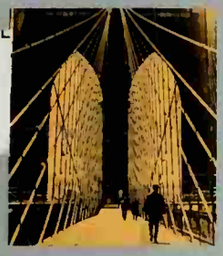




# A WORLD HISTORY OF PHOTOGRAPHY





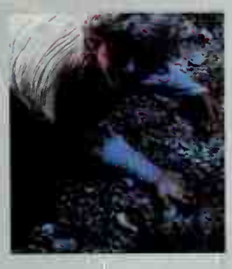
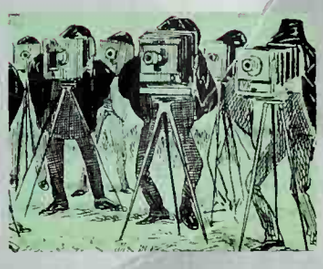







THIRD EDITION

*Naomi Rosenblum*

# A WORLD HISTORY OF PHOTOGRAPHY

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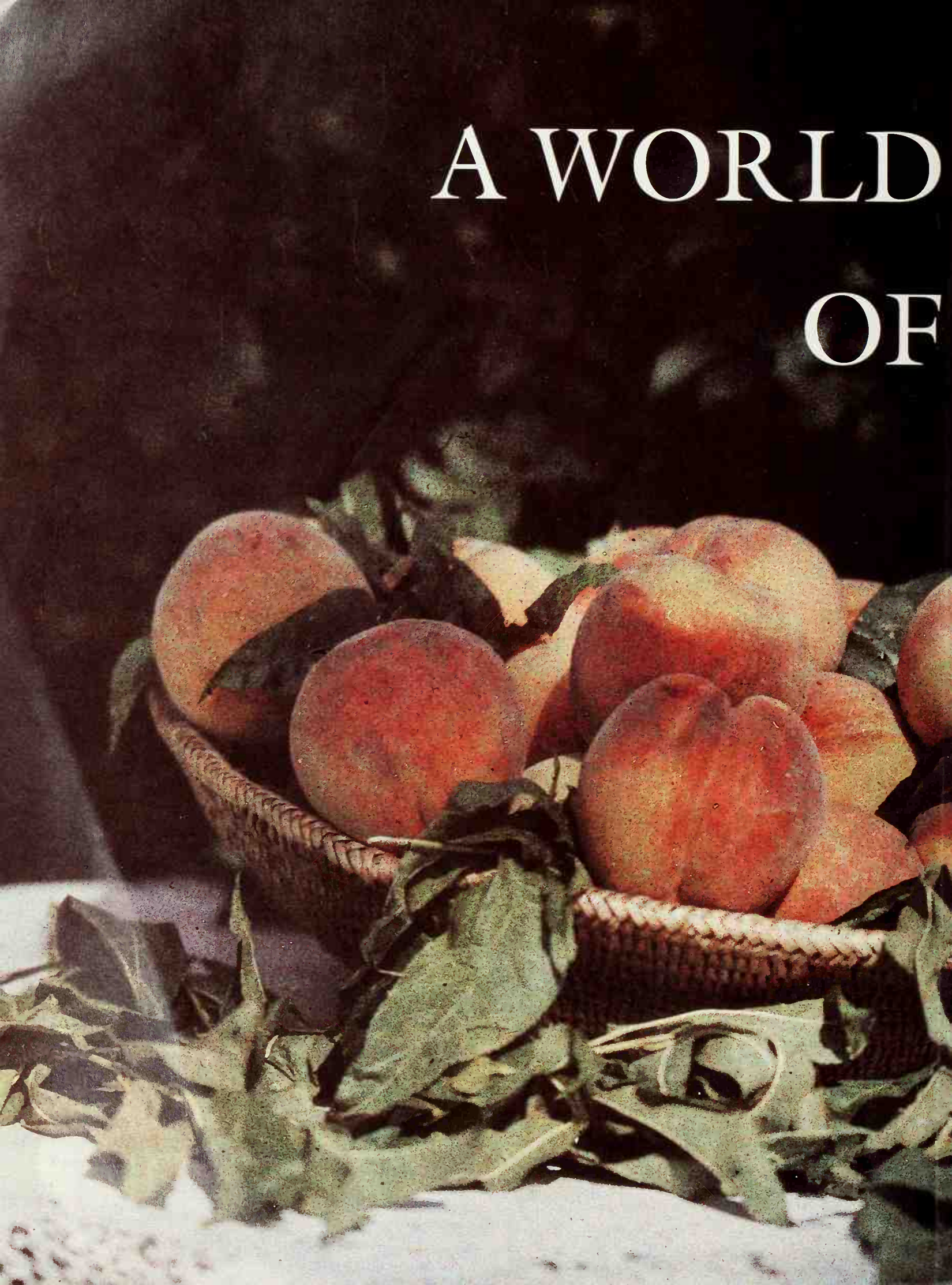
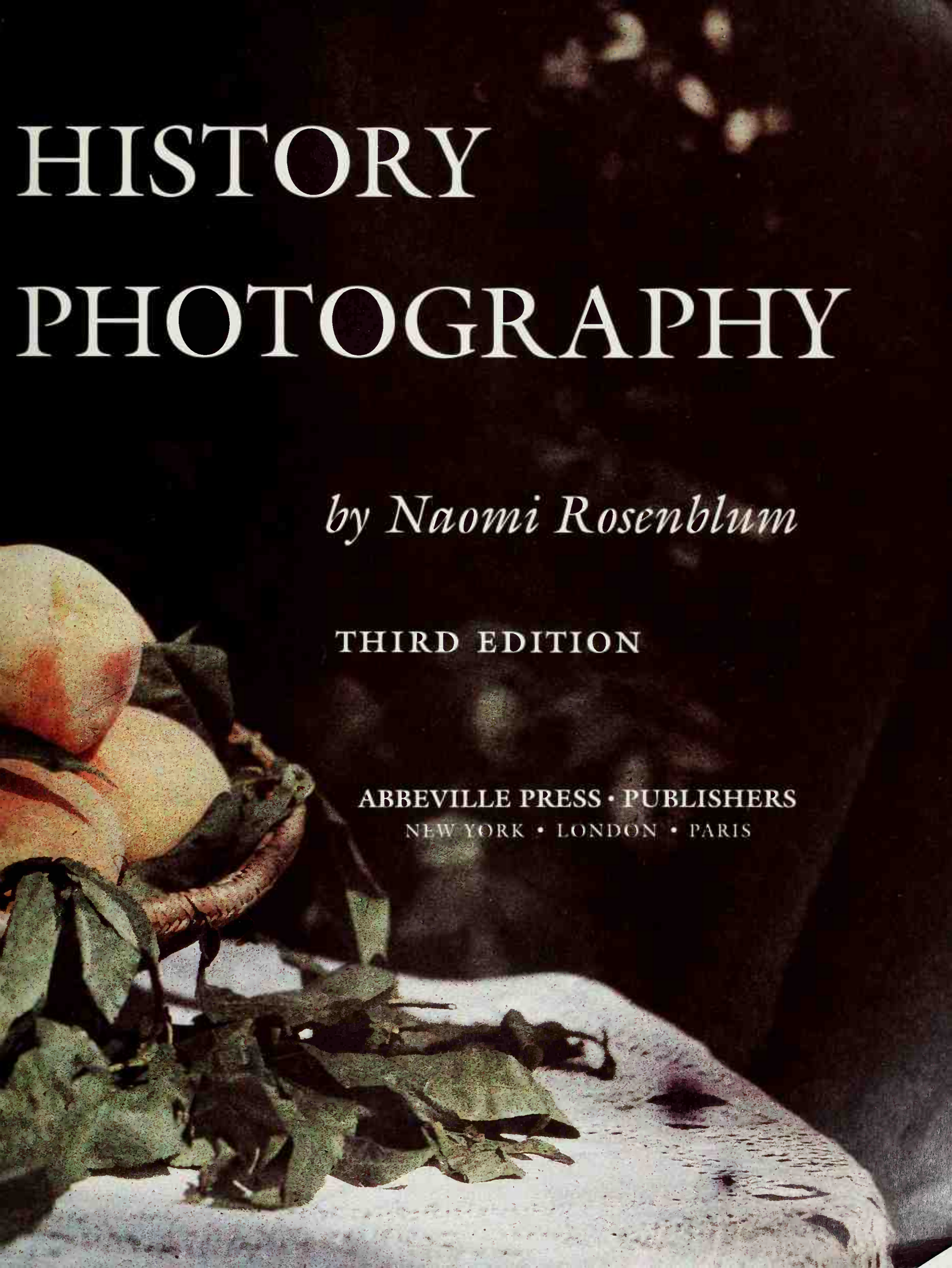


# HISTORY PHOTOGRAPHY

*by Naomi Rosenblum*

THIRD EDITION



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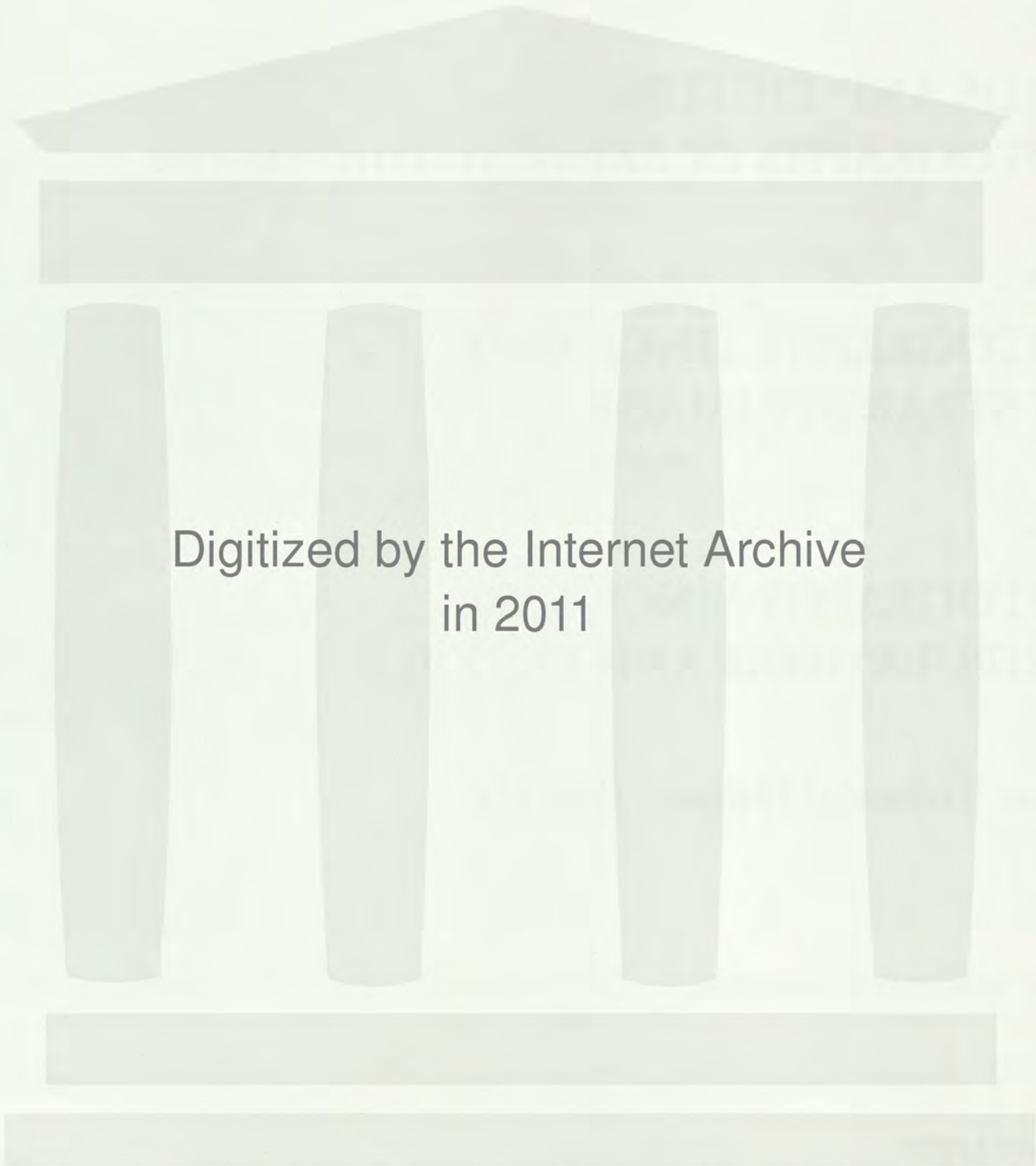

