

# The Printed Photograph and the Logic of Progress in Nineteenth-Century France

By Jeff Rosen

In his 1931 essay "A Short History of Photography," Walter Benjamin wrote incisively about photography as both an art and a commodity.<sup>1</sup> Benjamin raised for discussion the issue of the artistic "flowering of photography," which, following the art-historical literature of his contemporaries, he understood to have originated in the period prior to industrialization. When France "snatched up" the invention of Niepce and Daguerre in 1839, photography was forever changed, according to Benjamin: the state took the first step towards establishing an "accelerated pace of development which for a long time prevented any look backward." This steady march of progress led directly to the development of photography as a mass-produced, graphic-arts process.

That photography should take this course was, in Benjamin's view, the inevitable result of a process in which technology advanced by becoming more mechanical and able thereby to produce imagery in great quantities. Although he was able to interpret forcefully the political effects of mass-produced photography on society, Benjamin was unable to escape a persuasive ideology of progress to articulate the historical factors responsible for the unrestricted photomechanical print. Benjamin's Marxist orientation, in fact, insisted that he subscribe to a position of technological determinism. As a result, he dealt with the outcome of the material development of photography and its use by capitalist society but did not examine critically the events responsible for encouraging the progressive development of photographic technology. Why were efforts made to align photography to preexisting industrial means of production, and what were the conse-

quences of this path?

The present essay asks how mass-produced photography was distinguished from earlier forms of reproduction. This paper therefore is concerned not with stylistic developments before photography but with historical factors influencing the development of photography as an industrial process. During the mid-nineteenth century, a major debate was not over form, but rather over the means and processes of reproduction. This issue can be illustrated by comparing two photographs from this period, one "original" and one industrially produced. Both images have the same subject: a sculpture of an angel with a sundial from the façade of Chartres Cathedral. One is an original photograph of 1851 or 1852, a calotype produced by Henri LeSecq (*Fig. 1*); the other, a photolithograph, was produced in 1853 by the printer Rose-Joseph Lemerancier (*Fig. 2*). The latter, a mass-produced ink-based reproduction, was produced in Lemerancier's workshop from the same negative used by LeSecq.

Calotypes, such as LeSecq's image, are prints on sensitized paper produced from a paper negative. During the mid-nineteenth century they were understood to be the products of a pre-industrial process because they were individually produced by a method that was time consuming, labor-intensive, and costly. Subsequently, the handmade image of the calotype was classified as a unique and self-defined form of art, having a unique aesthetic and precious singularity.<sup>2</sup> Paradoxically, today the calotype is regarded as a significant contribution to photographic history, while mass-produced forms, including photolithography, are overlooked or, more often, denigrated as commercial.



*Fig. 1* Henri LeSecq, "Chartres Cathedral." Reproduced courtesy of the Bibliothèque des arts décoratifs, Paris.

Photolithographs, in contrast to the silver-based calotype, are ink-based prints resulting from the union of photography and the industrialized lithographic printshop.<sup>3</sup> Lemerancier's process first transferred the photographic image onto a lithographic stone and then mechanically reproduced that image with lithographic ink. Because this photomechanical process used the graphic-arts workshop, the ink-based prints were produced using a production team organized according to a division of labor. The process was understood to be commercial in its orientation. In contrast to



**Fig. 2** Rose-Joseph Lemerrier, "Chartres," from the portfolio *Lithographie, ou impressions obtenues sur pierre à l'aide de la photographie par MM. Lemerrier, Lerebours, Barreswil, et Davanne*, 1er cahier, 1853. Reproduced courtesy of the Bibliothèque des arts décoratifs.

the handmade calotype, the process resulted in quantity production, application to specialized markets, and lowered costs per print.

