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Fig. 1 *Portrait of a man standing with his right foot placed on a chair.* Charcoal drawing

The Rouillet Process and Drawing Education in Mid-Nineteenth-Century France

by Camilla Murgia

Note: Even in his lifetime, the surname of this article's subject was spelled in various ways. For clarity, the author has chosen to use Rouillet, though the name is sometimes also found in historical documentation and contemporary commentary as Rouillet or Rouilliet.

The First Steps of Drawing: Bosio's Treatise and the Dupuis Method

At the dawn of the nineteenth century, art education was, as it had been for centuries, a matter of constant practice aimed at the mastery of drawing. The academies taught only drawing, as students were not allowed to paint until they had become accomplished draftsmen. Typically, an aspiring artist, having followed a course of drawing from an early age, was sent to one of the numerous ateliers in Paris. There he would continue drawing for many months, or even years.¹ Students drew from plaster casts of antique statuary and, especially, from the live model. Life drawing was considered an education in and of itself.

In the atelier of the renowned painter Jacques-Louis David, students drew from the model without being instructed in the fundamentals of drawing.² This approach seems to have been unsatisfactory to some of them. In 1801, one of David's pupils, Jean-Baptiste-François Bosio (1764–1867), published his *Elementary Treatise on the Rules of Drawing*.³ This text, though by no means the first drawing manual, bears witness to a growing need for a set of simple rules that could be followed progressively. According to Bosio, the student's first challenge was to draw the contour of the figure. Having mastered contour, he could then suggest volume through hatching and highlights by leaving areas of the white paper untouched.⁴ The young artist was taught to compose his pictures from separate elements. Thus he would make, for example, detail studies of the nose, the eyes, the ears, the mouth, and the chin, with the goal of rendering them perfectly.

Other drawing books were published during the first half of the nineteenth century, all of which responded to (1) the need for clear instruction and (2) the need to diffuse the knowledge of drawing given the rapid expansion of the industrial arts.⁵ These manuals invariably raised the question of the status of drawing. A new generation of artists criticized the rigid rules laid down in the late eighteenth century; in particular, the pursuit of pure and exact contours was increasingly held responsible for suffocating creativity and producing works of art that lacked "soul" or vitality.

Epitomizing the new direction in art education is Alexandre Dupuis's manual, *Teaching Drawing from an Industrial Point of View*, published in 1836. Dupuis, a teacher at the Collège Saint-Louis in Paris, strongly condemned the elitist character of drawing, which he blamed on the artists themselves: "we have made of drawing a science inaccessible to the majority, a privileged science, so to speak, of which the difficulties are extreme and will only be vanquished by the 'elite troupes' made up of those who have a special talent."⁶

[current issue](#)
[about the journal](#)
[past issues](#)
[help](#)
[how to support the journal](#)

Volume 2, Issue 1
Winter 2003

Articles

[Millet's Milkmaids](#)
by Maura Coughlin

[The Ecstasy of Decoration: *The Grammar of Ornament* as Embodied Experience](#)
by Nicholas Frankel

[Anti-Catholicism in Albert Bierstadt's *Roman Fish Market, Arch of Octavius*](#)
by Paul A. Manoguerra

[Empress Eugénie's Quest for a Napoleonic Mausoleum](#)
by Alison McQueen

[The Rouillet Process and Drawing Education in Mid-Nineteenth-Century France](#)
by Camilla Murgia

Reviews

[American Sublime: Landscape Painting in the United States, 1820-1880](#)
Reviewed by Janet Whitmore

[Beyond the Frame: Feminism and Visual Culture, Britain, 1850-1900](#) by Deborah Cherry
Reviewed by Colleen Denney

[Bodies of Art, French Literary Realism, and the Artist's Model](#) by Marie Lathe
Reviewed by Gabriel P. Weisberg

[The Emergence of Jewish Artists in Nineteenth-Century Europe](#)
Reviewed by Janis Bergman-Carton

[La Belle Époque de la Pub](#)
Reviewed by Gabriel P. Weisberg

[Against the Modern: Dagnan-Bouveret and the Transformation of the Academic Tradition](#)
Reviewed by Michelle C. Montgomery

[The Modern Portrait in Nineteenth-Century France](#) by Heather McPherson
Reviewed by Julie L'Enfant

Indeed, the legacy of the preceding generation was the notion that the art of drawing was too complex for all but the most gifted, and remote from everyday life. Dupuis especially challenged the practice of drawing from the live model. Long considered the foundation of an artist's training, this practice was based on the fundamental principle that a three-dimensional figure in space could be defined most aptly by a contour line. The student who drew from the human figure could never produce a convincing work, since the goal of the exercise was to show skill in the precise delineation of contour. Instead of learning to draw immediately from the model or plaster casts, Dupuis advocated beginning with three-dimensional, geometric shapes. The student would start with simple rectilinear forms, then gradually advance to more complex, rounded ones.

While the Dupuis method enjoyed some success, it did not address the pressing needs of an industrialized society to reproduce forms in nature rapidly and accurately. In his 1868 essay, *The History of the Teaching of Drawing from the Beginning of the World until Today*, Louis-Joseph Van Péteghem recognized this weakness: "I believe I have found the intention that led the learned Dupuis to develop his method: he wanted to save time. He wanted to do away with the copy, but as he had the good sense to understand that creating a drawing immediately from life is impossible, he tried to find a middle ground between the copy and the life drawing; he believed to have found this intermediary in having students study busts, first angular, and then rounded. [His approach] is useful, but it lacks a beginning. This starting point is the line, or rather, the contour."⁷

The Rouillet Process and the Problem of Artistic Observation
Van Péteghem's "starting point" would be provided less than a decade after the publication of Dupuis's method, not in a drawing manual, but in a magazine article on a new invention. This apparatus and a new process of drawing were developed by Amaranthe Rouillet (1810–1888), a landscape painter from the French provinces.

