which were less well-developed than his enthusiasm for them. His persistence made his successes, notably at the exploitation of color-printing techniques and at publishing, atypical of eighteenth-century inventors even if his motivations—a combined desire for self-promotion and financial security—were more conventional.

Historians have long recognized a number of eighteenth-century entrepreneurs who combined scientific understanding and participation in scientific communities with manufacturing interests. Matthew Boulton, Josiah Wedgwood, Christoph Oberkampf, Louis-August Dambourney, and Alexandre Brongniart are often cited examples of such men. If they constituted a distinct type, it is because these men exploited ideas that fit our historiography of scientific understanding. But what of those who develop ideas that may have seemed preposterous in their own time and never prove to be prescient? For men like Gautier—or Jean-Paul Marat, William Peckitt, or George Palmer—who created their own scientific theories and

broadcast them to no great acclaim, it may be simple to find a place for their work within a broad picture of eighteenth-century science, but it is nearly impossible to find a place for it in ours.

Connoisseurs describe Gautier as an artisan less talented than his rivals or even than his sons: His success came from an ability to exploit the potential of color printing and to bring it to new settings. Gautier's science was more remarkable for its quirkiness than anything else—except perhaps his willingness to publicize and defend the truth of his theories. Gautier is still an example of an eighteenth-century artisan-entrepreneur worth studying. His perceptions about the interaction of sciences and technologies, and about presenting oneself within the communities where that interaction was important, make him so and save him from an otherwise deserved anonymity.

Gautier's Life

Les Manufactures d'Indiennes, si communes à Marseille qu'on y voit partout les ouvriers travailler dans les rues, attirerent mes regards, & c'est là d'où me vint l'idée de tenter d'imprimer les tableaux dans le même gout.

Jacques-Fabien Gautier, *Lettres concernant le nouvel art de graver et d'imprimer les tableau* (Paris, 1749), 7.

Jacques-Fabien Gautier (*d'Agoty*, or *Dagoty*, was a later enhancement, one adopted by his children) was born in Marseille in 1716.² By his own description, he had a typical provincial education, and he showed an early interest in painting.³ At some point, that interest transferred, through exposure to industrial practices, to printing pictures: Marseille, a free port, was a center of *indiennes* trade and manufacture. Observing their production, Gautier claimed, he wondered: Could one create multicolored pictures in the same way one creates multicolored textiles? Believing that great plans must take place in great cities, Gautier moved to Paris in 1736. There he met Louis-Bertrand Castel, who encouraged him to test his ideas. Gautier produced a color-printed picture of a shell the following year.

In 1738 Gautier joined the color-printing workshop of Jacob Christoph Le Blon, recipient of two *privilèges* from Louis XV for that endeavor. He quit six weeks later, complaining about the low salary, 6 livres per day. While this was a reasonable sum for manual work, it did not approach the fees (as much as 150 livres per piece) paid to designers, painters, or engravers.⁴ Clearly, Gautier believed he was no mere assistant. He attempted to prove this to Le Blon's backers by presenting them with samples of his own work, but they were not convinced of its superiority or even its differences.

It is unclear how Gautier attracted funds to support work in color-printed pictures after he left Le Blon's workshop. When Le Blon died, in 1741, Gautier initiated a

successful campaign to claim his *privilege* and his title of inventor of color printed pictures. The grant, dated 5 September 1741 and valid for thirty years, was announced in the *Mercure de France*, where it was accompanied by a list of twenty-one color-printed images for sale and by a color-printed picture of a shell.⁵ His offer to sell so many color-printed pictures a mere six months after Le Blon's death suggests that Gautier had prepared a campaign in anticipation—perhaps even before entering that workshop. When a number of people, notably Antoine Gautier de Montdorge, a financial backer of Le Blon, and Jean Robert, Le Blon's student, complained about the transfer, Gautier defended his rights to this award. He continued to do so for the rest of his life. (Corinne Le Bitouzé connects his return to Marseilles between 1756 and 1764 with a flare-up of exchanges about the invention of three-color printing and its techniques.⁶ The name change occurred at that time.)