These were the kinds of results hoped for in 1851 by two associations that were concerned with the development of the reproductive graphic arts: the Société Héliographique—the first association devoted solely to promoting the development of photography in France—and the association of master-printers that contributed to *Annales de l'Imprimerie*, a trade journal of the industrialized lithographer.<sup>4</sup>

Although the Société Héliographique did not foresee the actual technological appropriation of photography by graphic-arts printshops, it argued for the development of an *imprimerie photographique* that would do more than merely print from the negatives of photographers. In 1851, in its journal, *La Lumière*, the Société argued that the establishment of successful and methodical means of mass production capable of reproducing positive photographic prints at a reduced cost was essential to the future of photography.<sup>5</sup>

In that year also, *Annales de l'Imprimerie* echoed *La Lumière's* call for a printing establishment, asserting to dis-

believing printers that such a printshop was not a fanciful illusion but a rational possibility:

Photography is no more of a dream than was Lithography; it has made its proof, it exists. We believe firmly then that the realization of the project of the Société Héliographique is possible, and that in a short amount of time there will be not *one* but *many* establishments of this type, producing first works of art, then works of lesser importance; and that these products, in attaining the least expensive means of production, will become available to the book and image-making trades.<sup>6</sup>

As early as 1851, then, photographers and printers alike distinguished between mass-produced and handmade means of photographic reproduction, even though new industrial means had not yet been created. Both groups promoted a notion of technical progress, a belief based in the logic of improvement over time. Moreover, they attempted to garner support for their belief in progress through the support of their own social institutions.

The logic of technical progress played a major role in the acceptance of the photomechanical reproductive forms in France during the 1840s and 1850s. The ideological and utopian forces promoted by this belief helped to propel photogra-

phy forward but, significantly, steered it towards an eventual union with industrialized means of production and away from a developmental route that would have permitted photography to advance independent of those means. For these two decades, the ideology of progress may be defined as the belief in innovation, technological advancement, the eventual perfection of technical systems, and most important, an unquestioned acceptance of the institutions that established the place of these systems in society. The notion of progress was derived from an eighteenth-century connotation of that term, according to which things tend to improve.<sup>7</sup> Because this belief in progress was essential for early industrial capitalism, it was reproduced at every conceivable opportunity. French political economists such as Jean-Baptiste Say, Jérôme Blanqui, or Charles Dupin, and their supporting, state-backed institutions, advanced the thesis that technological innovations would precede improvements to social welfare. The utopian aspects of political economy depended on, and helped to sustain, the logic of progress.<sup>8</sup> As a result, progress became a powerful legitimizing force governing social relations and, therefore, an ideological mechanism controlling aspects of production in early industrial France.

The logic of technical progress with respect to photography was illustrated as early as 1840, shortly after the



**Fig. 3** T. H. Maurisset, "La Daguerreotypomanie," lithograph. Courtesy of International Museum of Photography at the George Eastman House.

invention of the daguerreotype. In that year, T. H. Maurisset produced a popular lithograph showing the hungry masses waiting impatiently to consume the products of the new technology (Fig. 3). French cameras are shown as exportable items, making their international voyages by ship, train, or balloon. Crowds are depicted around daguerreotypists' studios, and would-be entrepreneurs are portrayed queuing to purchase chemicals and cameras. On the far right of the image standards bearing the words "Daguerrian Proof on Paper" and "System of Dr. Donné" are displayed. Although Maurisset's image exaggerates the number of new daguerreotypists, the image is accurate in according the daguerreotype the central position in the competition with rival improvements to the original formula. Dr. Donné was a scientist who took the first steps to turn the daguerrian plate into a photographically etched plate suitable for printing. His scientific inquiries were made in the spirit of progress, which meant, of course, that the daguerreotype itself became both an object and a process to be replaced. The law of progress was so newly authoritative that Daguerre himself seems not to have understood its logic. Responding to suggestions that he modify his process, Daguerre retorted: "Scarcely a month has passed since my process was made known and already, on all sides, people claim to have extended its boundaries by finding the means of multiplying its results by engraving and other means not yet determined."<sup>9</sup>