We know little about this artist, although he must have been very active during his lifetime, both as an artist and as a teacher-inventor. Born on 2 February 1810, in Vérosvres, Saône-et-Loire, Rouillet studied at the École des Beaux-Arts in Lyon from 1822 to 1831.⁸ He then moved to Paris, where he lived until his death in 1888.⁹ He exhibited at the Paris Salon from 1831 to 1883, and at the Salon of Lyon in 1836 and 1843–44. Around the time that Dupuis published his manual, Rouillet began to take an interest in drawing instruction. He wrote various small booklets, all on the fundamentals of drawing. In 1836, *David for Schools: An Elementary Summary of Drawing, Containing Twenty Plates of Progressive Principles for the Use of Young People* was published both by F. Chavant in Paris and by Ch. Tilt in London.¹⁰ This album of lithographic plates was devoted to the study of the human figure. As the title indicates, the author aimed at reducing the drawing practice of great Master to simple principles. The student was to study the nose, the mouth, and the eye, then sketch a face consisting of these elements. The ears or chin would be studied at a later stage. The anatomical detail was reproduced twice in the same plate: first as a line drawing, then with the addition of hatching to model the form. However, like Dupuis, Rouillet had still not found an easy, foolproof way to reproduce forms in nature.

A few years later, on 8 April 1843, the periodical *L'Illustration* published a short article entitled "The Rouillet Process" in its section with the heading "New Inventions." Rouillet's method was simple to follow. The draftsman stretched a transparent cloth over a frame, placed the frame before an object, traced the contours of the object with a charcoal or a lithographic pencil onto the cloth, placed a sheet of paper over the cloth, and rubbed the surface with a rag. This procedure enabled any person capable of holding a pencil to draw, quickly and precisely, any form he wished. Gone was the pain of drawing for years at the academy, where the school of David continued to be held up as the highest standard. No longer was it necessary to draw casts from classical antiquity or to study the live model in endless poses.¹¹ Preceding the article is a dedicatory note to Rouillet, which seems to call the entire practice of drawing into question: "In the art of drawing, there is one part that is nothing more than the exact imitation of the contour of objects, of their positions, and of their relative proportions; this is the material reproduction of what we see; imagination and emotion have no place in this completely mechanical process of which the difficulty, however, is extreme."¹²

These lines reveal the strategic advantages and pitfalls of Rouillet's invention. For the beginner, as well as the great artist, the act of rendering the human figure or any form in nature is, above all, a matter of close observation. Artistic observation consists of two distinct moments: realism and idealization. The first is concerned with the precision of contour and form and the exact transfer of the observed object to the sheet of paper, that is, a faithful study from life. The second—which depends on the beholder's innate talent and creativity—will always reflect the skill of the artist in the final work of art.

During the course of the first half of the nineteenth century, the perception of the relationship between these two aspects of artistic observation changed significantly.¹³ Critics of the traditional method of drawing instruction disapproved of the emphasis on the copying of contours at the expense of fostering creativity and teaching artistic composition. Advocates recognized that the Rouillet Process, by enabling the student to transfer the outlines of natural forms in a short amount of time, provided new options for the teaching of drawing. In effect, this method rendered the observation and depiction of reality, which had hitherto taken years of practice to perfect, entirely mechanical. Contrary to his critics, Rouillet believed that his process released the artist from the repetitive part of drawing (capturing the "real") and allowed him to concentrate on the creative part (presenting the "ideal"): "The artist can now return to his true vocation, which is not to slavishly copy nature but to idealize it. By analogy, the sculptor is not the one who cuts the statue in marble, but he who translates and materializes thought into clay."¹⁴ The publication of this new method sparked a controversial debate around art education and gave Rouillet a prominent voice among the participants.

Inspection of the Rouillet Process by a Government Commission: The Debate on Drawing Leading up to the 1863 Reform of the *École des Beaux-Arts*

The Rouillet Process appeared in the years leading up to a key moment in the history of fine arts education in France: the reform of the *École des Beaux-Arts* in 1863.¹⁵ In the decades that preceded this reform, numerous drawing methods and courses were introduced, with the dual aim of providing a solution to the teaching of drawing on the one hand, and determining its scope

on the other. This development played out not only in the art world, but also in other areas of society, which became increasingly interested in finding mechanical means for the immediate and exact reproduction of objects in reality.

At this time, all new processes or devices related to reproductive means were subject to scrupulous study by the French government. Evaluations were carried out by commissions that answered to the *Ministre de l'Intérieur*. One of these was the *Direction des Beaux-Arts*, which had an office in every region of the country. Composed of members from different fields—painters, architects, sculptors, and archaeologists—the *Beaux-Arts* commission appointed special committees to examine the applicant's process or device and drew up a report containing a detailed description and final assessment, either positive or negative. These reports were often published in the newspapers, such as *Le Moniteur universel*, which helped to diffuse the new methods.

In the case of the Rouillet Process, the commission's final report was published in *Le Moniteur* in 1844, a year after Rouillet had submitted his application to the government. A file with various documents dated to 1843 preserved in the *Archives Nationales* reveals the steps leading up to its approval.¹⁶ As will be seen below, the diffusion of the new process became very influential in the area of drawing education.

On 14 January 1843, Rouillet wrote to the *Ministre de l'Intérieur*: "As a landscape artist and a portrait painter, I was motivated by the initial, practical difficulties of art to research processes that could minimize those difficulties without altering the beauty of art. After ten years of calculations, of combinations, of patient and multiple experiments lasting often into late, exhausting nights, I have finally arrived at a discovery of the most extreme simplicity, completely different from everything tried up until now."¹⁷ Following receipt of this application, François Cavé, then director of the *Beaux-Arts* office, formed a committee to study Rouillet's invention. The committee was composed of nine members: Jean-Baptiste Cicéron Lesueur, architect; Jean-Baptiste Antoine Lassus, architect; Léon Cogniet, painter; Jean Alaux, painter; Hippolyte Flandrin, painter; Camille Corot, landscapist; Louis Lenormant, member of the *Académie des Inscriptions et des Belles Lettres*; Louis Vitet, state councilor; and Prosper Mérimée, chief inspector of the *Monuments Historiques*.¹⁸ Judging by the inclusion of these prominent members, the process invented by Rouillet had caught the attention of the art world. Vitet's and Mérimée's participation clearly conveys the potential importance that the *Direction des Beaux-Arts* attached to the new discovery, since, through them, the entire organization would learn of it.