Gautier and his children (there were five sons) were influential members of the print and artist communities in Paris and they dominated the color-printed-picture industry in the middle decades of the eighteenth century. In addition to imitation paintings and series of anatomical or natural history prints, the atelier provided color plates for periodicals, including the *Mercure de France*. Gautier was involved with publication of other periodicals, including *Observations physiques* (1750-1753), *Observations sur histoire naturelle, sur la physique et sur la peinture* (1752-1756), *Observations sur la peinture* (1753-1754), and *Journal de Monsieur* (1776-1777).⁷ As publisher he wrote many articles for those journals, but he wrote for other publications as well. Gautier also engaged in the typical practice of arranging the publication of his own letters and articles as pamphlets. In 1749–50 he published his own treatise on color, electricity, and a general theory of the sciences; he also printed his exchanges with scientific societies—notably the Royal Society of London—about this book. Gautier's letters express his glee at the challenge to what he clearly perceived as entrenched and inaccurate theories.

Gautier continued to associate himself with the color-printed-picture industry until at least 1779. He died in 1785, predeceased or closely followed by all of his sons.⁸ Several of his grandchildren maintained connections to coloring practices as miniaturists and porcelain manufacturers, but his color-printed-picture company did not continue past the second generation.

Gautier's Color-Printed Pictures

Gautier began his color-printing career making copies of oil paintings, the same kind of work that had been the mainstay of Le Blon's workshop. He soon abandoned this practice, perhaps because of the difficulties of creating a good reproduction. The Gautier workshop turned instead to developing the considerable market for color-printed images of scientific subjects. The need for an inexpensive

technique to create multiple copies of illustrations, especially anatomical drawings for medical students, was recognized throughout Europe. The addition of color offered a method to distinguish veins, muscles, or portions of the body, but the colorist had to be especially skilled and knowledgeable about anatomy as well as coloring. Techniques for printing colored pictures offered an improved possibility of consistent results for large numbers of images.

Gautier—Le Blon

Wresting Le Blon's claims away from his legal heirs was a central experience of Gautier's adult life. Once granted the *privilège*, Gautier remained diligent in defense of his right to be known as the inventor of color-printed pictures. Even thirty years later he could recapture his irritation at Le Blon's workshop, exposing the "secret," by then irrelevant, of Antoine Gautier de Montdorge's involvement, suggesting that, "to please the English," Le Blon used seven plates to create his color-printed pictures, and arguing that Mauclerc's praise was invalid, as he had been neither a true student nor an associate of this master.⁹

The basis of Gautier's claim to the title of inventor of color-printed pictures was that Le Blon's production technique involved only three separately colored plates (red, yellow, and blue) where his own technique added a fourth black plate. How he emphasized this difference varied according to circumstances. In 1756, for example, Gautier described the printing of pictures and the making of color prints as two different things:¹⁰ Le Blon only wished to create the latter. As a result (according to Gautier) they looked like prints and not like true paintings. Hatchings are visible, and Le Blon's colors were so gross that delicate details had to be added by hand. Gautier's own work, in contrast, was printing pictures. In part, this difference rested on technical details. It was also true because Gautier commissioned new work. By 1745 he had largely abandoned reproductions in favor of special images: anatomical, natural-historical, physical, fantastic.

Theory and Practice in the Atelier

Le Blond, Allemand de Nation, & Anglois de sentiment, suivoit aveuglément le système de Newton. Il bannissoit le noir de la classe des couleurs; il vouloit ridiculement *que la réunion des couleurs matérielles, disoit-il, fissent le noir, comme la réunion des couleurs solaires faisoit le blanc*; erreur capable de plonger non-seulement le Blond, mais tous les sectateurs de ce Philosophe dans les plus grandes fautes.

Gautier, "Lettre à l'Auteur du Mercure. . . ." *Mercur de France*, No. 1101 (January 1756 part 2), 199.

In *L'Art de imprimer le tableaux*, Antoine Gautier de Montdorge described Le Blon as an artisan who considered adherence to Newton's doctrines about color more important than cost-saving production measures.¹¹ This was the reason for his reluctance to use of a fourth (black) plate in the color-printing operations. Gautier suggested—insisted, really—that Le Blon's technique was wrong because its underlying theory was wrong. Dependence on Newtonian theories misled Le Blon

into believing that painting represents lights with white, shades with black, reflections with yellow, and turnings-off (color variations within objects) with blue. Accidental colors, which are reddish, are constant colors varied by lights, shades, reflections, and turnings-off, and they appear throughout an object.