Progress also depended on institutional support.<sup>10</sup> During the July Monarchy (1830–48), the search for a suitable method of reproducing photographs by industrial means was endorsed by state-supported agencies and social institutions. Many had as their focus science and invention, graphic art, the establishment of industry, or the practice of photography. The French state played a major role in this support: members of both the Academy of Sciences, the state's cultural symbol, and the Société d'Encouragement pour l'Industrie Nationale, the state's symbol of industrial fortitude and perseverance, believed progress was served in two fundamental ways by the development of photography. Each institution asserted, one, that the applications foreseen for photography would unfold dramatically and, two, that the new technology would advance itself, maturing of its own accord.

The first issue addressed the practical applications of photography, which centered largely on the ordering of visual information. Knowledge, many pointed out, could be collected and rendered



Fig. 4 Rousseau and Devéria, "Photographie Zoologique," Shells, calotype. Courtesy of Muséum d'histoire naturelle, Paris.

manageable by the photograph. For the Count Arago, the Academy member who announced Daguerre's invention in 1839, photography furthered the study of astronomy, the remains of ancient civilizations, or other forms of life. Arago declared: "When experimenters use a tool for the study of nature, their initial expectations always fall short of the series of discoveries which eventually issue from it. With this invention, one must particularly emphasize the unforeseen possibilities."<sup>11</sup>

The second issue—that the technical development of photography is characterized by autonomous technical advances—was directly related to these new applications devised by the cultural élite. Academy members, in other words, believed the most technologically advanced method of illustration should serve, or at least be paired together with, the most advanced of their scientific texts. The Academy, then, did not permit the use of just any method of photography when they had an opportunity to determine how a series of photographic illustrations might be reproduced. Predictably, they chose the most "advanced" process.

It was only in 1852 that the Academy first decided to use photography to illustrate one of its studies. This project was called *Photographie Zoologique*, a work examining the rare animals in the collection of the Museum of Natural History. The project was begun photographically as calotypes (Fig. 4). The Bisson brothers were enlisted as the photographers, Lemerrier as the printer. But the Academy abandoned the handmade process early in 1853, in favor of a new process of photographic etching called photogravure. The Academy

wrote that its selection was designed "to give a new application to photography, to make available to all the reproductions obtained by this marvelous process, reproductions so faithful that a magnifying glass alone will render perfectly distinct all those qualities which escape the naked eye."<sup>12</sup> Members of the Academy favored the new printing process over the silver-based calotype because the ink-based method was permanent. Calotypes, moreover, were composed of an unstable chemical formula making them sensitive to light and susceptible to many unintended changes.

The choice of which process was more suitable, and therefore worthy of support, was the major issue for the Academy of Sciences as well as for the Société d'Encouragement pour l'Industrie Nationale. The Société was one of the strongest advocates for the cause of industrialized printing in France. Composed of industrialists, political economists, and members of the Institut de France, this institution supported national industry by offering prizes to deserving new inventors and rewarding progressive applications to industry. Rules were published annually in the Société's *Bulletin*, and prize-winners received cash stipends.

Throughout the 1840s, the Société d'Encouragement supported the development of industrial graphic-arts processes, particularly lithography. Photography was supported to the extent that it could be produced industrially.<sup>13</sup> Not surprisingly, in 1853 the Société learned immediately of the Academy's decision to produce *Photographie Zoologique* as photogravured prints. The next year, the Société itself published two examples of the new photography from the Academy's project in its own *Bulletin* (Fig. 5). The accompanying article differentiated clearly between the out-dated and the modern means of photographic reproduction:

In order to appreciate the utility of this new application, one should recall that every [silver-based] print is alterable and has an elevated price, that it is very difficult, if not impossible, to establish a regular course of production, that often there is great inconsistency in results and that failures are common; whereas, on the other hand, with photogravure, once the metal plate has received the [photographic] image, ordinary means of [pulling inked] impressions replace the photographic paper, and one plate can produce 3,000 prints.<sup>14</sup>

The pre-industrial, handmade methods

were obsolete, declared the Société; progress had logically replaced them with more efficient industrial means of production.