In his initial letter, Rouillet implied that his new process could have multiple applications: "Without any machine or clumsy apparatus, without any other than the most inexpensive, commonplace instruments of drawing, I am able to reproduce with an almost unbelievable rapidity even the largest and most complicated objects. Linear perspective constructions, even the most difficult, with multiple lines, relative proportions, or required dimensions, are obtained with an accuracy of volume and a sense of depth that may be said to be mathematically correct."¹⁹

The scope of the potential applicability of the new invention explains the participation of architects as well as painters and landscapists, such as Camille Corot. If the process could be used

in any field that required drawing, it was important that these fields were represented. Of the nine men asked to join the committee, only Corot, who was preparing to leave for Italy, could not participate.²⁰ He had proposed to Cavé that the meetings be postponed until his return, but there appears to have been great urgency to study the process, as Corot was replaced first by Jacques Félix Duban, an architect,²¹ and later by another architect, Alexandre-Nicolas Dubois, who signed the final report with the other members.

Evidently convinced that his invention would be accepted, Rouillet, who must have known at least some of the future members of the commission, wrote to Cavé on February 15, a month after his first letter: "Monsieur, I saw M. Vitet yesterday, and he asked me to tell you that you should write at once to M. Rochette so that he can send you the Académie [des Beaux-Arts]'s report."²² The support of this institution would have legitimized Rouillet's process and, above all, would have confirmed his perception that there was indeed a gap in the teaching of drawing. Désiré Raoul-Rochette, secretary of the Académie, did not delay. Less than a week later, on February 24, Raoul-Rochette sent a letter to the *Ministre de l'Intérieur*, arguing against the adoption of Rouillet's process, revealing that members of the Académie des Beaux-Arts had examined it prior to the committee's final report to the ministry and had disapproved of it. This negative assessment delayed the acquisition of the Rouillet process by the government for a full year.

In his letter to the ministry, Raoul-Rochette noted with regret the current preoccupation with the rapid expansion of new methods aimed at simplifying drawing. He stated that Rouillet's process, far from ennobling the practice of drawing, would impoverish it. As a result, the Académie des Beaux-Arts urged rejecting the new invention:

This decision of the Académie is based on a way of looking at art that is concerned both with fundamental principles and all that is beneficial to its progress. [The Académie] is convinced that all these inventions, the goal of which is to render the practice of drawing easier, more rapid, and more expeditious, serve only to encourage mediocrity and will do more harm to art than good. The entire Académie is of the opinion that the practice of the arts of drawing will always be accompanied by all kinds of difficulties, which can only be conquered by serious vocation and persistent study. The lazy and mediocre will try to evade those difficulties but they will not stop true talent. Given this profound conviction, [the Académie] has always refused and will continue to refuse approval of shortcut processes, of whatever kind, that tend to dispense with study and knowledge, that make of art a trade and of the artist a machine, that belong only to industry and can only lead to failure.²³

These lines by Raoul-Rochette reflect the continuing concern of the teaching establishment with the re-evaluation of drawing as the foundation of all art. To those who saw drawing both as a starting point and a means of discovering talent, such a reassessment risked marginalizing drawing at the expense of new industrial demands. From this moment on, and up until the reform of 1863, the Académie strove to preserve for drawing its dual identity as a teaching tool and as artistic product. For members of the Académie, drawing was much more than a progressive step in the

mechanical observation of an object, as Rouillet maintained. Above all, it was an expression of the inner life of the artist. Each artist had a unique vision for every object, which would be rendered according to that vision as well as individual talent. In proposing a mechanical conception of observation, Rouillet went against the most deeply held convictions of the Académie, which fought with all its might against each attempt to replace the time-honored practices of drawing with those that employed mechanical means without substantial effort. Subconsciously, the Académie no doubt wanted to guard the sacred sphere surrounding the fine arts in this period (which made of drawing a "privileged science," to borrow the words of Alexandre Dupuis), to protect the hegemony that resided in the ancient organization of the Institut de France, and to clearly demarcate the line between great "Art," that is, work produced in prestigious studios and worthy of display in the Salons, and reproductive forms that primarily served industrial purposes.²⁴

Though the practice of tracing from life, which was the essence of Rouillet's process, was not unknown to the art world,²⁵ the inventor's originality lay in inserting this practice into the drawing apprenticeship, thus eliminating frequent visits from the master to "correct" the student's drawing. The adoption of such a method was intended to fill a didactic gap on the one hand, and to reform institutions on the other, by providing an easier way of learning to draw. In the view of Rouillet and others, making the act of drawing accessible to the masses or to industry was to be welcomed.²⁶



Fig. 2 Shoulder-length portrait of the same model as in fig. 1. Charcoal drawing

Despite the opposition of the Académie des Beaux-Arts, the government's committee resumed its evaluation of the Rouillet process, which lasted nearly a year. Before the publication of its final report in *Le Moniteur*, a less scientific interim report was produced, a copy of which is in the Rouillet file at the Archives Nationales.²⁷ In this report, the results of different experiments by Rouillet were described. One experiment consisted of drawing first the entire model and then only the head. Two such drawings are in the Rouillet file (figs. 1, 2). According to the report, the tracing of the live model was accomplished quickly and with success. A second experiment involved making an enlargement of one of the first two drawings, by placing an oil lamp behind the gauze with the contour drawing on it, and projecting it onto the wall. However, Rouillet encountered problems when he could not darken the room sufficiently. He experienced more difficulties when he tried to copy a medal, due to the object's small size and the fact that he ran out of gauze. The report also compared Rouillet's method with other processes of reproduction already in use, such as that of Eugène Joseph Perdoux, a student of Léon Cogniet, who used a mirror to execute tracings.²⁸ Despite the various setbacks noted, the committee was impressed by Rouillet's experiments: "Inasmuch as the results presented to us by M. Rouillet were obtained through easy and truly new means, we consider his invention to be extremely useful. His enlarging process, in particular, could have a lot of applications and we would wish for it to be published. All artists would be well served by being able to reproduce their sketches in large size."²⁹