Colors emerge from light and dark. Gautier does not seem to mean this in any Cartesian sense but rather uses a literal form of the artistic term *chiaroscuro* as the basis of his explanation. In a different tradition, one that takes its cues from the genius and painter Leonardo da Vinci, colors are drawn out of the shadows by the presence of light. This is why, as Gautier describes his four-color printing system, one first lays down the black color on the white paper, and then adds successively lighter colors; blue, red, then yellow.

The foundation of Gautier's system was that black and white are the primitive colors and that red, yellow, and blue are secondaries. The five colors are equally significant in the formation of all others, and the order of their use in creating color-printed pictures was proscribed. Le Blon, as demonstrated by his use of a black plate as an intensifier of the red-yellow-blue combinations and as a shortcut in the finishing stages, simply reversed that order. This reversal made clear to Gautier that Le Blon did not understand the truth of relationships between primary and principal colors.

In daily practice, Gautier's basic tools and techniques were probably not so different from Le Blon's. The more obvious differences between the output of the workshops rested on the materials available: the skills of individual artisans—the designers, engravers, colorists, pressmen, and finishers—as well as the physical capabilities of the press, the quality of the metal plates, and the formulation of the colors. Le Blon's supporters, in defense of his reputation as the inventor of three-color printing, pointed out that in the 1730s there were few French artists practicing mezzotint engraving that was the basis of the technique. This was one reason why the workshop foundered for so long. Still, although Gautier found fault with Le Blon both for his skills as a painter and for as someone deluded by English theories, there is no concrete indication that Gautier had trained to be an artist or an engraver himself. He did not invent his own images, and after the 1740s, his role may have been to direct operations, the tasks carried out by his sons.

The similarity between Gautier's technique and that of Le Blon (especially when Le Blon added the fourth, black plate) suggests that Gautier's claim to have based his work on textile printing are best understood as strategies to distinguish his work from his rival's.¹² There is little information to tie this claim to his production techniques. The practice of over dyeing or overprinting to achieve different colors or shades was typical for textile coloring. Other conventions included the printing of darker, more-solid colors first and adding lighter or

more-fugitive colors later, and the use of negative space—undyed though perhaps bleached ground—to represent white. The layering of colors to achieve shaded effects is also a common painter's technique, and not unique to textile printing. Was Gautier so unfamiliar with these arts that he assumed greater differences among coloring practices than actually existed? It is not possible to decipher his claims about links to textile printing in a way that explains how they inspired his color-printed picturemaking. It may be that, under the pressures of his defensiveness, Gautier's descriptions of his processes were only an attempt to build a longer history for his interest in the color-printed-picture industry.¹³

Gautier's Science

Moved to challenge a wider realm, Gautier treated the transfer of Le Blon's *privilege* to himself as a validation of his ideas as well as his techniques. He expanded the color theories he claimed as the basis of his print business and set out to establish himself as a man of the sciences. Late in 1749, Gautier published a treatise called *Chroa-génésie ou génération des couleurs, contre le système de Newton*, an attempt to extend his theory of colors beyond the concerns of printed pictures. About a year later, he re-worked his theories further, to create a cohesive world system.¹⁴

Louis-Bertrand Castel's influence on the development of Gautier's science and particularly his color theories is uncertain. Castel's hand is visible, but Gautier is somewhat less anti-Newtonian and less anti-English. Gautier in his writing does not appear to share Castel's interest in a distinctively French school of the arts and the sciences, although he may have hoped to obtain the approval and patronage of others who did.

Still, like Castel's *L'Optique des couleurs*, *Chroa-génésie* challenged Newton's ideas, especially those about color, but Gautier believed his work superseded that of his one-time sponsor. His philosophy rejected Descartes as well as Newton, choosing the sun as the universal agent and motive force.¹⁵ According to Gautier's theory, the force of its rays generates planetary motion, and it is the source of light and fire, substances with broad significance and many uses according to his system. Modified, they create thunder, lightning, and such geologic phenomena as volcanoes and earthquakes—Gautier investigated these topics, too.¹⁶ And, of course, it is light and its absence that permit color.