Photography not only was profitably united to etching, wrote the Société, but was also advantageously joined to lithography. Photolithography was invented by Lemerrier in 1852, but his process was not perfected until late 1853, ten months following the invention of photogravure.<sup>15</sup> Soon thereafter, photolithography was promoted by the Société d'Encouragement. The Société illustrated its 1854 *Bulletin* article with a cropped version of Lemerrier's and LeSecq's "Chartres Cathedral" (Fig. 6) and wrote:

Once the photographic image is transferred to the lithographic stone, the stone takes ink immediately when charged by a roller, and gives the image a precise and regular grain, without its being necessary to perform the least retouch. One prints with this stone as with any other lithographic stone; the image itself becomes more transparent and more brilliant. One can obtain a similar number of photographic prints as with ordinary lithography.<sup>16</sup>

It is evident that both the Academy of Sciences and the Société d'Encouragement considered the union of photography with the graphic arts a model of production and a realistic means for attaining inalterable photographic prints. But it must be realized that ink-based processes did not immediately



Fig. 5 "Photographie Zoologique," *Reptiles*, photogravure; reproduced from the *Bulletin de la Société d'Encouragement pour l'Industrie Nationale*, 1854.



Fig. 6 "Chartres Cathedral," photolithograph, reproduced from the *Bulletin de la Société d'encouragement pour l'industrie nationale*, 1854.

replace the older ones. Their introduction, in fact, opened for debate the subtle issue of whether one medium was more appropriate than another for photographic reproduction. The critic Marc-Antoine Gaudin, for example, addressed this question in 1854 by asserting that a correspondence between method and image in photography did exist.<sup>17</sup>

Writing in the journal *La Lumière*, Gaudin distinguished among three common photographic subjects and suggested that different genres of photography were intrinsically related to certain production methods. Gaudin evaluated portraits, large-sized art photographs, and photographs carrying information, and applied the criteria of use and function to determine the suitability of subject to process. Portraits, wrote Gaudin, were produced only in small numbers.<sup>18</sup> He argued that because their cost was high and their distribution limited—restricted, say, to members of the sitter's family—only a limited number of prints were needed. Large-sized art photographs, which sold for the costly sum of 50 to 100 francs (as contrasted to the one-franc or less cost of popular lithographs) appealed only to the rich. When lavishly-framed, they could acquire the status of fine art. The critic

reasoned, therefore, that both the portrait and the large art photograph were, because of their limited demand and appeal, inappropriate to the new methods of mass production.

The third type of photograph, however, was considered suitable for quantity reproductions. According to Gaudin, these images depicted subjects that were designed to illustrate printed texts, thereby enhancing those texts, and further advancing knowledge by visual means. Gaudin regarded such publications as "worthy of our epoch of progress," and thought that by embellishing texts, photographic illustrations served the noble cause of enriching society's stockpile of information.

Gaudin's scheme, in which photographic portraits and oversized art photographs were regarded as ill-suited to industrial means of production, was in fact adopted by *La Lumière* in 1854 and 1855 through a series of articles devoted to the new mass-produced processes. The journal even went so far as to raise the ante, promoting the idea of progress by suggesting that the new technologies could be adapted to print both texts and images in a single process of printing.

To this end, uniting text and image, new inventions were announced nearly every month. A few examples show the rush of new techniques: in October 1854, a photogravure was published of the "Bibliothèque du Louvre" (Fig. 7). Although the image did appear with the text of the journal, its disadvantages included its excessively small size



Fig. 7 Bisson frères, photographers; A. Riffaut, printer: "Bibliothèque du Louvre," *La Lumière*, 7 October 1854.