Once the experiments had been corrected, repeated several times, and studied again, the Rouillet Process was approved by the government. The final report appeared in *Le Moniteur* on 22 January 1844. There was no longer a preoccupation with the "mechanization" of observation that had been opposed so strongly by Raoul-Rochette: "As for now, it seems to us that the apparatus of M. Rouillet is particularly useful to artists; no shortcut

process is easier or yields more good results. We do not think that it discourages one from learning how to draw. On the contrary, we believe it serves draftsmen well by saving them time, and painful trials and errors."³⁰



Fig. 3 Title page and cover of Rouillet's 1843 album.



Fig. 4 *Portrait of seated man*. The inscription below reads: "Aramanthe Rouillet, done in two minutes with the help of his process." Lithograph in Rouillet's 1843 album.



Fig. 5 *Landscape*. The inscription below reads: "Aramanthe Rouillet, done in half an hour with the help of his process." Lithograph in Rouillet's 1843 album.

Close to the time that the report appeared in 1844, the Gihaut brothers published an album with twelve lithographic plates made after Rouillet's drawings (fig. 3). The first ten are portraits, including one of a man seated on a chair (fig. 4), followed by two landscapes (fig. 5). Each plate gives the number of minutes that it took to complete the drawing, emphasizing the efficiency of the process. Rouillet himself wrote a drawing manual in 1857, *New Principles of Drawing*, published by the Susse brothers, which focused on perspective and the figure.³¹ The government's 1844 report on his process was reprinted in a second edition of this book, published in 1863.

Tracing and Memory Drawing: Rouillet and Madame Cavé

The Rouillet Process met with success in the years that followed the 1844 report. Most importantly, it was integrated into a manual entitled *Drawing without a Teacher: A Method of Learning Drawing from Memory*.³² This book was evidently very popular as it was reprinted four times between 1850 and 1857. The author, Marie-Elisabeth Cavé (née Boulanger) (1809–after 1875), was a painter who frequented the Parisian studios. Once romantically involved with Eugène Delacroix, with whom she took a trip to Belgium, she later married François Cavé, the head of the Direction des Beaux-Arts, at the time that Rouillet submitted his invention. Delacroix wrote an article publicizing her drawing method in the *Revue des deux Mondes* on 15 September 1850.

Madame Cavé's method employed two techniques: drawing from memory and the mechanical transfer of an observed object onto paper. The first technique had already been introduced by Horace Lecoq de Boisbaudran in his *Education of the Visual Memory* published in 1847.³³ Lecoq advised students to closely observe an object, commit it to memory, and then copy it as faithfully as possible onto the paper. Correct observation, he believed, allowed the eye to accurately define the contours of a form, down to the smallest detail. This method did not pretend to be innovative, but rather was intended to aid young students of painting.³⁴

Calling for the introduction of mechanical tools to drawing education, Madame Cavé proposed that students, in addition to drawing from memory, trace objects from life onto stretched and transparent cloth. This, of course, was the Rouillet Process, to which she devoted an entire chapter.³⁵ While the process of tracing from nature had been practiced for centuries—Renaissance masters had made tracings of objects on glass, for example—the transfer to paper posed problems. Rouillet's invention had overcome these. Madame Cavé explained the transfer part of the process well and in great detail: "When the tracing is completed, you attach a sheet of paper to your drawing board, very straight, and on this piece of paper you place your gauze, also very straight, taking care that it touches equally everywhere. With a pin, you lift the gauze slightly and let it fall again, and the copy on the gauze transfers exactly to the paper."³⁶

When her book first appeared, it spurred debate. Again, the principal criticism was that this practice ignored the talent of the artist. Anticipating objections, Madame Cavé stated in her introduction that the reproduction of exact contours did not make an individual an artist; only invention could determine that. Rather,

this method, in conjunction with the exercise of memory, enabled the artist to better utilize his own resources: "With this method, as you learn to copy the objects in front of your eyes, they become etched in your memory so that you can retrieve them whenever you want. Visual memory is the most common [form of memory] and the easiest. After six weeks of study, our female students themselves are surprised by what they know, by what they draw. To draw from memory, is to have your thoughts at the tip of your pencil, as the writer has his at the tip of his pen."³⁷

Madame Cavé built upon Rouillet's process, especially the use of tracing and enlargement. She even wrote to Rouillet requesting further elaboration of his methods, and, at the end of her book, she reprinted Rouillet's response, which described the process in minute detail. The artist was to first trace the drawing onto glass or a piece of gauze. Then an oil lamp was to be placed before the center of the tracing, so that the drawing would be projected onto the chosen support—a canvas on an easel, for example, or a wall. The further the transfer was placed from the source of light, the greater the enlargement.³⁸

Madame Cavé's method was also reviewed by a government commission.³⁹ Despite fervent opposition among some members, it was approved in the final report of September 1850, thanks largely to Delacroix, who sat on the committee. Delacroix believed that a great artist trusted his or her experience to resolve the problems of copying and of composition, and he attributed the success of a work of art to innate talent. His view sheds light on why elementary principles of drawing were rarely taught: "The knowledge of nature, fruit of long experience, gives to consummate painters a sort of habit as to the means they employ to render what they see; but instinct still remains for them a guide more sure than calculation. This explains why the great masters rarely stop to give out the recipes of the art they practice so well."⁴⁰

What treatises had been written by the old masters tended to offer advice rather than instruction or methodology. In his article, Delacroix mentioned Leonardo da Vinci and Albert Dürer, noting that Cavé's method had not occurred to these masters precisely because of its simplicity. As a staunch believer in the development of accurate observation, he cared not if this was acquired mechanically: "To learn to draw...is to learn to have a good eye; it doesn't matter that a machine serves as the teacher, provided that one learns before all to have a good eye; the reasoning and the emotion need not come until later."⁴¹