# *Preface*

As a way of making images, photography has flourished in unprecedented fashion ever since its origins over 150 years ago. From Paris to Peking, from New York to Novgorod, from London to Lima, camera images have emerged as the least expensive and most persuasive means to record, instruct, publicize, and give pleasure. Not only are photographs the common currency of visual communication in the industrialized nations, they have become the paradigmatic democratic art form—more people than ever before use cameras to record familial events or to express personal responses to real and imagined experiences. Because of their ubiquity, photographs (whether originals or reproductions) have been paramount in transforming our ideas about ourselves, our institutions, and our relationship to the natural world. That the camera has altered the way we see has become accepted wisdom; that it has confirmed that no single view of reality can be considered imperishably true has also become evident.

Used in a multitude of ways and with varying intentions, photographs have served to confuse and to clarify, to lull and to energize. Interposed between people and their direct experiences, they often seem to glorify appearance over substance. They have endowed objects, ideologies, and personalities with seductive allure, or clothed them in opprobrium. They have made the extraordinary commonplace and the banal exotic. At the same time, photographs have enlarged parochial perspectives and have impelled action to preserve unique natural phenomena and cherished cultural artifacts. On their evidence, people have been convinced of the inequity of social conditions and the need for reform.

Photography has affected the other visual arts to a profound degree. Now accepted for itself as a visual statement with its own aesthetic character, the photograph had an earlier role in replicating and popularizing artistic expression in other media, and thus had an incalculable effect on the taste of vast numbers of people in urbanized societies. Photography has made possible an international style in architecture and interior design. It has inspired new ways of organizing and representing experience in the graphic arts and sculpture. How and why the medium has attained the position it occupies in contemporary life are questions that this history explores.

Throughout the 19th century, expanding interest in photography provoked curiosity about its origins and stimulated investigations into its invention, developments, and the contributions of individual photographers. The first histories, which began to appear soon after 1839 and became exhaustive toward the end of the century, were oriented toward technological developments. They imposed a chronology on discoveries in chemistry, physics, and applied mechanics as these disciplines related (at times tenuously) to photography. Exemplified by Josef Maria Eder's *Geschichte der Photographie* (*History of Photography*), first published under a different title in 1891, revised several times, and issued in English in 1945, these histories were not at all concerned with the aesthetic and social dimensions of the medium, which they barely acknowledged.

Soon after 1900, as the art movement in photography gained adherents, histories of the medium began to reflect the idea that camera images might be considered aesthetically pleasing artifacts as well as useful technological products. The concept that photographs serve the needs of both art and science and that, in fact, the medium owes its existence to developments in both these spheres of activity is basic to the best-known general history that has appeared in the 20th century: *The History of Photography, from 1839 to the Present*, by Beaumont Newhall, first published as an exhibition catalog in 1937, rewritten in 1949, and revised in 1964 and 1982. Another redoubtable work—*The History of Photography, from the Camera Obscura to the Beginning of the Modern Era*, by Helmut and Alison Gernsheim, first published in 1955, revised by both in 1969 and again by Helmut Gernsheim as two volumes in the 1980s—also includes a discussion of the emergence of artistic photography and situates scientific developments within a social framework. Besides acknowledging the aesthetic nature of camera images, these works reflect the influence of the socially oriented temper of the mid-20th century in that they concede the relationship of photography to social forces.

To an even more marked degree, a conception of photography as a socio-cultural phenomenon informs *Photography and the American Scene: A Social History, 1839–1889*, by Robert Taft (1938), and *Photographie et société* by Gisèle Freund—the latter based on investigations begun in the 1930s but not published until 1974 in France

and not until 1980 in English translation. "The Work of Art in the Age of Mechanical Reproduction," by Walter Benjamin, which had its genesis in 1931 as a three-part article entitled "Kleine Geschichte der Photographie," is a seminal early discussion of the social and aesthetic consequences of mass-produced camera images, which has stimulated many later ruminations. A recent survey that places photographic imagery within an aesthetic and social context is *Nouvelle Histoire de la photographie* (1994), edited by Michel Frizot.

The obvious impress of camera images on the painting styles of the 1960s, combined with the affirmation at about the same time of the photographic print as an artistic commodity, may account for the appearance of histories concerned primarily with the effects of photography on graphic art. *The Painter and the Photograph, from Delacroix to Warhol*, by Van Deren Coke (1964), and *Art and Photography*, by Aaron Scharf (1968), are two such books that examine the role played by the medium in developments in the traditional visual arts. Within the past several decades, topical histories have appeared that survey the origins of documentation, photojournalism, and fashion photography. Monographs on historical figures and compendiums that offer a selection of images from the past without being historical have enriched our knowledge of the medium. Our understanding of developments in all spheres—technological, aesthetic, and social—has been amplified through articles appearing in periodicals, notably *History of Photography*. A scholarly journal initiated in 1977 by Professor Heinz Henisch of Pennsylvania State University and continued in England under the editorship of Mike Weaver, *History of Photography* expands the horizons of historical research in photography. All these inquiries into specific aesthetic, scientific, and social facets of photography have made it possible to fill in a historical outline with concrete facts and subtle shadings.

In view of this storehouse of material, my own book, *A World History of Photography*, is designed to distill and incorporate the exciting findings turned up by recent scholarship in a field whose history is being discovered daily. It summarizes developments in photography throughout the world and not just in Europe and the Americas—areas that in the past received almost exclusive attention. It presents the broad applications that photography has had, and it articulates the relationship of the medium to urban and industrial developments, to commerce, to ideas of progress, and to transformations in the visual arts. While dealing with historical context, it also examines the role of photography as a distinctive means of personal expression. In sum, this book is intended to present a historical view that weaves together the various components that have affected the course of photography, revealing an overall design without obscuring individual threads.

To do justice to these objectives, the material in this book is structured in a somewhat unusual way. The chapters are organized chronologically around themes that have been of special significance in the history of the medium—portraiture, documentation, advertising and photojournalism, and the camera as a medium of personal artistic expression. This organization makes visible both the similarity of ideas and images that have recurred in widely separated localities and the changes that have sometimes occurred in the work of individual photographers over the course of time. This treatment means that the work of an individual may be discussed in more than one chapter. Edward Steichen, for example, began his career around 1900 as a Pictorialist, was then in charge of American aerial documentation during World War I (and again in World War II), later became a highly regarded magazine photographer, and finally was director of a museum department of photography; his contributions are examined both in the chapter on Pictorialism and in the one devoted to advertising and photojournalism. While this organization of the chapters emphasizes the subject matter and the context within which photographers work, in select instances short biographies, called "profiles," have been included at the end of the appropriate chapter in order to underscore the contribution of those whose work epitomizes a style or has proved a germinal force.

Photography is, of course, the result of scientific and technical procedures as well as social and aesthetic ideas. Because large amounts of technical detail inserted into a narrative tend to be confusing rather than enlightening, summaries outlining changes in equipment, materials, and processes during three separate eras have been isolated from the descriptive history and placed at the end of each relevant period. Although not exhaustive, these short technical histories are meant to complement the discussions of social and aesthetic developments in the preceding chapters.

A great aid in the task of weaving everything together is the generous number of illustrations, which will permit the reader to relate facts and ideas within a general historical structure not only to familiar images but also to lesser-known works. In addition to the photographs interwoven throughout the text, the book includes albums of prints designed to highlight a few of the many themes that photographers have found compelling. They comprise outstanding examples in portraiture, landscape, social and scientific documentation, and photojournalism.

The study of photography is constantly being transformed by fresh information and insights, which recently

have accumulated with particular rapidity as a result of changes in technology and the appearance of the large numbers of new scholarly publications and exhibitions. These developments have made it necessary to add new information, interpretations, and images to *A World History of Photography*. Changes have been made throughout the text and captions, and the final two chapters have been revised and expanded to encompass recent developments in traditional and experimental photography. A discussion of digital technology has been added to the final technical history. The bibliography has been expanded to include books related to these topics as well as a selection of recent critical histories and monographs. The time line, which was inserted in a previous edition to provide contextual relationships at a glance, has been updated, as has the glossary.

Keeping all of this material within the confines of a one-volume history has been especially challenging because of the current burgeoning of traditional photographic activity and the emergence of electronic image-making capabilities throughout the world. In addition, new and valuable scholarship about the medium has been exceptionally abundant. It is my hope that the additions and changes in this revised edition will bring the reader up-to-date, fill in some lacunae, and inspire further investigation of the means by which photographs have come to play such a central role in our lives.

## *Acknowledgments*

That this work is so well provided with visual images is owed to my publisher, Robert E. Abrams, whose personal interest in producing a generously illustrated history of photography is hereby gratefully acknowledged. In all respects, my association with Abbeville Press has been pleasurable; I am indebted to my first editor, Walton Rawls, and to the editor of the third edition, Nancy Grubb, for their unfailing kindness and respect for my ideas; to the book's designer, Philip Grushkin, for his sensitivity and meticulousness in dealing with text and image; to Jain Kelly (ably succeeded on the third edition by Paula Trotto), whose grace and dexterity in pursuing pictures for reproduction turned an involved chore into a pleasant undertaking.