Fig. 8 Charles Nègre, "Le Portail de St.-Trophime," *La Lumière*, 5 May 1855.

(it was only 3 x 4 inches) and the fact that the image was made prior to the impression of type. In May 1855, Charles Nègre's image of "Le Portail de Saint-Trophime" (Fig. 8) was reproduced using a variation of the photogravure technique. Disadvantages of the process included the specialized skills and time-consuming labors required of the printer to make the reproducible plate, and the poor results in the production of half-tones. In July of that year, the photographer Blanquart-Evrard contributed to the dialogue by introducing a calotype for reproduction in the journal (Fig. 9). Because he recognized his image could not be produced mechanically with type, he left instructions for gluing it in place. The photographer denied the impracticality of his proposition by asserting that his calotypes could serve as well as any of the new ink-based mechanical means. It is evident that Blanquart-Evrard misunderstood the challenge of the new technology.

Finally, in December, the printer Dumont introduced a new reproductive process that successfully transformed one ink-based process into a different form, making it suitable for typographic reproduction (Fig. 10). Dumont achieved the transformation of a photolithograph into a typographically reproducible plate,<sup>19</sup> and illustrated his process using the photolithograph of Chartres Cathedral published earlier by Lemerrier in the *Bulletin* of the Société d'Encouragement (see Fig. 2). This invention was met by *La Lumière* with great excitement: "It is with great satisfaction that we see those processes advancing which increasingly attempt to popularize photographic imagery, and to enlarge the circle of its applica-

tions."<sup>20</sup>

As this preoccupation with mechanical processes suggests, *La Lumière*, like other journals and institutions during this period, never discussed the paper negative of the calotype as an "aesthetic matrix." Nor did it consider the older graphic arts of etching and lithography sacrosanct. Rather, new technological developments such as photolithography were embraced as a fruitful union of lithography and photography. Photographers and printers alike considered the new forms of printing to be new art forms that were also convincing examples of new means of production. Discussions consequently centered on process, but attention was also paid to the context in which photographs appeared. Use, function, application, and dissemination: these were the factors informing the distinctions made among practices of photography by scientists and inventors, theorists and photographers.

It might be said that mechanically produced, ink-based forms of photography emerged with new industrial associations that separated them from their pre-industrial predecessors. Mass-produced photography was supported by institutions determined to promote technical innovation, sustain a belief in progress, and advance the spread of scientific, rationalist thought and knowledge. As a result, photogravure and photolithography represented the future of graphic imagery.<sup>21</sup> The calotype, like the obsolete daguerreotype, was never again promoted as an ideal means of reproduction once it was replaced by photogravure and photolithography.

During the Second Empire, ink-based photography triumphed for the state precisely because the new forms were industrialized and permitted a wide dis-



Fig. 9 L. D. Blanquart-Evrard, "Windmill outside Lille," *La Lumière*, 22 July 1855.



Fig. 10 L. Dumont, "Chartres Cathedral," zincographie galvanique reproduction of photolithograph, *La Lumière*, 1 December 1855.

semination of photographic imagery.<sup>22</sup> It is useful to remember Walter Benjamin's observations that these photomechanical forms admirably served capitalist society; according to Benjamin, one can no longer view photographed objects as images produced by individuals. Photographs that reproduce works of art or architecture, for example, dehistoricize the photographed objects by making them manageable as types and forms of knowledge. Such photographs also magnify the tension between art and photography: "In the final effect," wrote Benjamin, "the mechanical means of reproduction are a technology of miniaturization and help man to a degree of mastery over the works without which they are no longer useful."<sup>23</sup> The separation of photomechanical processes from handmade ones resulted from and helped to reinforce the ideological and utopian notion of the logic of progress. By reexamining this historical separation, we are able to account more fully for the ubiquitous mass-produced print and its political uses in rendering the world as information.