Donc je conclu. . . que les couleurs ne sont point dans les rayons, mais qu'elles se produisent par l'opposition de l'ombre & de la lumiere.

Jacques-Fabien Gautier, *Chroa-génésie* ([Paris], 1749), 26.

Gautier based his refutation of Newton in geometry, as Castel had; a style of argument typical of Jesuit science in the eighteenth century and especially in

France.¹⁷ The techniques and terminology common to mathematical proofs are the basis of Gautier's explanation, although, as Étienne Montucla complained in the *Journal œconomique*, his understanding of geometry is even less exact than his understanding of Newtonian optics.¹⁸ The foundations are similar, but he draws, as part of his proofs, more analogies to interpretations or beliefs common among painters.

The attribution of physical or physicochemical phenomena to fire and light was not an unusual one in the eighteenth century. Investigations of fire and electricity that drew on popular experiences and that were repeated in public lectures and salon studies were undertaken on behalf of academies, and outside of them. Gautier's adoption of those ideas places him within a group of investigators who, with and without inclinations toward Newtonian interpretations, tried to form a coherent science based in one scientific or quasi-scientific subject of considerable personal interest. Flirtations with fire were flirtations with phlogiston as well. Incorporating fire into a report of personal investigations might make a reputation, as it did for Jean Paul Marat.¹⁹ Or, as in William Peckitt's writing, such commentaries might remain unknown, a highly personal interpretation, despite publication. Crankier than they are polished, Gautier's scientific theories did not bring him the accolades he believed he deserved. Nevertheless he persisted in his studies, writing further about his investigations and trying to arrange approval from different scientific societies. In one article in *Observations sur l'Histoire Naturelle sur la Physique et sur la Peinture*, Gautier announced that he had presented the treatise on his system of the universe to all the academies in Europe, and he noted some of the replies (including a letter from Pope Benedict XIV in his own hand) the treatise elicited.²⁰ Silence seems to have been a common response, and his experiences with the academies of Paris and London may have been more typical.

Oserai-je offrir aux plus beaux Esprits de l'Île des Savans mon nouveau Système des Couleurs. Il attaque, il est vrai, celui de vôtre illustre Compatriote, Le Chevalier Newton dont les Lumieres ont ebloui toute l'Europe mais il s'acorde à merveille avec les loix de la Nature, & il est fondé sur des Experience & incontestable j'ai donc lieu de me flatter de l'honneur de vous Suffrage & chez des Peuples vrais Judicieuse & raisonnables . . .

Gautier to the Royal Society, 25 January 1749/50, Royal Society of London, Letter and Papers, Decade II, File No. 27.

In 1749, Gautier arranged to read a portion of *Chroa-génésie* at the Paris Academy of Sciences, the first step of an official recognition. The examiners, Jean-Antoine Nollet and Pierre Bouguer declined to report on the work when they learned that it had been published a few days earlier.²¹ It is unclear whether he suspected *Chroa-génésie* might receive a poor review or he was unaware of institutional protocols. The former is more likely, as this was not Gautier's first encounter with the academy: A few months earlier he had presented (and then complained about the perfunctory discussion of) some anatomical plates.²²

Gautier nevertheless mentioned this presentation on the title page of the treatise, an acknowledgment if not an approval.

Tuesday, 26 January 1749/50

The president presented to the Society from the Author Mr. Gautier of Paris a Book intituled *Chroa-Genesis ou Generation des Couleurs contre le Systeme de Newton* 12° Paris, 1749.

Upon which the president observed that the objections made by Mr. Gautier to Sr. Isaac Newton's Theory, are the same which had been formerly made by Signor Rizotti, and which had been fully answered.

Royal Society of London, Journal Book Copy 1748–1751, p. 226.

Gautier subsequently tried for acknowledgment of the treatise at the Royal Society of London, offering them both the original and a Latin translation.²³ When that institution did not respond, he wrote again, suggesting that the silence reflected the lingering influence of Newton and so challenging the Society to question its most renowned fellow as it claimed to question all phenomena.