The Rouillet Process and the Emergence of Industrial Drawing
The Rouillet Process and the Cavé method offered two advantages to artists and art students: (1) tracing from nature was easy, and (2) rendering forms "mechanically" saved valuable time. As such, they met the concrete needs of industrial drawing, which in these years grew immensely.⁴² The production in art of a precise two-dimensional copy could be extended to benefit various kinds of industry, and mechanical solutions were eagerly anticipated. This was the case with the "Copiste électro-chimique," which was reported in *Le Correspondant littéraire* on February 1844:

One of the great successes of our time is the *Copiste électro-chimique*. Its ingenious as well as useful discovery is due to the Maison Beau, rue du Mail, 30. This apparatus, which

appears to have attained the ultimate degree of perfection, reproduces the corresponding object by a most simple process that from this moment on will eliminate the old and inconvenient copy presses. The *Copiste électro-chimique* is, moreover, within reach of every wallet, for it is reasonably priced. One also owes to the Maison Beau the Album of the Young Draftsman (*Album du jeune Dessinateur*), a charming volume, which, with the aid of a process resembling that of the *Copiste*, permits men or women who own it to obtain the most delicate drawings and sketches.⁴³

One of these new inventions was the *téléiconoscope*, an apparatus designed to reproduce forms seen from a distance and used for the cataloging of historic monuments. In a letter to Eugène Viollet-le-Duc, Prosper Mérimée, a member of the committee that studied the Rouillet Process, expressed his impatience in learning to use this device, which had been furnished to him by the architect Henri Révoil.⁴⁴

The intense interest in reproduction at this time calls to mind the first attempts at photography, especially the daguerreotype.⁴⁵ By 1816, the inventors Nicéphore and Claude Niépce were conducting experiments with the goal of developing a new reproduction process that would replace lithography, which had recently been introduced in France. (Like other techniques of engraving, lithography still required the direct intervention of the artist.) To achieve this, they borrowed a device known since the Middle Ages, the camera obscura, a box with a tiny hole in it that could reflect an image in reverse via the light coming through the hole.⁴⁶ Niépce set out to find a medium sensitive to light that would fix such images, and eventually discovered bitumen of Judaea, found in any engraver's workshop.

Even earlier in the century, Thomas Wedgwood and Humphrey Davy had attempted to fix images produced by the camera obscura onto paper coated with silver nitrate. In an article published in 1802 in the *Journal of the Royal Institution*, they emphasized the role of light in the reproduction of contours.⁴⁷ Although their experiment failed, it marked one of the earliest attempts to reproduce an object through the use of light. Thus the tracing or copying of contours—whether of an object, a drawing, or an engraving—had been on artists' minds for centuries, not just as a technique to produce an autonomous work of art, but also as a means of study and as an aid in the making of finished images.

Conclusion

The fear that creativity would suffer with the introduction of mechanical methods of reproduction lay behind the criticism directed first at Rouillet, and then at Madame Cavé. However, if such processes were considered only as tools and remained neutral in their utility, they left room for the artist's individual talent. In 1867—not long after reforms in French art education admitted the utility of certain mechanical tools—Jean-Louis Tirpienne wrote:

Amateurs, artists themselves, seduced by the admirable results of [photography in reproducing] architecture [in all its] picturesque details, and dazzled by the magic of these reproductions, have nearly ceased to look at art. But, coming back from this fascination, they soon recognize that realism is not the same for everyone; that the mere structure of [our] eyes causes immense modifications in the impressions that we receive from nature; and,

finally, that our eyes do not just reflect objects mechanically, but, by a divine mystery, transmit them to our soul [which will be affected] according to the nature of its impressionability.⁴⁸

While the photographic processes of the beginning of the century were ultimately to satisfy the demand for reproductive techniques in the industrial sector, the drawing process invented by Aramanthe Rouillet addressed the problem of reproduction in the art world. His method created a bridge between observation and imitation. In his process, mechanical means were used to facilitate observation, but the artist participated directly in the transfer of image to paper. What was new in this practice was that the skill of the artist no longer rested primarily in his hand, but in his eye. As in photography, the artist's vision determined what image would be reproduced and how it was composed on the page. This relationship between artistic practice and visual experience would continue to inform debates about the emerging photographic techniques and their place in the art world throughout the nineteenth century.⁴⁹

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Fig. 1: Archives Nationales de France, Paris. F21 497, dossier II, fols. 360-396, fol. 395.

Fig. 2: Archives Nationales de France, Paris. F21 497, dossier II, fols. 360-396, fol. 395.

Fig. 3: *Process A^{THE} Rouillet, bought by the Ministry of the Interior to facilitate the study of the art of drawing. Album comprising twelve drawings made from nature and lithographed by Aramanthe Rouilliet.* Paris: Gilhaut Frères, [1843]. Bibliothèque Nationale, Cabinet des Estampes et de la Photographie, Paris. SNR-3 ROUILLET

Fig. 4. *Process A^{THE} Rouillet, bought by the Ministry of the Interior to facilitate the study of the art of drawing. Album comprising twelve drawings made from nature and lithographed by Aramanthe Rouilliet.* Paris: Gilhaut Frères, 1843]. Bibliothèque Nationale, Cabinet des Estampes et de la Photographie, Paris. SNR-3 ROUILLET

Fig. 5: *Process A^{THE} Rouillet, bought by the Ministry of the Interior to facilitate the study of the art of drawing. Album comprising twelve drawings made from nature and lithographed by Aramanthe Rouilliet.* Paris: Gilhaut Frères, 1843]. Paris, Bibliothèque Nationale, Cabinet des Estampes et de la Photographie. SNR-3 ROUILLET Bibliothèque Nationale, Cabinet des Estampes et de la Photographie, Paris. SNR-3 ROUILLET

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2. . Nikolaus Pevsner, *Les académies d'art,* Paris: Gérard Monfort, [1940] 1999, p. 174.
3. *Traité élémentaire des règles du dessin; par le citoyen Bosio, (élève de David) Peintre d'Histoire, et Professeur de Dessin à l'École Polytechnique,* Paris: chez l'Auteur et chez Tiger, an IX (1801).
4. "Après avoir terminé l'ensemble par un contour exact, il convient de donner de la saillie à vos contours; votre lumière étant faite par la nature de votre papier blanc, il est nécessaire de donner des ombres par le moyen des hachures . . ." (After having finished the whole through exact contours, it is advisable to show your contours from the projection; your light is created by the nature of your white paper; it is necessary to show shadows by means of hatching . . .). Cited by Louis-Joseph Van Péteghem in his useful study on the teaching of drawing: *Histoire de l'enseignement du dessin depuis le commencement du monde jusqu'à nos jours,* Brussels, 1868, p. 65.