#### Notes

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1 Walter Benjamin, "A Short History of Photography" (1931), *Literarische Welt*, trans. Phil Patton, *Artforum* (February 1977), pp. 46-51.

- 2 For example, see: Eugenia Parry Janis and André Jammes's account in their book, *The Art of the French Calotype*, Princeton, 1983, p. 131: "In the 1840s the paper negative joined a growing number of varied photographic techniques generally available in France. By mid-century, its practical advantages were well understood, and the potential for expression inherent in its technical deficiencies was thoroughly appreciated, enabling an informed artist or amateur to be guided in his selection of paper as much by sensibility as convenience. Calotype was the primary choice of the French photographic *sketcher* of the 1850s, who elected paper from his photographic repertoire as he might have favored, under different circumstances, charcoal over pencil." This perspective was refuted earlier, in different circumstances, by Abigail Solomon-Godeau, "Calotypomania," *Afterimage*, vol. 11, nos. 1-2 (Summer 1983), pp. 7-12; and Christopher Phillips, "A Mnemonic Art? Calotype Aesthetics at Princeton," *October*, #26 (Fall 1983), pp. 35-62. Despite Benjamin's thesis that the pre-industrial aura of the calotype would abate owing to a growing awareness that all photographs were reproducible, the study of Janis and Jammes effectively separate calotypes from mechanically produced prints.
- 3 For a history of the Lemercier firm as one of the first industrialized lithographic establishments, see: Jeff Rosen, "Lemercier et Cie.: Photolithography and the Industrialization of Print Production in France, 1837-1859" Ph.D. diss., Northwestern University, 1987)
- 4 The journal was the successor to *Le Lithographe*. Like its predecessor, *Annales de l'Imprimerie* advocated the interests of Parisian lithographic printers. *Le Lithographe* was published between 1838 and 1848, and reproduced the official bulletins of the masters' association known as the *Chambre des Imprimeurs-Lithographes*. This *Chambre* attempted to institute policies of industrial management and control of workers in lithographic firms, and was disbanded during the revolutionary activities of 1848. Following the restoration of bourgeois order in 1851, the *Chambre* was renewed, as was its publication of official bulletins in *Annales de l'Imprimerie*.
- 5 The following is extracted from the meeting of March 21, 1851, of the Société Héliographique, printed in the March 30, 1851, issue of *La Lumière*: "Question de l'Imprimerie Héliographique. M. le Président fait observer que la question de l'imprimerie diffère essentiellement de la proposition faite de trouver un homme qui tire des épreuves pour messieurs les photographes. L'imprimerie est un établissement, dont on doit faire les plans et les devis, avant de s'enquérir des employes qui arriveront nécessairement si la proposition est démontrée avantageuse. On ne doit plus différer de fonder un établissement de ce genre, le moment est arrivé, la Commission des monuments historiques offre un débouché aux productions de nos héliographies; il faut être un mesure de lui donner satisfaction. Les albums de la Société héliographique, le désir devenu général de posséder de belles épreuves, sont de puissants motifs de s'occuper d'un tel établissement. Le prix de l'épreuve est peut être trop élevé, cela tiendrait aux conditions actuelles de l'art" (p. 30).
- 6 "Or, pas plus que ne le fut la Lithographie, la Photographie n'est un rêve; elle a fait ses preuves, elle existe. Nous croyons donc fermement que la réalisation du projet de la Société Héliographique est possible, et qu'avant peu il y aura, non pas un mais plusieurs établissements de ce genre, d'où sortiront d'abord des oeuvres d'art, puis des productions d'un ordre inférieur; que ces productions, en atteignant les limites du bon marché, deviendront à la portée de la Librairie, de l'Imagerie," Jules Desportes, "Revue mensuelle, Mai 1851," *Annales de l'Imprimerie*, 1851, p. 31.
- 7 See the historical overview of this ideology as found in the discourse of Turgot, Condorcet, Saint-Simon and his followers, and political economists in: Robert Nisbet, *History of the Idea of Progress*, New York, 1979. For its permutations and other ideologies during the 1840s, see: Armand Cuvillier, *Hommes et idéologies de 1840*, Paris, 1956. For a political attack on the artificial conception of technological determinism, see: David Noble, *Forces of Production*, New York, 1984.