In writing this survey, I had the help of many individuals who collected information, corrected misapprehensions, pointed out omissions, and suggested sources for pictures. I thank them all. In particular, I am grateful to Gail Buckland, Cornell Capa, Alan Fern, William I. Homer, Anne Hoy, William Johnson, Estelle Jussim, and Larry Schaaf for helpful suggestions regarding portions of the text. My thanks also to Terence Pitts and Amy Rule of the Center for Creative Photography; to Rachel Stuhlman and Becky Simmons in the Library and to Therese Mulligan, Janice Mahdu, and David Wooters in the Archive of the International Museum of Photography at George Eastman House; to Judith Keller and Weston Naef and the entire staff of the Department of Photographs, the J. Paul Getty Museum; to Tom Beck of the Edward L. Bafford Photography Collection, University of Maryland, Baltimore County Library; to Verna Curtis of the Library of Congress; to Mary Panzer of the National Portrait Gallery, Smithsonian Institution; to Susan Kismaric of the Museum of Modern Art; to Sharon Frost, Richard Hill, Anthony Troncale, and Julia Van Haaften of the New York Public Library; to Miles Barth and Anna Winand of the International Center of Photography; to Gary Einhaus and Michael More of the Eastman Kodak Company; to Ann Thomas of the National Gallery of Canada; and to Sarah Greenough of the National Gallery of Art in Washington, D.C., for expediting my researches.

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The support of Professor Milton W. Brown, formerly executive officer of the Art History Program at the Graduate Center of the City University of New York, and of Martica Sawin, formerly chair of the Liberal Studies Department of Parsons School of Design, where I was teaching during the genesis and writing of most of this book, was invaluable.

I could not have embarked on this project without the support of my family. I am grateful for the enthusiasm of my daughters, Nina and Lisa, and deeply appreciative for the constant and loving understanding offered by my husband, Walter.

## *About the Illustrations*

Few readers mistake the reproduction of a painting for the original work, but with illustrations of photographs the distinctions between the two sometimes become clouded and the viewer assumes that the original print and its image in printer's ink are interchangeable. It is important to realize that in the photographic medium (as in other forms of visual expression), size, coloration, and surface appearance may be significant aspects of the photographic statement, and that these attributes are affected by being translated from their original form into a mechanical reproduction.

The question of size can be especially confusing. Positive prints of varying sizes can be obtained by making enlargements from glass plates or negatives of a specific dimension, and the size of the images may change again when the work is transferred to gravure or a lithographic reproduction. This is especially true in the era since the invention of the 35mm camera, since negatives made with this apparatus were meant to be enlarged rather than printed in their original size. As a consequence, for modern viewers the exact size of an original negative, even in works produced before the advent of 35mm cameras, has assumed a less significant role. Photographic prints also are easily cropped—by either photographer or user—and the print may represent only a portion of the original negative. Furthermore, the images in this book have been found in hundreds of archives, libraries, museums, and private collections, some of which were unable to provide information about original size. In view of the reasons outlined above, and in the interest of consistency, the dimensions of both negative and positive images have been omitted in the captions.

A more significant problem in reproducing photographs concerns the coloration of the image. With the exception of the color plates, in which the colored dyes of the original print or transparency have been translated with reasonable accuracy into pigmented ink, all the images have been printed here as duotones, in the same two colors of ink. It is obvious that the silver and gold tonalities of the metal daguerreotype plates have not been duplicated and must be imagined by the viewer; this is true also for many of the monochromatic prints on paper included in the book. From the inception of photography, paper prints were produced in a range of colors that include the reddish-orange tones of salt prints, the siennas and brown-blacks of carbon prints, the mulberry and yellow-brown hues of albumen prints, and the warm silvery tones of platinum paper. In numerous instances, colored pigments were added by hand to metal plate or paper to enhance the image. The coloration that became possible with the manipulative processes that flowered around the turn of the century will also, in general, have to be seen in the mind's eye. However, in order to provide the reader with some indication of the variety and richness of coloration in photography, an album of images entitled "The Origins of Color" has been included as one of a group of special sections. In it are reproduced the actual colors found in hand-tinted daguerreotypes, paper prints, carbon prints, and bichromate prints as well as in several of the earliest color-process prints.

In addition to distinctive colors, photographic prints sometimes display significant differences in surface appearance and texture, the result of using different processes and printing on different papers; these, too, do not translate easily in reproduction. In all cases, the reader should keep in mind that in addition to the variety of theme and the broad range of aesthetic treatment visible in the illustrations, photographs may exhibit a distinctiveness of color and texture that can be appreciated only in the original.

Because photographs are fragile and for a long time were thought not to be important enough to merit special handling, some images selected for illustration contain extraneous marks caused by the deterioration of the emulsion on the negative. In other cases, scratches and discoloration on the metal daguerreotype plates or cracks and tears in the paper on which the print was made also are visible. No effort has been made to doctor such works so that they look new or to add pieces of the image that might be missing in the original photograph. Care has been taken, whenever possible, to reproduce the entire image even when the edges of a print are damaged.

## *About the Captions*

Caption information is structured as follows: name of the photographer, where known; title of the work, with foreign titles other than place names translated into English; medium in terms of the positive print from which the reproduction was made; and the owner of the print. In the case of 19th-century paper prints, the term *calotype* has been used to denote all prints on salted paper, whether made from paper negatives produced by Talbot's calotype process or a variation thereof. *Salt print* is used when the negative medium is not known. Dimensions of the original negatives are not given, but *carte-de-visite* and stereograph formats are indicated. When two credits are given at the end of a caption, the first is the owner of the work, the second is the source of the reproduction.

# A WORLD HISTORY OF PHOTOGRAPHY

# I.

# THE EARLY YEARS: TECHNOLOGY, VISION, USERS

## *1839–1875*

*What is the secret of the invention? What is the substance endowed with such astonishing sensibility to the rays of light, that it not only penetrates itself with them, but preserves their impression; performs at once the function of the eye and the optic nerve—the material instrument of sensation and sensation itself?*

*—"Photogenic Drawing," 1839*[1]

IN THE YEAR 1839, two remarkable processes that would revolutionize our perceptions of reality were announced separately in London and Paris; both represented responses to the challenge of permanently capturing the fleeting images reflected into the *camera obscura*. The two systems involved the application of long-recognized optical and chemical principles, but aside from this they were only superficially related. The outcome of one process was a unique, unduplicatable, laterally reversed monochrome picture on a metal plate that was called a daguerreotype after one of its inventors, Louis Jacques Mandé Daguerre *(pl. no. 1) (see Profile)*. The other system produced an image on paper that was also monochromatic and tonally as well as laterally reversed—a negative. When placed in contact with another chemically treated surface and exposed to sunlight, the negative image was transferred in reverse, resulting in a picture with normal spatial and tonal values. The result of this procedure was called photogenic drawing and evolved into the calotype, or Talbotype, named after its inventor, William Henry Fox Talbot *(pl. no. 2) (see Profile)*. For reasons to be examined later in the chapter, Talbot's negative-positive process initially was less popular than Daguerre's unique picture on metal, but it was Talbot's system that provided the basis for all substantive developments in photography.

By the time it was announced in 1839, Western industrialized society was ready for photography. The camera's images appeared and remained viable because they filled cultural and sociological needs that were not being met by pictures created by hand. The photograph was the ultimate response to a social and cultural appetite for a more accurate and real-looking representation of reality, a need that had its origins in the Renaissance. When the idealized representations of the spiritual universe that inspired the medieval mind no longer served the purposes of increasingly secular societies, their places were taken by paintings and graphic works that portrayed actuality with greater verisimilitude. To render buildings, topography, and figures accurately and in correct proportion, and to suggest objects and figures in spatial relationships as seen by the eye rather than the mind, 15th-century painters devised a system of perspective drawing as well as an optical device called the *camera obscura* that projected distant scenes onto a flat surface *(see A Short Technical History, Part I)*—both means remained in use until well into the 19th century.

Realistic depiction in the visual arts was stimulated and assisted also by the climate of scientific inquiry that had emerged in the 16th century and was supported by the middle class during the Enlightenment and the Industrial Revolution of the late 18th century. Investigations into plant and animal life on the part of anatomists, botanists, and physiologists resulted in a body of knowledge concerning the internal structure as well as superficial appearance of living things, improving artists' capacity to portray organisms credibly. As physical scientists explored aspects of heat, light, and the solar spectrum, painters became increasingly aware of the visual effects of weather condi-

1. JEAN BAPTISTE SABATIER-BLOT. *Portrait of Louis Jacques Mandé Daguerre*, 1844. Daguerreotype. International Museum of Photography at George Eastman House, Rochester, N.Y.

2. ANTOINE CLAUDET. *Portrait of William Henry Fox Talbot*, c. 1844. Daguerreotype. Fox Talbot Museum, Lacock, England.

tions, sunlight and moonlight, atmosphere, and, eventually, the nature of color itself.

This evolution toward naturalism in representation can be seen clearly in artists' treatment of landscape. Considered a necessary but not very important element in the painting of religious and classical themes in the 16th and 17th centuries, landscape had become valued for itself by the beginning of the 19th. This interest derived initially from a romantic view of the wonders of the universe and became more scientific as painters began to regard clouds, trees, rocks, and topography as worthy of close study, as exemplified in a pencil drawing of tree growth by Daguerre himself *(pl. no. 3)*. When the English landscapist John Constable observed that "Painting is a science and should be pursued as an inquiry into the laws of nature,"[2] he voiced a respect for truth that brought into conjunction the aims of art and science and helped prepare the way for photography. For if nature was to be studied dispassionately, if it was to be presented truthfully, what better means than the accurate and disinterested "eye" of the camera?

The aims of graphic art and the need for photography converged in yet another respect in the 19th century. In accord with the charge of French Realist painter Gustave Courbet that it was necessary "to be of one's time," many artists rejected the old historical themes for new subjects dealing with mundane events in contemporary life. In addition to renouncing traditional subject matter, they also sought new ways to depict figures in natural and lifelike poses, to capture ephemeral facial and gestural expression, and to represent effects of actual conditions of illumination—information that the camera image was able to record for them soon after the middle of the century.

Another circumstance that prepared the way for photography's acceptance was the change in art patronage and the emergence of a large new audience for pictorial images. As the church and noble families diminished in power and influence, their place as patrons of the arts was taken by the growing middle class. Less schooled in aesthetic matters than the aristocrats, this group preferred immediately comprehensible images of a variety of diverting subjects. To supply the popular demand for such works, engravings and (after 1820) lithographs portraying anecdotal scenes, landscapes, familiar structures, and exotic monuments were published as illustrations in inexpensive periodicals and made available in portfolios and individually without texts. When the photograph arrived on the scene, it slipped comfortably into place, both literally and figuratively, among these graphic images designed to satisfy middle-class cravings for instructive and entertaining pictures.