As part of his continuing validation strategies, Gautier worked to create for himself a scientific persona that could be challenged only by the relatively small communities of the academies. *Chroa-génésie* was a moderately successful tool in this endeavor, despite the rebuffs and the disparaging reviews within the those groups. Gautier could cast himself as a seeker of truth unencumbered by alliances with established scientists, a doubter who discovered faults in prevailing theories but was prevented from receiving the acclaim he deserved. The presentation in *Chroa-génésie* is so convoluted that it is unintelligible without a good knowledge of the physics and mathematics that render its deficiencies obvious. It is part of an elaborate scaffold of recognition and acceptance. A pension from the king proves his work is good; if the work is good the theories must be true; because his work is good and his theories are true he deserves his *privilège* but his receiving the *privilège* incites jealousy in others and the need to defend his work. Gautier also succeeds through his ubiquity. His journals advertise and make use of his science as well as his color-printed pictures. He publishes in other periodicals: Even his disagreements with different academies are noteworthy. His science, good or bad, brings his fame to people who might never purchase a color print.

Gautier's Science in His Industry

What does Jacques-Fabien Gautier think he's doing when he creates his own world system? What, in his universe, is the meaning of *science*? It would be foolish to ignore the most obvious: For Gautier, as for Jean-Félix Watin, George Palmer, and others, public engagement with science was a useful promotional tool. Public declaration of familiarity with the scientific basis of commercial activities reassured potential consumers in several ways. Such understanding

meant that the merchant-artisan possessed an educated vocabulary and would not be burdensome to speak with or, alternatively, could teach consumers what they needed to know to appear knowledgeable about this specialty.

But if this is the best case for an artisan creating and publishing about his own world system, what is the purpose of going against perceptions of received opinion? What does an artisan gain from challenging the sciences with alternatives as boldly as Gautier did, provoking public rebuttal of his intellectual capabilities? Should these efforts be excused under the modern idea that there is no such thing as bad publicity? Or does this suggest something else—that constant publication meant nothing, that there was less consensus about appropriate philosophical expressions than we might assume? How much weight does this counterscience deserve? How, if a fundamental concept of science is an inherent truth, is it possible to base practice on scientific theories that only you believe in?

Notes:

Note 1: A. Bouchard, "Une Famille d'Artistes Français aux XVIIIe Siècle" *Mémoires de la Commission des Antiquités du Département de la Côte d'Or* 21 (1936–37): 135–40.

Note 2: Madeleine Barbin, "Gautier-Dagoty," *Grove Art Online* (Oxford University Press, accessed 10 November 2004), at <http://www.groveart.com>. Corinne Le Bitouzé, "Une entreprise familiale," in *Anatomie de la couleur: L'Invention de l'estampe en couleurs*, ed. Florian Rodari (Paris, 1996), 100–5.

Note 3: Jacques-Fabien Gautier, "Lettre de Gautier à M.de Boze . . . sur la Gravure des Couleurs," *Mercur de France*, no. 909 (July 1742): 158–72, and printed separately (without the color plate) as *Lettres concernant le nouvel art de graver et d'imprimer les tableaux*. . . (Paris, 1749).

Note 4: J. Sgard "L'Echelle des Revenues" *Dix-huitième siècle* 14 (1982): 425–33. See also Le Bitouzé, "Une entreprise familiale," 101.

Note 5: "Extrait des registres du conseil d'etat," *Mercur de France*, no. 858 (December 1741): 2924–28 plus plate. Articles in the *Mercur de France* concerning the Gautier-Le Blon dispute include: "Lettre de Gautier à M.de Boze"; "Lettre de M. de Montdorge au Sujet de la Contestation Entre Deux Élèves de feu M. Le Blond, sur l'Art d'Imprimer les Tableaux," no. 909 (July 1742): 173–79; "Notes Relatives à la Polémique Entre Gautier, Le Blond et Robert," no. 1000 (December 1748, vol. 2): 178–80; "Notes Pour Servir à l'Histoire de l'Art d'Imprimer les Tableaux," no. 1008 (July 1749): 165–72; "Suite de la Lettre de Gautier sur le Système des Quatre Couleurs Primitives," no. 1011 (October 1749): 102–19; "Lettre de Gautier Dagoty sur l'Invention d'Imprimer les Tableaux," no. 1100 (January 1756, vol. 1): 189–203; "Lettre de Gautier Dagoty sur l'Impression des Tableaux," no. 1103 (March 1756): 198–213; "Lettre de Robert, Professeur de Dessin à Reims, sur l'Art d'Imprimer les Tableaux," no. 1104 (April 1756, vol. 1): 209–13.