8. According to Maxine Berg, *The Machinery Question and the Making of Political Economy, 1815-1848*, Cambridge, 1980, pp. 17-18, "Since the very inception of political economy as an intellectual discipline, the conscious reflection on the processes of economic development could not be separated from the emerging class forces and social interests at stake in the changes. Political economy was expected to explain the effects of the new industrialism. It was to these intellectuals that the middle class looked for the affirmation of their attitudes. It was these expositors of the new science of wealth who provided the authority and guidance needed by the new industrial élites." The Académie des Sciences established its section of political economy in 1832, whose members included Jérôme Blanqui, Louis Villermé, and Charles Dupin. Berg described here the English situation around 1790, but her analysis of the functioning of political economy to the French bourgeoisie of the July Monarchy is also on target.
- 9 *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, September 30, 1839, p. 423.
- 10 In his essay, "Technology and Science as Ideology," Jurgen Habermas noted that the capitalist economic system created a self-propelling mechanism in which innovation as such became institutionalized. Speaking of advanced capitalist society, Habermas noted that "with the institutionalization of scientific-technical progress, the potential of the productive forces has assumed a form owing to which men lose consciousness of the dualism of work and interaction. . . . It is true that social interests still determine the direction, functions, and pace of technical progress. But these interests define the social system so much as a whole that they coincide with the interest in maintaining the system." *Toward a Rational Society*, trans. Jeremy J. Shapiro, Boston, 1970, p. 105. We may profitably relate Habermas's analysis to the beginnings of industrialization in France, and examine the "legitimizing power" of this ideology: because of its institutionalization, the ideology of progress entered every discursive space and discursively (and historically) appropriated virtually all social and cultural domains. Such is the broad political nature of ideologies, and an example of how they may structure the world and even trespass upon the unconscious.
- 11 *Comptes rendus des séances de l'Académie des Sciences*, August 19, 1839, pp. 257-66.
- 12 From the title page of the 2ième livraison: *Photographie Zoologique, ou Représentations des Animaux rares des Collections du Muséum d'Histoire Naturelle, par L. Rousseau, Aide Naturaliste au Muséum, et A. Devéria, peintre, conservateur adjoint au département des estampes de la Bibliothèque impériale*, Paris, chez Masson, place de l'École de médecine, 17, 1853.
- 13 The Société d'Encouragement offered its first prize for the development of photography in 1840. This competition offered 3,000 francs to the inventor of a "means of multiplying, in a number of at least 200, images obtained by the action of light." These images, wrote the Société, "must be comparable to the fine products of the graphic arts." Further, the inventions developed must be "available to all those who have need for the images and must not require on their part any prior knowledge of chemistry or design." *Prix proposés, Bulletin de la Société d'Encouragement pour l'Industrie Nationale*, 1840. The prize was clearly intended to inspire inventors to explore the relations between photography and graphic-art production: printed photographs were to be comparable to the graphic arts in two significant ways. First, the Société required inventors to strive for a large print edition of 200. This number was modest by lithographic standards in 1840 but almost unknown on a large scale for photography. Second, by requiring that the new means of production could not exclude anyone because of specialized production methods the Société effectively encouraged photography to develop by using a middleman, someone other than the photographer who would be responsible for the actual production.
- 14 "Photographie Zoologique; par MM. L. Rousseau et A. Devéria," *Bulletin de la Société d'Encouragement pour l'Industrie Nationale*, 1854, p. 120.
- 15 In December 1853, Lemercier deposited his photolithographs for the first time at the *dépôt légal*. Archives nationales, F-18\*VI, 55.
- 16 "Lithographie Photographique," *Bulletin de la Société d'encouragement pour l'industrie nationale*, 1854, p. 85.
- 17 Marc-Antoine Gaudin, "Semaine photographique: Sur la Reproduction des épreuves photographiques par l'encre d'imprimerie," *La Lumière*, #41, October 14, 1854, p. 161.
- 18 Gaudin's piece preceded the invention of the *carte-de-visite* portrait format—in which a photograph was mounted to the back of a visiting card—by the photographer Disdéri in