Though the birth of photography was accompanied by incertitude about scientific and technical matters and was plagued by political and social rivalries between the French and the British, the new pictorial technology appealed enormously to the public imagination from the first. As photographs increasingly came to depict the same kinds of imagery as engravings and lithographs, they superseded the handmade product because they were more accurate in the transcription of detail and less expensive to produce and therefore to purchase. The eagerness with which photography was accepted and the recognition of its importance in providing factual information insured unremitting efforts during the remainder of the century to improve its procedures and expand its functions.

## *The Daguerreotype*

The invention of the daguerreotype was revealed in an announcement published in January, 1839, in the official bulletin of the French Academy of Sciences, after Daguerre had succeeded in interesting several scientist-politicians, among them François Arago, in the new process of making pictures. Arago was an eminent astronomer, concerned with the scientific aspects of light, who also was a member of the French Chamber of Deputies. As spokesman for an enlightened group convinced that researches in physics and chemistry were steppingstones to national economic

supremacy, Arago engineered the purchase by France of the process that Daguerre had perfected on his own after the death of his original partner, Joseph Nicéphore Niépce *(pl. no. 4) (see A Short Technical History, Part I)*. Then on August 19, 1839, with the inventor at his side, Arago presented the invention to a joint meeting of the Academies of Sciences and of Fine Arts *(pl. no. 5)*; the process was later demonstrated to gatherings of artists, intellectuals, and politicians at weekly meetings at the *Conservatoire des Arts et Métiers*.

The marvel being unveiled was the result of years of experimentation that had begun in the 1820s[3] when Niépce had endeavored to produce an image by exposing to light a treated metal plate that he subsequently hoped to etch and print on a press. He succeeded in making an image of a dovecote *(pl. no. 6)* in an exposure that took more than eight hours, which accounts for the strange disposition of shadows on this now barely discernible first extant photograph. When his researches into heliography, as he called it, reached a standstill, he formed a partnership with the painter Daguerre, who, independently, had become obsessed with the idea of making the image seen in the *camera obscura* permanent. Daguerre's fascination with this problem, and with the effects of light in general, is understandable in view of his activities as a painter of stage sets and illusionistic scenery for The Diorama, a popular visual entertainment in Paris. Evolved from the panorama, a circular painted scene surrounding the viewers, The Diorama contrived to suggest three-dimensionality and atmospheric effects through the action of light on a series of realistically painted flat scrims. The everyday world was effectively transcended as the public, seated in a darkened room, focused on a painted scene that genuinely appeared to be animated by storms and sunsets.

3. Louis Jacques Mandé Daguerre. *Woodland Scene*, n.d. Pencil on paper. International Museum of Photography at George Eastman House, Rochester, N.Y.

In promoting The Diorama into one of Europe's most popular entertainments, Daguerre had shown himself to be a shrewd entrepreneur, able to gauge public taste and balance technical, financial, and artistic considerations, and he continued this role with respect to the new invention. He understood, as his partner Niépce had not, that its progress and acceptance would be influenced as much by promotional skill as by intrinsic merit. After the death of Niépce in 1833, Daguerre continued working on the technical problems of creating images with light, finally achieving a practicable process that he offered to sell in 1838, first for a lump sum and then by subscription. When these attempts failed, he altered his course to a more politically inspired one, a move that culminated in the acquisition of the process by the French government[4] and led to the painter's presence beside Arago at the gathering of notables in the Palace of the Institute in August, 1839.

In an electric atmosphere, Arago outlined Daguerre's methods of obtaining pictures (basically, by "exposing" a silver-coated copper plate sensitized in iodine vapor and "developing" its latent image by fuming in mercury vapor), enumerated potential uses, and prophetically emphasized unforeseen developments to be expected. The making of inexpensive portraits was one possibility keenly desired, but in 1839 the length of time required to obtain a daguerreotype image ranged from five to 60 minutes, depending on the coloring of the subject and the strength of the light—a factor making it impossible to capture true human appearance, expression, or movement. For instance, in one of two views from his window of the Boulevard du Temple *(pl. no. 7)* that Daguerre made in 1838, the only human visible is the immobile figure of a man with a foot resting on a pump, all other figures having departed the scene too quickly to have left an imprint during the relatively long exposure. Therefore, efforts to make the process practicable for portraiture were undertaken immediately *(see Chapter 2)*.

Shortly after the public announcement, Daguerre published a manual on daguerreotyping, which proved to many of his readers that the process was more easily

written about than executed. Nevertheless, despite the additional difficulty of transporting unwieldly cameras and equipment to suitable locales—not to mention the expenditure of considerable time and money—the process immediately attracted devotees among the well-to-do, who rushed to purchase newly invented cameras, plates, chemicals, and especially the manual—about 9,000 of which were sold within the first three months. Interest was so keen that within two years a variety of cameras, in addition to the model designed by Daguerre and produced by Alphonse Giroux in Paris, were manufactured in France, Germany, Austria, and the United States. Several knowledgeable opticians quickly designed achromatic (non-distorting) lenses for the new cameras, including the Chevalier brothers in Paris and Andrew Ross in London, all of whom had been providing optical glass for a wide range of other needs, as well as the Austrian scientist Josef Max Petzval, a newcomer. Focusing on monuments and scenery, daguerreotype enthusiasts were soon to be seen in such numbers in Paris, the countryside, and abroad that by December, 1839, the French press already characterized the phenomenon as a craze or "*daguerréotypomanie*" *(pl. no. 8)*.

One of the more accomplished of the gentlemen amateurs who were intrigued by daguerreotyping was Baron Jean Baptiste Louis Gros, who made the first daguerreotype images of the Parthenon while on a diplomatic mission to Greece in 1840. After returning to Paris, he was fascinated by his realization that, unlike hand-drawn pictures, camera images on close inspection yielded minute details of which the observer may not have been aware when the exposure was made; far removed from the Acropolis, he found that he could identify sculptural elements from the Parthenon by examining his daguerreotypes with a magnifying glass. The surpassing clarity of detail, which in fact still is the daguerreotype's most appealing feature, led Gros to concentrate on interior views and landscapes whose special distinction lies in their exquisite attention to details *(pl. no. 9)*.

4. Léonard-François Berger. *Portrait of Joseph Nicéphore Niépce*, 1854. Oil on Canvas. Musée Nicéphore Niépce, Ville de Chalon-sur-Saône, France.

At the August meeting of the Academies, Arago had announced that the new process would be donated to the world—the seemingly generous gift of the government of Louis Philippe, the Citizen King. However, it soon became apparent that before British subjects could use the process they would have to purchase a franchise from Daguerre's agent. Much has been written about the chauvinism of Daguerre and the French in making this stipulation, but it should be seen in the context of the unrelenting competition between the French and British ruling-classes for scientific and economic supremacy. The licensing provision reflected, also, an awareness among the French that across the Channel the eminent scientist Talbot had come up with another method of producing pictures by the interaction of light and chemicals.

Regularly scheduled demonstrations of Daguerre's process and an exhibition of his plates took place in London in October, 1839, at the Adelaide Gallery and the Royal Institution, the two forums devoted to popularizing new discoveries in science. Daguerre's manual, which had appeared in translation in September (one of 40 versions published within the first year), was in great demand, but other than portraitists, whose activities will be discussed in the next chapter, few individuals in England and Scotland clamored to make daguerreotypes for amusement. Talbot, aware since January of Daguerre's invention from reports in the French and British press and from correspondence, visited the exhibition at the Adelaide Gallery and purchased the equipment necessary for making daguerreotypes; however, even though he praised it as a "splendid" discovery, he does not appear to have tried out the process.

Reaction to the daguerreotype in German-speaking cities was both official and affirmative, with decided interest expressed by the ruling monarchs of Austria and Prussia.[5] Returning from a visit to Paris in April, 1839, Louis Sachse, owner of a lithographic firm, arranged for French cameras, plates, and daguerreotype images to be sent to Berlin by

5. UNKNOWN. *Joint Meeting of the Academies of Sciences and Fine Arts in the Institute of France, Paris*, August 19, 1839. Engraving. Gernsheim Collection, Humanities Research Center, University of Texas, Austin.

6. JOSEPH NICÉPHORE NIÉPCE. *View from His Window at Le Gras*, c. 1827. Heliograph. Gernsheim Collection, Humanities Research Center, University of Texas, Austin.

7. Louis Jacques Mandé Daguerre. *Boulevard du Temple, Paris*, c. 1838. Daguerreotype. Bayerisches Nationalmuseum, Munich.

mid-year; a few months later, views taken with locally constructed apparatus also were being shown. However, even though urban scenes in a number of cities were recorded quite early, among them an 1851 view of Berlin by Wilhelm Halffter *(pl. no. 10)*, daguerreotyping for personal enjoyment was less prevalent in Central Europe because the *bourgeoisie* were neither as affluent nor as industrially advanced as their French counterparts. As in all countries, German interest in the daguerreotype centered on expectations for a simple way to make portraits.