5. I thank M. Claude Bouret, head curator of the département des Estampes et de la Photographie de la Bibliothèque Nationale de France, for having shown me the typed dissertation of Daniel Harlé on the manuals and methods of drawing in the nineteenth century preserved in the Cabinet des Estampes de la Bibliothèque Nationale de France in Paris: *Les cours de dessin gravés et lithographiés du XIXe siècle conservés au Cabinet des Estampes de la Bibliothèque Nationale. Essai critique et catalogue*, Paris, École du Louvre, typed dissertation under the supervision of Jean Adhémar, 1975, 4 volumes. On the teaching of drawing, see also Carl Goldstein, *Teaching Art, Academies and Schools from Vasari to Albers*, Cambridge: Cambridge University Press, 1996; and Ann Bermingham, *Learning to Draw: Studies in the Cultural History of a Polite and Useful Art*, New Haven and London: Yale University Press, 2000.

6. Alexandre Dupuis, *De l'enseignement du dessin sous le point de vue industriel*, Paris: Giroux, 1836, p. 9; cited by Péteghem, 1868, *op. cit.*, p. 80.

7. Van Péteghem 1868, *op. cit.*, p. 84.

8. See the short article on Rouillet by Marius Audin and Eugène Vial in *Dictionnaire des artistes et des ouvriers d'art du Lyonnais*, Paris: Bibliothèque d'Art and d'Archéologie, 1919, 2 volumes, II, p. 185.

9. This date is not at all certain. The catalogue of the posthumous sale dates to 22–23 November 1888 (Lugt 47719); it is very possible that Rouillet died this same year.

10. *Le David des Collèges, un abrégé élémentaire du dessin, contenant vingt planches de principes progressifs, à l'usage des jeunes gens*. In the Cabinet des Estampes et de la Photographie de la Bibliothèque Nationale de France is a volume that groups together several elementary methods of drawing (Kc.34 in-quarto). Among the different methods are those of Amaranthe Rouillet, whose name is falsely reported as Rouillet. Besides *Le David des Collèges*, see *Le Girodet des Collèges, ou abrégé élémentaire du dessin, contenant 20 planches de principes progressifs. Études Académiques, à l'usage des jeunes élèves, par A. Rouillet*. Paris, published by F. Chavant, n. 19 rue de Cléry; London, published by Ch. Tilt, 86 Fleet Street (1836). These two booklets are found also in a series grouping together diverse methods of drawing (respectively Kc-187 [13] for the *David des Collèges*, and Kc-187 [15] for the *Girodet des Collèges*). Also in this series is a manual of studies of horses after Géricault (Kc-187 [14], also by Rouillet: *Le Géricault des Ateliers ou Abrégé élémentaire du Dessin pour l'étude des Chevaux, contenant 20 planches de principes progressifs, à l'usage des élèves, par A. Rouillet*, Paris: F. Chavant, London: Ch. Tilt, 1836.

11. A student of David bears witness to the importance accorded this apprenticeship: "Il [David] ne veut pas entendre parler de dessins finis; il ne veut autre chose que de petits croquis dans le genre de ceux que vous faites d'après nature. Nous les arrêtons davantage parce que nous employons une séance pour chacun, c'est-à-dire que le modèle change tous les jours de pose; dans un mois, deux semaines sont consacrées à l'antique et deux au modèle vivant" (He [David] does not want to hear talk of finished drawings; he does not want anything but small sketches in the genre of those that you do from life. We stop them more because we employ a sitting for each, that it to say, the model changes in pose every day; in one month, two weeks are dedicated to the antique and two to the living model"). Letter from Pierre-Théodore Suau to his father Jean, 8 November 1812; in "David et ses élèves toulousains," published by Paul Mesplé in the *Archives de l'Art français. Les arts à l'époque napoléonienne*, XXIV, 1969, pp. 95–96, cited by Pierre Rosenberg in *Du dessin au tableau. Poussin, Watteau, Fragonard, David & Ingres*, Paris: Flammarion, 2001, p. 172.

12. "Le procédé Rouillet," *L'illustration, Journal Universel*, Saturday, 8 April 1843, n. 6, vol. I, p. 90.

13. "Si Rouillet semble le seul à proposer ce procédé, il semble aussi être le seul à présenter des sujets auxquels pouvait s'appliquer le terme de réalisme social; s'il ne s'agit que de quelques planches dessinées d'après nature, dont un homme assis, un tailleur de pierre, le fait mérite

dependant d'être relevé, dans la mesure où il évoque très exceptionnellement le réalisme de Courbet, réalisme qui demeurera tout à fait étranger aux auteurs de cours de dessin, à l'exception de certains sujets des petits modèles du dernier tiers du XIXe siècle, bien qu'ils soient encore de tendance pittoresque." (If Roulliet seems to be the only one to propose this process, he also seems to be the only one to present subjects to which the term social realism can be applied; there is no question that the several plates drawn from life, featuring a seated man, a stone-cutter, bring it merit however being sketched, inasmuch as it exceptionally evokes the realism of Courbet, a realism that will remain foreign to the authors of courses of drawing, with the exception of certain subjects of small models in the last third of the nineteenth century, although there was more of a picturesque tendency." Daniel Harlé, 1975, *op. cit.*, volume I, p. 195.