1854. It was only after 1858, however, that mass production of *cartes* was common, and when Disdéri began to market his series of famous personalities and dignitaries. Prior to 1858, Disdéri's process could hardly be considered mechanical and his production method hardly industrial, since the photographer still employed hand colorists to please individuals. According to Elizabeth Anne McCauley, "A. A. E. Disdéri and the Carte-de-Visite Portrait Format" (Ph.D. Diss. Yale University, 1980), p. 292, n. 84: "Already in 1854, Disdéri managed a number of employees and included the 'et Cie' on his logo, somewhat erroneously because the operation was not yet incorporated. His hand colorists, Mme. Tedesco and Mlle. Theric, were allowed to place their signatures next to his on the portraits they tinted, which indicates a surprising respect for traditional artistic skills."

19 Ironically, it was the incorporation of typography into photolithographic means of reproduction achieved during the 1880s, and not the other way around as suggested by the efforts of Dumont and others, that finally made possible the industrial printing of text and image together. Modern photolithographic offset printing was the outgrowth of this process.

20 "Photographie galvanique," *La Lumière*, December 1, 1855, pp. 190-91.

21 Ernest Lacan, editor of *La Lumière*, attested to this general belief among photographers and critics following the Exposition Universelle of 1855: "Pour nous la photographie, si complète qu'elle soit dans ses résultats, n'est qu'un procédé transitoire, et c'est à la gravure héliographique ou à la photolithographie qu'appartient l'avenir," *Esquisses photographiques à propos de l'Exposition Universelle et de la guerre d'Orient*, Paris, 1856, p. 204.

22 Photographic atlases and travel guides were produced by Félix Teynard, archaeological expeditions by Auguste Salzmann, Egyptian hieroglyphs reproduced by Auguste Mariette, and works of art and architecture reproduced by Adolphe Braun. In 1860, Disdéri proposed to reproduce works of art in the Louvre photographically through his *carte* format, but his proposals were rejected. Braun, however, established the most successful operation devoted to methodically reproducing works of art. After its invention in 1860, Braun used carbon paper, assuring the permanence of his images, and sold reproductions of works in the Louvre, British Museum, and Albertina, as well as from the art collections of Théodore Rousseau and the Goncourt brothers. See: Pierre Tyl, "Adolphe Braun: Photographe mulhousien. 1812-1877" (*Maitrise d'histoire*, Université de Strasbourg, 1982).

23 Benjamin (cited n. 1), p. 50.

*Jeff Rosen is Instructor of the History of Art and Photography at Columbia College, Chicago. His most recent article was "La photographie et l'estampe industrielle en France dans les années 1840," Nouvelles de l'estampe, 92 (May 1987), pp. 4-15.*

**Photographic Credits:** p. 262, Barbara Bloom; p. 268 (Fig. 1), Kunsthalle, Bremen; p. 273 (Fig. 5), *Musées Nationaux, Paris*; p. 273 (Fig. 6), *Trustees, National Gallery, London*; p. 299 (Fig. 2), *Trustees of the British Museum*; p. 300 (Fig. 3), *Centre Médico-Technique de l'Assistance Publique*; p. 303 (Fig. 10), *Diethelm Historical Library, Cornell University*; p. 313, Walter Drayer; p. 314 (Fig. 2), *Prudence Cuming Associates, Ltd./Artemis Group*; p. 314 (Fig. 3), *Giraudon*.