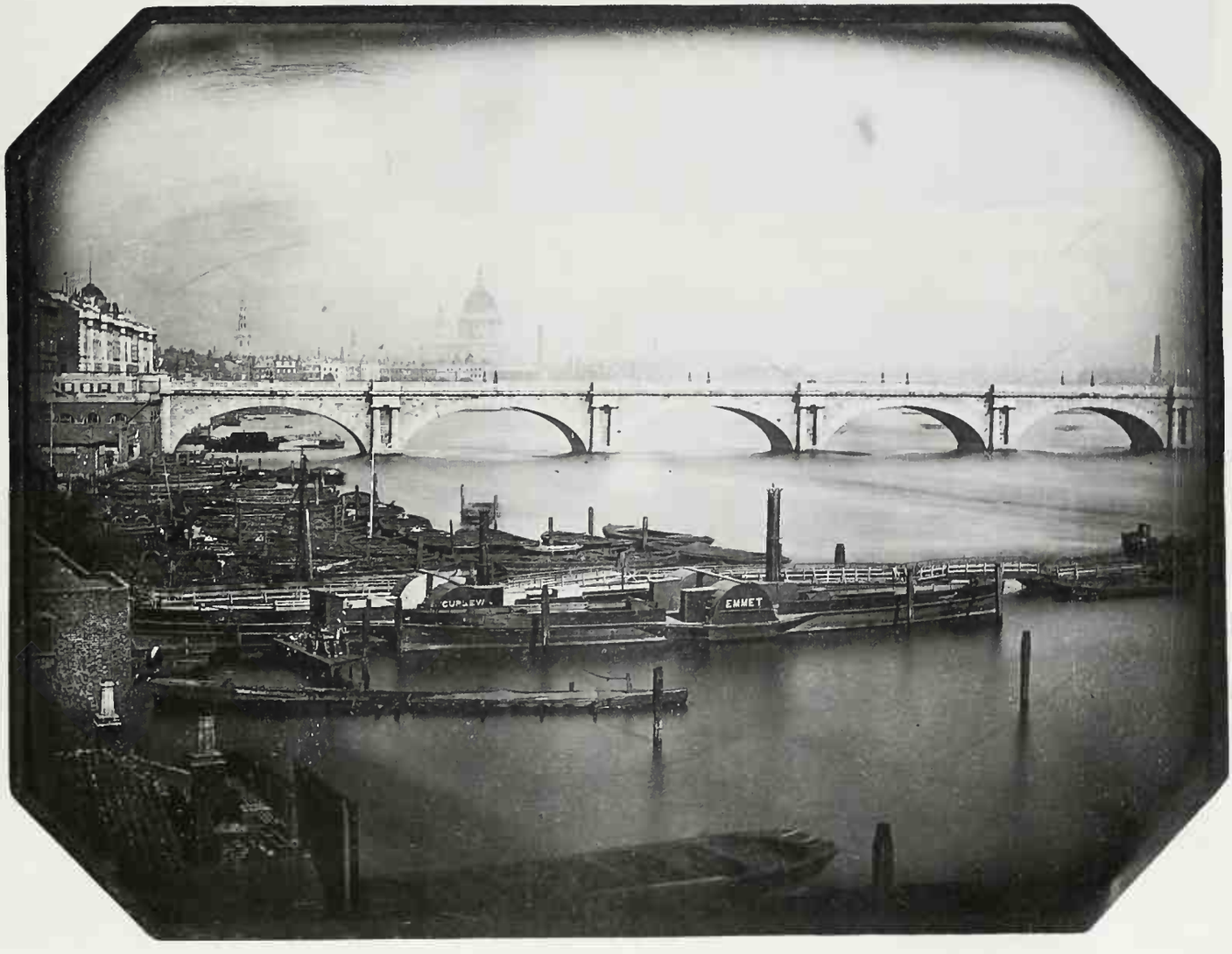
Avid interest in the new picture-making process, a description of which had appeared in scientific journals following the January announcement in Paris, motivated Anton Martin, librarian of the Vienna Polytechnic Institute, to attempt daguerreotype images in the summer of 1839, even before Daguerre had fully disclosed his procedures or had his plates exhibited in Vienna that fall. *Winter Landscape (pl. no. 11)*, a view made two years later by Martin, is mundane in subject matter and artlessly organized. But by the 1830s this kind of scene already had begun to appeal to artists, and it is possible that the documentary camera image, exemplified by this work, hastened the renunciation of romantic themes and bravura treatment of topographical scenes in the graphic arts.

One of the earliest Europeans to embrace and extend the possibilities of the daguerreotype was the Swiss engraver Johann Baptist Isenring who, between 1840 and 1843, exhibited plates of native scenery, colored by hand, in Augsburg, Munich, Stuttgart, and Vienna. He also was among the first to publish aquatint views *(pl. no. 12)* based on daguerreotypes, signaling the form in which the unique image would begin to reach a larger public. His subject matter, too, anticipated the attraction that Continental landscape was to have for a great many photographers working between 1850 and 1880, many of whom continued the tradition begun in the late 18th century of publishing landscape views.

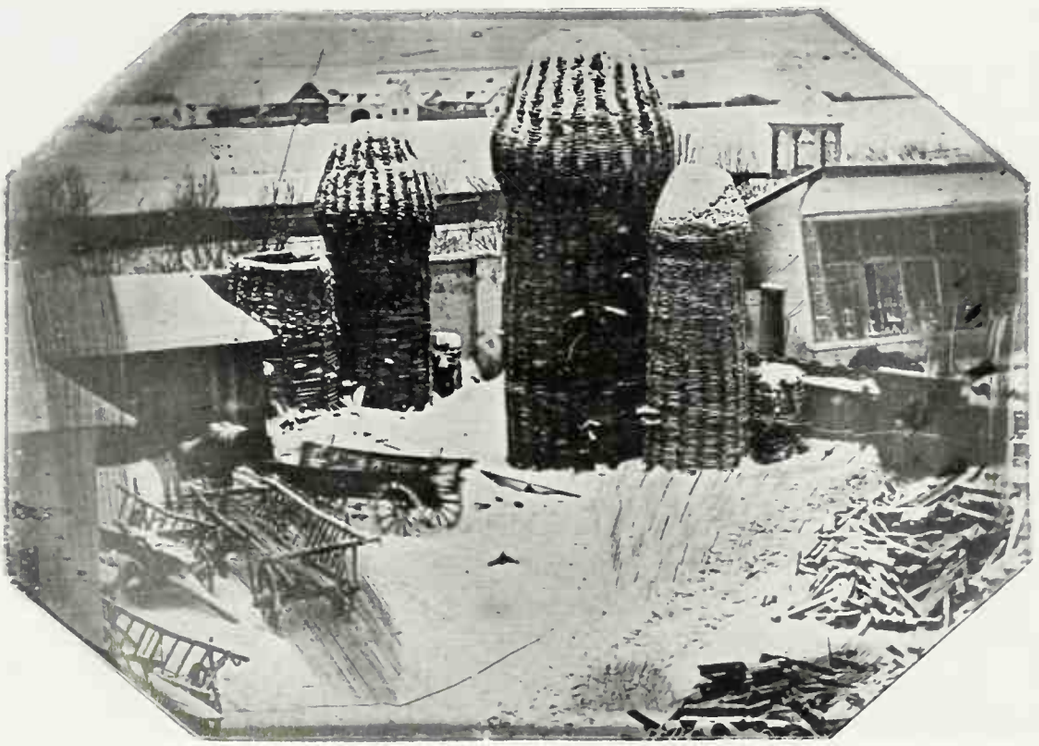
Curiosity about the new picture processes was pro-


8. Théodore Maurisset. *La Daguerréotypomanie*, December, 1839. Lithograph. Gernsheim Collection, Humanities Research Center, University of Texas, Austin.

9. Jean Baptiste Louis Gros. *Bridge and Boats on the Thames*, 1851. Daguerreotype. Bibliothèque Nationale, Paris.



10. Wilhelm Halffter. *Statue of Frederick the Great, Berlin*, May 31, 1851. Daguerreotype. Agfa-Gevaert Foto-Historama, Cologne, Germany.



11. Anton Martin. *Winter Landscape, Vienna*, c. 1841. Daguerreotype. Museum für Kunst und Gewerbe, Hamburg.

nounced among scientists, artists, and travelers in Italy. In addition to translations of French manuals, which started to appear in 1840, visitors from the north brought along their own equipment for both the daguerreotype and Talbot's negative-positive process. Among the early Italian daguerreotypists, Lorenzo Suscipj was commissioned to make views of the Roman ruins for English philologist Alexander John Ellis. Indeed, the presence of classical ruins and the interesting mix of French, British, German, and American nationals living and traveling in Rome and Florence during mid-century gave Italian photography in all processes a unique character in that the rapid commercialization of scenic views and genre subjects became possible. For example, within ten years of the introduction of photography, camera images had taken the place of the etchings, engravings, and lithographs of ruins that tourists traditionally had purchased.

As one moved farther east and north from Paris, daguerreotyping activity became less common. News of the discovery, reprinted from the January notices in the French press, reached Croatia, Hungary, Lithuania, and Serbia in February, 1839, and Denmark, Estonia, Finland, and Poland during the summer, with the result that a number of scientific papers on the process began to appear in these localities. In Russia experimentation succeeded in producing a less expensive method of obtaining images on copper and brass rather than silver, and by 1845 a Russian daguerreotypist felt confident enough to exhibit landscape views of the Caucasus Mountains in a Paris show. Nevertheless, early photography in all these distant realms reflected the absence of a large and stable middle class. Only in the three primary industrial powers—England, France, and the United States—was this group able to sustain the investment of time and energy necessary to develop the medium technically and in terms of significant use.

## *The Daguerreotype in America*

As had been the case with other technologies originating in Europe, Americans not only embraced the daguerreotype, but quickly proceeded to turn it to commercial advantage. The view that "the soft finish and delicate definition of a Daguerreotype has never yet been equalled by any other style of picture produced by actinic agency,"[6] which appeared in the photographic magazine *Humphrey's Journal* in 1859, was only one expression of an opinion held especially by the first generation of American photographers. Daguerreotyping remained the process of choice for 20 years—long beyond the time that Europeans had turned to the more flexible negative-positive technology. The reasons for this loyalty are not entirely clear, but a contributing factor must have been the excellent quality attained by American daguerreotypists. The sparkling North American light, envied by fog-enshrouded Londoners, was said to have been partly responsible, but social and cultural factors undoubtedly were more significant. Considered a mirror of reality, the crisp, realistic detail of the daguerreotype accorded with the taste of a society that distrusted handmade art as hinting of luxuriousness and was enamored of almost everything related to practical science. With its mixture of mechanical tinkering and chemical cookery, the daguerreotype posed an appealing challenge to a populace that was upwardly and spatially mobile despite periods of economic depression. As a means of livelihood, it combined easily with other manual occupations such as case- or watchmaking, and those who wished to follow a western star were to find it a practicable occupation while on the move.

Some Americans had higher aspirations for the daguerreotype. As an image produced by light, it appeared in their minds to conjoin the Emersonian concept of the "divine hand of nature" with the practicality of scientific positivism. Some hoped that the new medium might help define the unique aspects of American history and experience as expressed in the faces of the citizenry. Others believed that because it was a picture made by machine it would avoid too great artifice and, at the same time, would not demonstrate the obvious provinciality of outlook and training that often characterized native graphic art at mid-century.

The daguerreotype reached America after it had been seen and praised by Samuel F. B. Morse *(pl. no. 13)*, a skillful painter who also invented the electro-magnetic telegraph. His enthusiastic advocacy in letters to his brother in the spring of 1839 helped spur interest in the first manuals and descriptions that arrived in New York late in September by packet ship from England. By early October, details were available in the press, enabling Morse and others to attempt daguerreotyping, but although he worked with esteemed scientist John William Draper and taught others, including Mathew Brady, few images produced by Morse himself have survived.