14. "Le procédé Rouillet," *L'illustration, Journal Universel*, Saturday, 8 April 1843, n. 6, vol. I, p. 90.

15. See Louis Vitet, Eugène Viollet-le-Duc, *À propos de l'enseignement des arts du dessin*, preface by Bruno Foucart, Paris: ENSBA, 1984; *Les Beaux-Arts, de l'Académie aux Quatr'z'arts*. Historic and literary anthology edited by Annie Jacques with the collaboration of Emmanuel Schwartz, Paris: ENSBA, 2001.

16. "Procédé pour faciliter l'étude des arts du dessin par M. Rouillet," Archives Nationales de France, Paris: F21 497, file II, fols. 360–396.

17. "Copie de la lettre de M. Rouillet à M. le Ministre de l'Intérieur," s.d. 14 January 1843, Paris: Archives Nationales de France, F21 497, file II, fols. 360–396, fol. 388a and b.

18. Document dated 31 March 1843. Paris: Archives Nationales de France, F21 497, file II, fols. 360–396, fol. 368.

19. Paris: Archives Nationales de France, F21 497, file II, fols. 360–396, fol. 388a.

20. He wrote to François Cavé: "Monsieur, je reçois votre lettre du 20 avril qui me fait part de la décision de M. le Ministre, qui me désigne comme faisant partie d'une commission chargée d'examiner le procédé de M. Rouillet. Je pars aujourd'hui même pour Rome, je ne dois être de retour que dans 4 mois. Ce qui m'empêchera d'assister à cet examen: j'ai prevenu M. Rouillet de mon départ: si ce retard ne fait rien à mon retour je me présenterai chez lui. . . ." (Monsieur, I received your letter of 20 April that advised me of the decision of M. le Ministre, that designated me as part of a commission charged with examining the process of M. Rouillet. I leave today for Rome, I will not be able to return earlier than 4 months. It is this that prevents me from assisting with this task: I have informed M. Rouillet of my departure: if this delay does not matter, on my return I will place myself at his behest. . . .). Letter from Camille Corot to François Cavé, s.d. 20 April 1843, Paris: Archives Nationales, F21 497, file II, fols. 360–396, fol. 379.

21. An order of the Ministère de l'Intérieur, dated 15 May 1843, indicates that Duban "est nommé Membre de la Commission chargée d'examiner le procédé de M. Rouillet pour faciliter l'étude des arts du dessin" (is named a Member of the Commission charged with examining the process of M. Rouillet to facilitate the study of the arts of drawing), Paris: Archives Nationales de France, F²¹ 497, file II, fols. 360–396, fol. 371.

22. Letter from Amaranthe Rouillet to François Cavé, s.d. 15 February 1843, Paris: Archives Nationales de France, F²¹ 497, file II, fols. 360–396, fol. 382.

23. Letter from Raoul-Rochette to the Ministre de l'Intérieur, s.d. 24 February 1843, Paris: Archives Nationales de France, F²¹ 497, file II, fols. 360–396, fol. 389a and b.

24. In the years preceding the reform of 1863, the Académie was often accused of limiting all the talent of the young student in furtherance of drawing alone, refusing all new ideas not originated by the Académie: "Notre École des Beaux-Arts est hostile à toute originalité; hors de son sanctuaire et de sa forme convenue, point de style, point de talent sérieux. Combien de génies a donc produit l'école des Beaux-Arts? N'a-t-elle pas été plutôt un frein à tous les élans, et ses fils les plus illustres

n'ont ils pas été obligés de briser le cercle étroit dans lequel on voulait les emprisonner? Toutefois, ne soyons pas non plus, nous mêmes, exclusifs, rendons à l'école ce qui appartient à l'école. Elle peut donner les principes d'un dessin sévère en offrant pour type le bel antique et la nature; mais, quant au domaine de l'invention, elle doit s'abstenir d'en tracer les conditions et les règles. L'invention est un don du ciel qui ne s'apprend pas à l'école" (Our École des Beaux-Arts is hostile to all originality; outside its sanctuary and its agreed form, view of style, view of serious talent. How many geniuses have been produced by the École des Beaux-Arts? Hasn't it been rather a brake on all momentum, and haven't the most celebrated sons been obliged to break the tight circle in which it wants to imprison them? However, let us not be, ourselves, exclusive any longer, return to the school what belongs to the school. It can give the principles of a severe drawing in offering as an example of the beautiful antique and life; but, regarding the domain of invention, it must abstain from drawing there conditions and rules. Invention is a gift from heaven that cannot be learned at school). Théodore Véron, *Du passé, du présent, et de l'avenir de l'art*, Paris: Garnier frères, 1852, pp. 22–23.

25. Félix Ravaisson recalls that the process through the gauze was first observed by the great masters and theoreticians of the Renaissance, and that "Monsieur Rouillet en a renouvelé l'usage" (Monsieur Rouillet renewed its use). Cited by Daniel Harlé, 1975, *op. cit.*, volume I, p. 281.

26. On amateur drawing and the apprenticeship of drawing, the English produced magnificent analyses: see above all Ann Bermingham, *Learning to Draw, Studies in the Cultural History of a Polite and Useful Art*, New Haven: Yale University Press, 2000; Kim Sloan, *A Noble Art, Amateur Artists and Drawing Masters c. 1600–1800*, London: British Museum, 2000; Stuart Macdonald, *The History and Philosophy of Art Education*, London: University of London Press, 1970.

27. "Rapport à Monsieur le Ministre Secrétaire d'État au département de l'Intérieur. Commission Rouillet." Paris: Archives Nationales de France, F²¹ 497, file II, fols. 360–396, fol. 394, pp. 1–9.

28. "Rapport à Monsieur le Ministre Secrétaire d'État au département de l'Intérieur. Commission Rouillet." Paris: Archives Nationales de France, F²¹ 497, file II, fols. 360–396, fol. 394, pp. 5–7.