Note 6: Le Bitouzé, "Une Entreprise Familiale," 128.

Note 7: Jean Sgard, ed. *Dictionnaire des journaux 1600–1789* (Paris, 1991), §1088, §1089.

Note 8: W. E. Wilson, "Fabien Gautier d'Agoty and His 'Histoire naturelle règne minéral,' 1781," *Mineralogical Record*, 26, no. 4 (1995): 65–76.

Note 9: Jean-Félix Watin, *Supplément à L'Art du peintre doreur vernisseur, servant de réponse à la réfutation du sieur M. . . .* (Paris, 1773), 25.

Note 10: "Lettre . . . sur l'Invention d'Imprimer les Tableaux."

Note 11: Antoine Gautier de Montdorge, *L'Art d'imprimer les tableaux traité d'après les écrits, les opérations et les instructions verbales, de J. C. Le Blon* (Paris, 1756), 115–6.

Note 12: Jacques-Fabien Gautier, "Sur la Façon de Peindre les Indiennes, Comme dans le Levant," *Observations sur l'histoire naturelle sur la physique et sur la peinture* 1, part 2 (1752): 126–28.

Note 13: "Extrait des Registres du Conseil d'Etat," *Mercure de France*, no. 858 (December 1741): 2924–8.

Note 14: Jacques-Fabien Gautier, *Nouveau système de l'univers sous le titre de Chroa-génésie, ou, Critique des prétendues découvertes de Newton . . .* (Paris, 1750–1751).

Note 15: "Lettre . . . sur l'Invention d'Imprimer les Tableaux," 201–2.

Note 16: Jacques-Fabien Gautier, *Cartes en couleur des lieux sujets aux tremblements de terre* (Paris, 1756).

Note 17: Peter Dear, "Jesuit Mathematical Science and the Reconstruction of Experience in the Early Seventeenth Century," *Studies in History and Philosophy of Science* 8 (1987): 133–175.

Note 18: [Jean-Étienne Montucla] "Reponse aux Objections de M. Gautier Contre la Théorie des Couleurs de Newton," *Journal œconomique* (June 1751): 93–103; (July 1751): 41–55; and (August 1751): 76–90.

Note 19: Jean-Paul Marat, *Découvertes de M. Marat . . . sur la lumière: Constatées par une suite d'expériences nouvelles qui ont été un très-grand nombre de fois sous le yeux de M.M. les Commissaires de l'Académie des Sciences* 2d ed. (London, 1780). On Marat's scientific writing, see Clifford Connor, *Jean Paul Marat, Scientist and Revolutionary* (Atlantic Highlands, NJ, 1997).

Note 20: Jacques-Fabien Gautier, "[Plan of the Book and Outline of Articles]," *Observations sur l'histoire naturelle sur la physique et sur la peinture* 1, part 3 (1752): 186–8.

Note 21: *Extrait des Registres de l'Académie des Sciences du 22 et 26 novembre 1749.* (November 1749) AdS pochette.

Note 22: Meeting Minutes for 26 April 1749, *Procès-verbaux de l'Académie royale des Sciences* 68 (1749).

Note 23: Jacques-Fabien Gautier, [*Photophysis chroogenesis*]: *de optice errores Isaaci Newtonis . . . demonstrans: ad illustrandas experientias sex figurae geometricae, simul & prismatum construendorum modus novus hinc accedunt . . .: Ludovico quindecimo Regi Christianissimo, praesentata fuit haec dissertatio, simul à Scientiarum Academiâ studiosè perlecta, Sabbattho, Novembris die verò 22, et Mercurii sequenti die 26, anno salutis 1749, . . .* trans. Charles Nicholas Jenty (London, 1750).