Another factor that contributed to the rapid improvement of the daguerreotype in the United States was the arrival in November, 1839, of the French agent François Gouraud, with franchises for the sale of equipment. His demonstrations, along with exhibitions of Daguerre's images, evoked interest in the many cities where they were held, even though Americans did not consider it necessary to purchase rights or use authorized equipment in order to make daguerreotypes. As in Europe, technical progress was associated with portraiture, but improvement also was apparent in images of historical and contemporary monuments and structures. Owing to the primitive nature of his

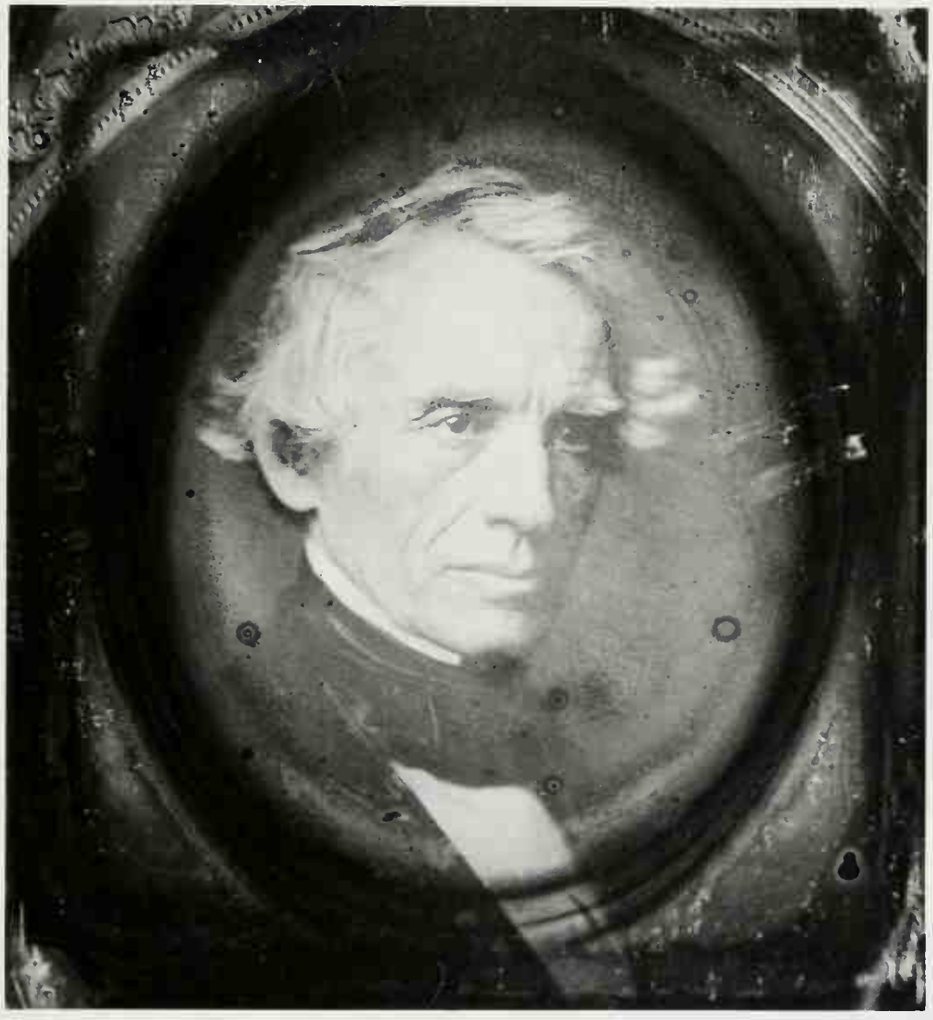

12. JOHANN BAPTIST ISENRING. *View of Zurich*, n.d. Aquatint. Burgerbibliotek Bern, Switzerland.

equipment and the experimental state of the technique, engraver Joseph Saxton's very early view of the Arsenal and Cupola of the Philadelphia Central High School *(pl. no. 14)*, made in October, 1839, is not nearly as crisply defined as John Plumbe's *Capitol Building (pl. no. 15)* of 1845/46 and William and Frederick Langenheim's 1844 view of the Girard Bank, occupied by the Philadelphia Militia *(pl. no. 16)*.

Plumbe, a visionary businessman who built and then lost a small daguerreotyping empire, was interested mainly in portraits, but the Langenheim brothers, of German extraction, hoped to improve American photographic technology by introducing German daguerreotype cameras, the calotype, and photography on glass. John Adams Whipple, of Boston, was similarly concerned with expanding the frontiers of the medium. In addition to a partnership in a fine portrait practice, Whipple attempted to make daguerreotypes by artificial light and to experiment with images on albumen-coated glass. His special interest was astrophotography; in March, 1851, after three years of experimentation, he produced successful daguerreotypes of the moon *(pl. no. 17)*. The Langenheims and Whipple were among the small group of Americans who realized the drawbacks of the daguerreotype; the populace, however, was too engrossed by the seeming fidelity of "the mirror with a memory"[7] to deplore its limitations.

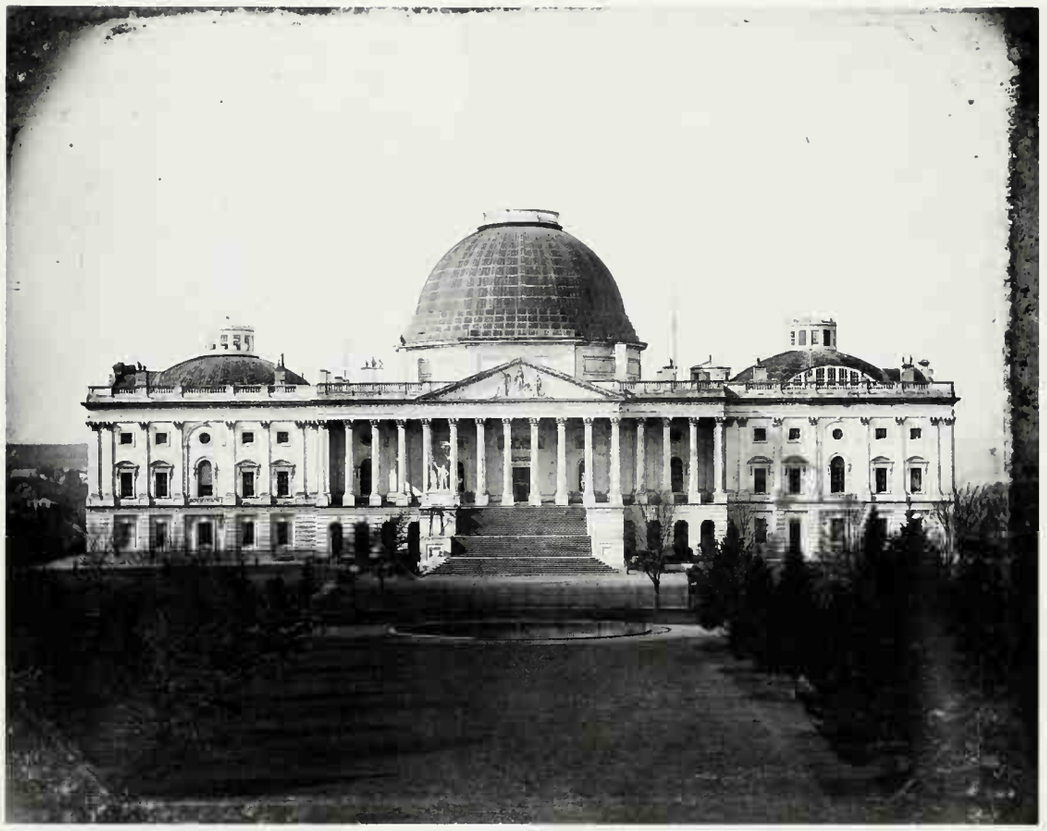
## *The Calotype*

For much of its existence, photography has been understood by most to be a process resulting in a negative image that can be replicated almost endlessly to produce positives in which tonal and spatial values are in normal relationship.[8] Using the same matrix, the picture can be made

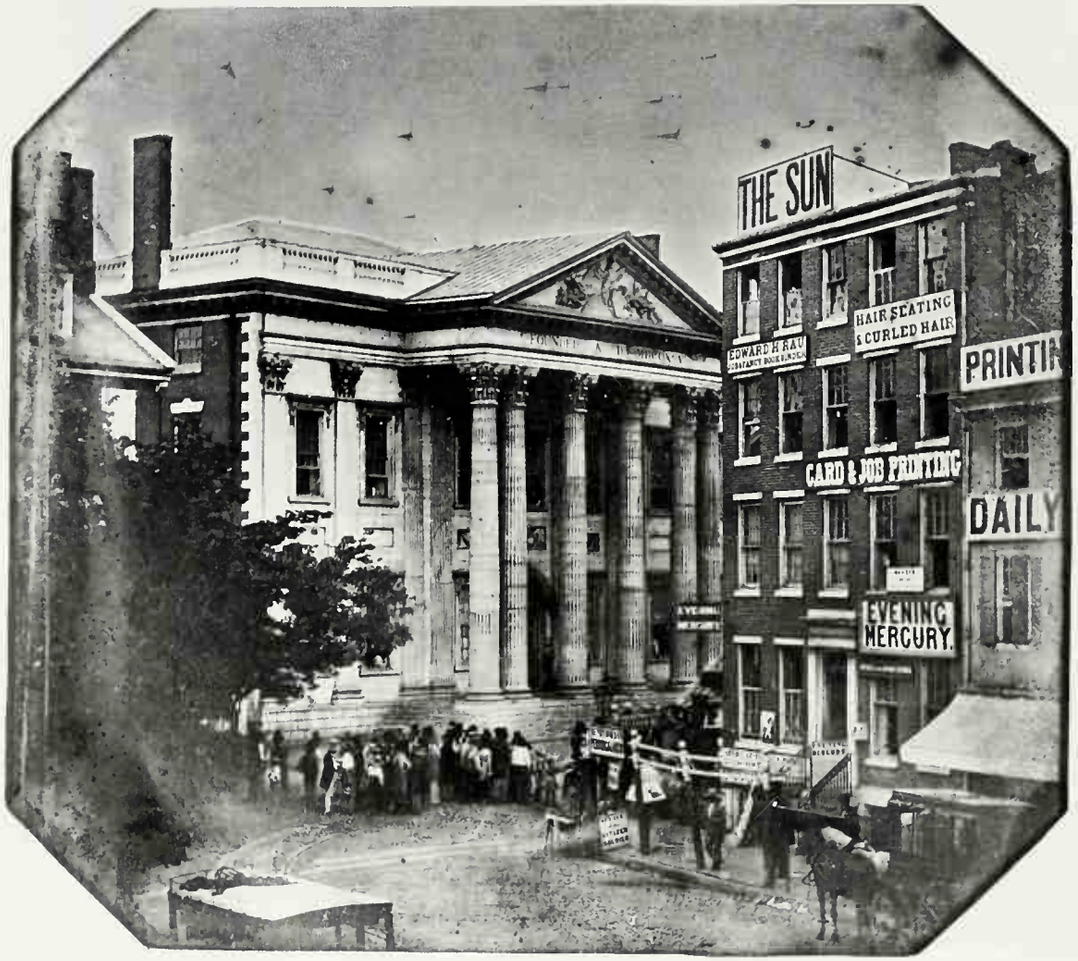


13. Photographer Unknown. *Portrait of Samuel F. B. Morse*, c. 1845. Daguerreotype. Collection Mrs. Joseph Carson, Philadelphia.

14. Joseph Saxton. *Arsenal and Cupola, Philadelphia Central High School*, October 16, 1839. Daguerreotype. Historical Society of Pennsylvania, Philadelphia.