29. "Rapport à Monsieur le Ministre Secrétaire d'État au département de l'Intérieur. Commission Rouillet." Paris: Archives Nationales de France, F²¹ 497, file II, fols. 360–396, fol. 394, p. 9.

30. *Nouveaux principes de dessin. Divisions de la tête & de la figure académique, suivies de quelques notions de perspective pour servir de complément au procédé du même auteur acquis & publié par le Gouvernement en 1844. Par Amaranthe Rouillet, Professeur de dessin, Membre de l'Académie de Peinture de Nuremberg. Deuxième édition, revue, corrigée et augmentée.* Paris: Susse frères éditeurs, 1863, pp. 75-95, p.94.

31. The first edition, published by Susse frères and printed by Henri Plon in 1857, is not composed of the final report published in the *Moniteur*, but contains only the studies on the head and the academic figure.

32. *Le Dessin sans maître, méthode pour apprendre à dessiner de mémoire, par Mme Elisabeth Cavé*, was published four times in the space of several years. The first, by Susse frères, dates to 1850; the second, also by Susse frères, dates to 1851; the third, by Aubert, dates to 1852, and finally a fourth edition was published in 1857 in the Bureau du Journal Amusant.

33. Horace Lecoq de Boisbaudran, *Education de la mémoire pittoresque*, Paris : Librairie sociétaire, 1848.

34. Louis Alvin, curator of the Bibliothèque Royale de Belgique, *L'alliance de l'Art et de l'Industrie dans ses rapports avec l'Enseignement du dessin en Belgique*, Brussels: Bruylant-Christophe & Compagnie, 1863, pp. 142–146.

35. "Lettre douzième.—Leçon.—Utilité de la gaze Rouillet.—Le professeur d'après nature." in: *Le Dessin sans maître, op. cit.*, ed. 1851, pp. 65–69.

36. Ibid., p. 66.

37. Ibid., p. 4.

38. Ibid., pp. 93–95.

39. The members of the commission, among them Eugène Delacroix and Édouard Picot, participated in the writing of the final report, which tended to promote the Cavé method. Signed by the Inspecteur général des Beaux-Arts, Félix Cottereau, the report presented to the premier Ministre was followed by a report from Delacroix, and published several times in different editions of *Dessin sans maître*. See *Abrégé de la Méthode Cavé pour apprendre à dessiner juste et de mémoire précédé des rapports de l'Inspecteur général des Beaux-Arts et de M. Delacroix, Rapporteur de la Commission nommée par Son Excellence le Ministre de l'Instruction publique. Ouvrage approuvé par M.rs Ingres, Delacroix, Horace Vernet, etc.* Paris: Henri Plon, 1862.

40. Eugène Delacroix, "Le dessin sans maître, par Mme Marie-Elisabeth Cavé," *Revue de deux Mondes*, 15 September 1850, also published in *Le dessin sans maître, méthode pour apprendre à dessiner de mémoire*, 3d ed. 1852, pp. iii–xii, vi–vii.

41. Ibid., p. vii.

42. Rouillet well understood the significance of his invention. "J'ouvre une voie nouvelle de progrès à l'art du dessin proprement dit, en le rendant accessible à toutes les intelligences, à toutes les conditions sociales" (I am opening a new path in the progress of the art of drawing, properly said, in rendering it accessible to all intelligences, to all social conditions), in *Nouveaux principes de dessin . . .*, *op. cit.*, p. 8.

43. *Le Correspondant littéraire*, Wednesday 7 February 1844, 2d year, n. 6, heading: "Causeries parisiennes," section "Arts et industrie."

44. Letter from Prosper Mérimée to Eugène Viollet-le-Duc, s.d. 2 August 1869, published in *La correspondance Mérimée-Viollet-le-Duc*, preface and editing by Françoise Bercé, Paris: Editions du C.T.H.S., 2001, pp. 198–99.

45. "La gaze tendue est comme le daguerréotype: elle ne tue pas l'art, elle vient seulement l'éclairer" (The stretched gauze is like the daguerrotype: it does not kill art, it comes only to clarify it). M.-E. Cavé, *Le dessin sans maître*, *op. cit.*, 2d ed. 1851, p. 67; on painting and photography in France, Uwe Fleckner, *Abbild und Abstraktion. Die Kunst des Porträts im Werk von Jean-Auguste-Dominique Ingres*, Mayence: von Zabern, 1995; Roland Recht, *La Lettre de Humboldt. Du jardin paysager au daguerréotype*, Paris: Bourgois, 1989. On the history of photography and the stages that characterize it, see in particular: Pierre-Jean Amar, *La photographie, histoire d'un art*, Aix-en-Provence: Édisud, 1993; and Aaron Scharf, *Art and Photography*, London: Allen Lane The Penguin Press, 1968.

46. Known since the Middle Ages, the darkroom was used by artists during the Renaissance; Leonardo da Vinci, for example, used the stenopé, a darkroom without lenses. The one used by Niépce was a darkroom endowed with a diaphragm. On the darkroom, see Helmut and Alison Gernsheim, *The History of Photography from the Camera Obscura to the Beginning of the Modern Era*, New York: McGraw-Hill, 1969.

47. "Essai d'une méthode pour copier les tableaux de verre et pour faire des profils par l'action de la lumière sur le nitrate d'argent, inventée par Thomas Wedgwood avec des observations de Humphrey Davy," Pierre-Jean Amar, *op. cit.*, p. 11.

48. Jean-Louis Tirpienne, *Le paysage au fusain. Conseil aux amateurs sur le dessin d'après nature et l'emploi du Fusain. Suivi d'explications et préceptes sur le dessin lithographique*, Paris: chez Vve de Saint-Martin et frère, 1867, pp. 29–30.

49. On the art–photography debate, see Peter Galassi, "La peinture et l'invention de la photographie," in: *L'invention d'un art. Cent cinquante anniversaire de la photographie*, exhibition catalogue: Paris, Centre Georges Pompidou, directed by Alain Sayag and Jean-Claude Lemagny, Paris: Adam Biro, 1989, pp. 17–40; and Susan Sontag, *On Photography*,