15. JOHN PLUMBE. *Capitol Building, Washington, D.C.*, 1845–46. Daguerreotype. Library of Congress, Washington, D.C.




16. WILLIAM and FREDERICK LANGENHEIM. *Girard Bank*, May, 1844. Daguerreotype. Library Company of Philadelphia.

larger and, because of the light weight of the support (paper, fabric, plastic), it can be inserted into books and albums, attached to documents, and sent through the mails, as well as framed and hung on the wall. The photograph's physical and utilitarian advantages over the daguerreotype are so obvious that it may seem incredible that when first announced the negative-positive process took a most definite second place in the public mind.

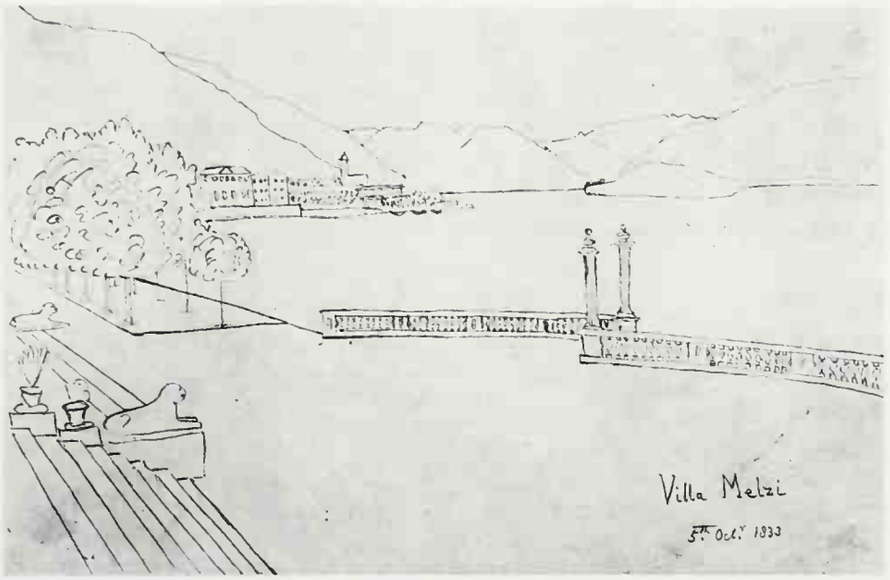
The reasons are complex, involving timing, technique of production, aesthetic standards, and social factors. Photogenic drawing, as Talbot first called the paper image, was made public by the inventor in London in February, 1839, only after the news of Daguerre's discovery had been relayed from across the Channel. For most people, the potential value of replication may have seemed too abstract an idea at the time, while the actual process of turning negative into positive was perceived as rather complicated. Most important, however, was the fact that—even to Talbot's most ardent supporters—the fuzziness of his earliest results was demonstrably less pleasing than the finely detailed daguerreotype image.[9] Furthermore, the French invention, sponsored by scientist-politicians, had received official government sanction while Talbot had to steer his discovery himself through the quicksands of the British scientific and patenting establishments, at the same time pursuing improvements and attempting to realize a commercial return.

A patrician background and university training had enabled Talbot to become involved with the most advanced thinking of his time. This resourceful scientist was drawn more to astronomy, mathematics, and optics than to chemistry (which in any case was barely a discipline at the time), and his interests also embraced linguistics and literature. For a man of science he was a somewhat romantic and antisocial figure who traveled incessantly; it was while sketching on a honeymoon trip to Italy in 1833 *(pl. no. 18)* that he conceived the notion of making permanent the image visible on the translucent ground-glass surface of the *camera obscura*. Taking up this idea on his return to England, Talbot managed first to expose and thereby transfer leaf forms directly onto chemically sensitized paper *(pl. no. 21)*. Then, in the summer of 1835, with treated paper inserted in small specially constructed cameras, he succeeded in producing a number of negatives of his ancestral home, Lacock Abbey, including a tiny postage-stamp-size image of a latticed window *(pl. no. 20)* with diamond panes initially distinct enough to count.

In common with Daguerre, Talbot first used a solution of ordinary table salt to stop the continuing action of light on the silver deposits, but it was not until both inventors had switched to hyposulphite of soda (hypo, as it is still called even though its scientific name is now sodium thiosulphate) that the unexposed silver salts were completely removed and the image satisfactorily stabilized. This characteristic of hypo had been discovered in 1819 by John Herschel (later knighted), a prominent astronomer, physical scientist, and friend of Talbot, who informed both inventors of this fact. Herschel's contributions to the chemistry of photography reveal both scientific brilliance and distinterested generosity. Returning in 1838 after several years as an independent researcher in South Africa where he had himself made drawings with optical devices *(pl. no. 19)*, Herschel learned of the experiments in England and France to produce images by the action of light. He proceeded to conduct his own intensive researches to discover the effectiveness of different silver halides and other chemicals, among them ferric salts from which cyanotypes, or blueprints, are made.

Herschel's suggestions with regard to terminology were especially effective in that he convinced Talbot to consider, instead of photogenic drawing, the broader term photography—light writing—a term believed to have been first used by both the Brazilian Hercules Florence and the German astronomer Johann H. von Maedler.[10] Herschel also coined the terms negative and positive to refer to the

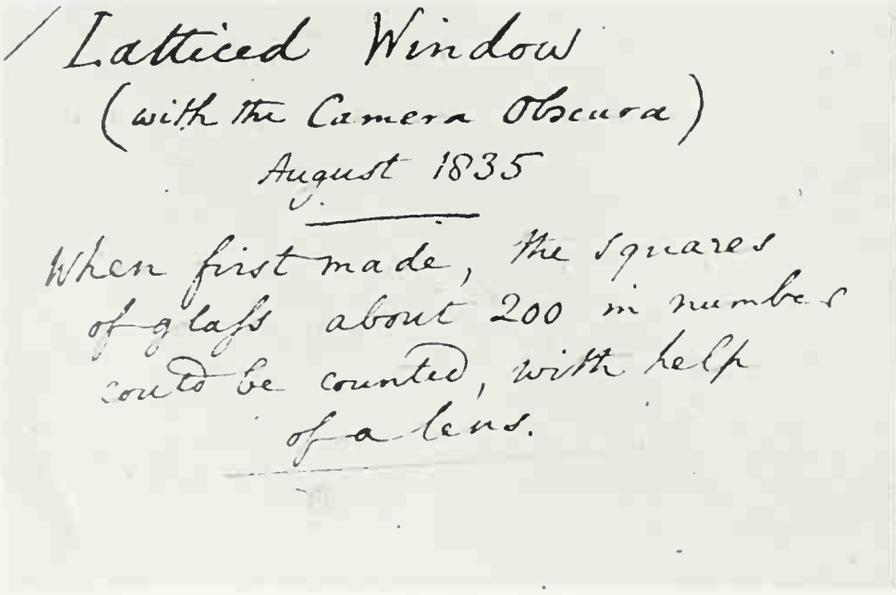
17. John Adams Whipple. *Moon*, 1851. Daguerreotype. Science Museum, London.




18. WILLIAM HENRY FOX TALBOT. *Villa Melzi*, October 5, 1833. Camera lucida sketch on paper. Fox Talbot Collection, Science Museum, London.

19. JOHN HERSCHEL. *Cape Town and Table Bay from Just Above Platte Klip Gorge, Table Mountain*, February 7, 1838. Camera lucida sketch on paper. Special Collections, South African Library, Capetown.

20. WILLIAM HENRY FOX TALBOT. *Latticed Window at Lacock Abbey*, 1835. Photogenic drawing. Fox Talbot Collection, Science Museum, London.



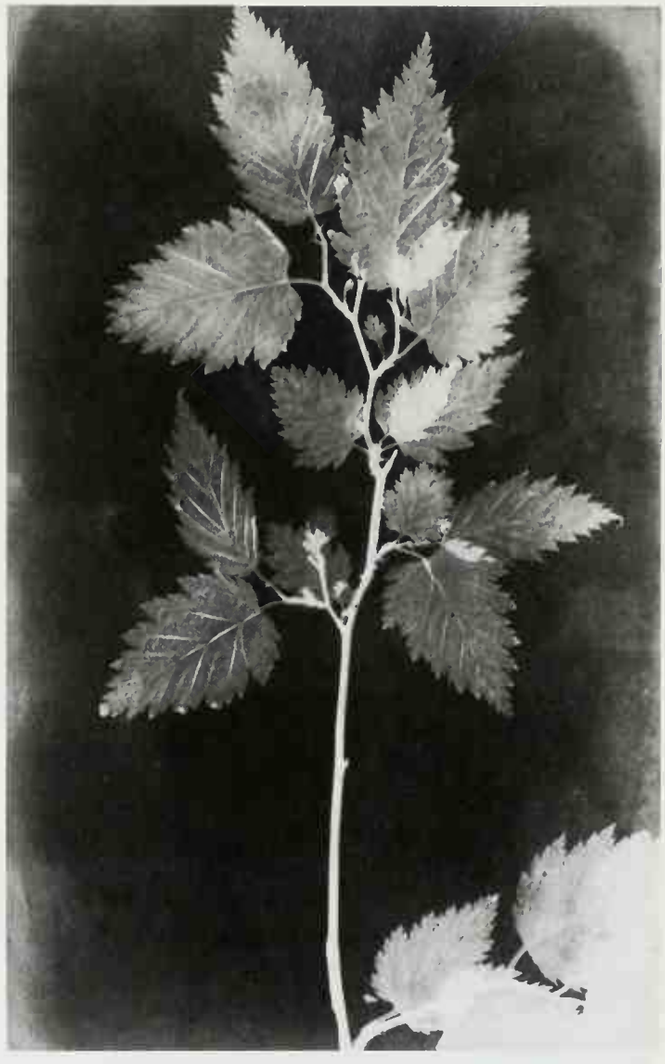

inverse and reverted images that were basic to the system. Had he wished, he probably could have arrived at a patentable process at the same time as Talbot, but his interests lay elsewhere. His intellectual openness has been contrasted with Talbot's more secretive attitudes, but the two were mutual admirers, with Herschel refreshingly liberal about sharing the experimental results of his genius.

The report in January, 1839, of Daguerre's discovery forced Talbot to make public his process even though he had done little work on it since 1837. His initial announcements, made to the Royal Society, the Royal Institution, and the French Academy of Sciences at the end of January and in February were received with interest and evoked a small flurry of excitement among a few individuals in the scientific community and in Talbot's circle of family and friends. However, in comparison with the verisimilitude of the finely detailed daguerreotype, this image, incorporating the texture intrinsic to its paper support, was too broad and indistinct to have wide appeal despite Talbot's description of the effect as "Rembrandtish."

Another disadvantage at first was the length of time required to make an exposure. Talbot had not then discovered the possibility of latent development, a procedure Daguerre had stumbled on, whereby the image, invisible on the exposed plate or paper, was made to appear by treatment with a chemical solution (developer). When he did discover this in the fall of 1840, his exposure time was decreased from about half an hour to as little as 30 seconds on a very bright day, making possible portraiture and a much broader selection of subjects and atmospheric effects, as seen in one of the inventor's early views of London *(pl. no. 22)*.

In 1841 Talbot took out the first of his patents,[11] using the word calotype to describe the resulting image, which he also referred to as a Talbotype. This action initiated a ten-year period during which English scientific and artistic endeavor in photography became entangled in problems of commercial exploitation. Both during his lifetime and long afterward, Talbot was accused of obstructing the development of photography because of his intransigence with regard to the four patents he held on the calotyping process. Critics have suggested that he regarded them as covering all advances in photographic technology occurring between 1841 and 1851 and that he included as his own the contributions of others, in particular Herschel's suggestion of hyposulphite of soda as a fixer. However, Talbot's biographer, H. J. P. Arnold, notes that a close reading of the language indicates that the patents protected methods of utilizing substances rather than the chemical agents themselves.[12]

Talbot himself was caught up in a controversy over the moral and practical effects of patenting inventions, a dilemma that occupied the British from mid-century on. While some individuals maintained that patent fees were too high and rules too lax for protection, others argued that patents were indefensible because inventions "depended less on any individual than on progress in society."[13] Talbot may have agreed, but he patented his processes because, like countless others in Britain, France, and the United States at the time, he considered that those who had invested considerable effort should reap the material rewards of their genius and industry. That he did not benefit financially was because he was an indifferent businessman with a more compelling interest in intellectual matters—an attitude bolstered by the fact that he could count on income from his landed estate. Neither the surge of amateurs photographing in calotype for their own pleasure nor the utilization of the process for commercial portraiture materialized. Among the well-to-do who did take



21. William Henry Fox Talbot. *Botanical Specimen*, 1839. Photogenic drawing. Royal Photographic Society, Bath, England.

22. William Henry Fox Talbot. *The Nelson Column, Trafalgar Square, London, under Construction*, c. 1843. Salted paper print from a calotype negative. Fox Talbot Collection, Science Museum, London.

23. William Henry Fox Talbot. *The Open Door*, 1843. Salted paper print from a calotype negative. (Plate VI, *The Pencil of Nature*, 1844–46.) Fox Talbot Collection, Science Museum, London.

24. Hippolyte Bayard. *Excavation for rue Tholozé*, 1842. Paper negative. Société Française de Photographie, Paris.

up calotyping were Talbot's wife Constance, his Welsh relatives Emma and John Dillwyn Llewelyn, and two friends, the Reverends Calvert Richard Jones and George W. Bridges, both of whom conceived the idea of making a calotype record of their travels abroad *(see Chapter 3)*.

Paper photography occasioned a more significant response in Scotland where no licensing arrangements were necessary. With the help of Sir David Brewster, an eminent scientist who corresponded frequently with Talbot, Robert Adamson, a young Scottish chemist, was able to perfect the calotype technique and open a studio in Edinburgh in 1841. Two years later, he and painter-lithographer David Octavius Hill began to produce calotypes; these images, mainly portraits *(see Chapter 2)*, still are considered among the most expressive works in the medium.

Talbot, though disinclined to pursue the commercial exploitation of his discovery actively, was keenly concerned with the potential uses of the medium. In setting up a publishing establishment at Reading under the supervision of Nicolaas Henneman, an assistant he personally had trained, Talbot promoted the use of the photographic print itself in book and magazine illustration. The *Pencil of Nature*, issued serially between 1844 and 1846 with text and pictorial material supplied by Talbot, was the first publication to explain and illustrate the scientific and practical applications of photography. One of the plates, *The Open Door (pl. no. 23)* was singled out in the British press for its exceptional tonal range and textural fidelity, its "microscopic execution that sets at nought the work of human hands."[14]

Talbot regarded photography as important primarily for its role in supplying visual evidence of facts, but this "soliloquy of the broom," as Talbot's mother called *The Open Door*, reveals a telling interest in the artistic treatment of the mundane. Along with the theme, the careful attention to the way light and shadow imbue a humble scene with picturesque dimension suggests the inventor's familiarity with examples of Dutch genre painting of the 17th century—works that enjoyed considerable esteem in Victorian England and, in fact, were specifically mentioned in the *Pencil of Nature*. Several other calotype images in the same style bear witness to Talbot's conviction that photography might offer an outlet for artistic expression to those without the talent to draw or paint.

Other publications by Talbot included *Sun Pictures of Scotland*, for which he made 23 photographs in 1844, and *Annals of Artists in Spain*, the first book to utilize the photograph for reproducing works of art. However, he disposed of the Reading firm in 1848 because of managerial and technical problems in running a large-scale photographic printing enterprise, not the least of which was the fact that calotypes were subject to fading. This instability was to trouble photographers who worked with paper prints throughout the next 25 years.

In France, where the daguerreotype held the general populace enthralled, artists were greatly interested in the

calotype. In their view, the paper process offered a greater range of choices within which one might fashion an affective image. In addition to view, pose, and lighting—the sole aesthetic decisions for the daguerreotypist—the calotypist could exercise interpretive judgment in the production of subsequent prints from the same negative. Aesthetic decisions concerning tonality and coloration could be made by adjustments in the toning and sensitizing baths and by the choice of paper itself, while retouching on the negative (or print) could alter forms. In this respect, the paper process called to mind traditional procedures in etching and engraving, lending the calotype greater esteem among those interested in photography as a creative pursuit.

## *Other Developments in Paper Photography*

Actually, a paper process had been discovered independently in France. Early in 1839, Hippolyte Bayard, a civil servant in the Ministry of Finance, had made and exhibited both photogenic drawings and direct positive paper images exposed in a camera *(see A Short Technical History, Part I)*, among them a view of a rural enclave in Paris in the process of being urbanized *(pl. no. 24)*. These works were produced soon after the first reports of Talbot's process reached France but before the official announcement in August of Daguerre's process. However, political pressure, especially from Arago, who had committed himself to the promotion of the daguerreotype, kept the discovery from the public. Bayard expressed his indignation at this shabby treatment by the French establishment[15] by creating an image of himself as a suicide victim *(pl. no. 25)*; nevertheless, he soon went on to become a prominent member of the photographic community in Paris.

Aware of Bayard's discoveries and concerned that this other paper process might achieve precedence on the Continent, Talbot sought to promote the calotype in France. Although he signed a contract for its promotion with Joseph Hugues Maret (known as the Marquis de Bassano), and traveled to Paris in 1843 to demonstrate the procedure, his associates in France turned out to be incompetent and the project a fiasco. Loath to purchase franchises directly from Talbot in England, French artists and photographers preferred to wait until 1847 when Louis Désiré Blanquart-Evrard, a photographer in Lille who was to become an influential figure in book publication, announced a modified paper process based on Talbot's discoveries. One of the most ardent champions of paper photography in France was the painter Gustave Le Gray, who in 1851 described a method of waxing the negative before exposure to improve definition and tonal sensitivity. The calotype, employed by Le Gray and other French photographers in an 1851 project to document historic monuments *(see Chapter 3)*, enjoyed spirited acclaim by French critics before it was made obsolete by the new collodion technology discussed below.

Early in 1839, two Munich scientists, Carl August von Steinheil and Franz von Kobell, had experimented with paper negatives as a result of a report on Talbot's discoveries given at the Bavarian Royal Academy of Sciences, but even though successful results were exhibited in July, on hearing of the wonderful detail possible with the daguerreotype Von Steinheil switched to metal plates. In the United States as in England, the soft forms of the calotype appealed mainly to a small group of intellectual lights (many of whom lived in Boston), but on the whole reaction to paper photography was cool. Following an unproductive business arrangement with Edward Anthony, a prominent figure in the photographic supply business in New York, Talbot sold the patent rights to the Langenheims who, in turn, expected to sell licenses for the process throughout the United States. The calotypes made by the Langenheims were admired in the press, but the firm soon was forced into bankruptcy as the American public continued its allegiance to the daguerreotype.

## *Introduction of the Glass Plate and Collodion*

Lack of definition and fading were considered the two most pressing problems in paper photography, especially by portraitists and publishers with commercial interests. To improve sharpness, efforts to replace the grainy paper negative with glass—a support that both Niépce and Herschel had already used—gained ground. The first practicable process, using albumen, or egg white, as a binder for the silver salts, was published in France in 1847, while in the United States Whipple and the Langenheims also had succeeded in making finely detailed glass negatives with these substances, from which they made prints called crystalotypes and hyalotypes, respectively. Glass also provided a suitable material for experimentation undertaken by the Langenheims to produce stereographic images (see below) and positive slides for projection. But while albumen on glass resulted in negatives without grain, the procedures were complicated and the exposure time was longer than that required for the daguerreotype.

An effective alternative materialized in 1850 when Frederick Scott Archer, an English engraver turned sculptor, published a method of sensitizing a newly discovered colorless and grainless substance, collodion, to be used on a glass support *(see A Short Technical History, Part I)*. Because exposure time decreased dramatically when the plate was used in a moist state, the process became known as the wet

25. HIPPOLYTE BAYARD. *Self-Portrait as a Drowned Man*, 1840. Direct paper positive. Société Française de Photographie, Paris.

plate or wet collodion method. Today one can scarcely imagine the awkwardness of a procedure that required the user to carry a portable darkroom about in order to sensitize each plate before using it and to develop it immediately afterward. Still, the crisp definition and strong contrast afforded by sensitized collodion on glass proved to be just what many in the photographic profession had hoped for in a duplicatable process. Its discovery initiated an era of expanded activity in professional portraiture, in the publication of views, in amateur photographic activity around the globe, and led to numerous collateral photographic enterprises. The introduction of collodion also signaled the end of Talbot's exasperating efforts to litigate his patent rights against those who had taken up calotyping for commerce without purchasing a franchise. The gift of the collodion process to the public by Archer (who was to die impoverished in 1857) was in noticeable contrast to Talbot's attempts to cover all his inventions. When he claimed in 1854 that collodion, too, was protected by his 1843 calotype patent, the outrage expressed in the press made a favorable decision on his pending infringement cases impossible.[16] Talbot gave up his photography patents in 1855, but by then the calotype had faded from sight, in many cases quite literally.

## *Developments in the Paper Print*

Besides the soft definition, the other problem that plagued calotypists involved the quality of the print. Uneven and blotchy tonalities and, of greater concern, the tendency for rich-looking prints to fade and discolor were nightmares, especially for those in commercial enterprises. In addition, satisfactory salt prints—positives produced by exposing sensitized paper in contact with a negative until the image appeared—were thought to look lifeless by a public enticed by superior contrast and clarity. Because the problems were perceived as intrinsic to paper manufacture, an emulsion consisting of albumen and light sensitive silver salts was proposed as a surface coating to keep the image from penetrating into the paper structure itself.

Coming into use at about the same time as the collodion negative, the albumen print rapidly became part of a new photographic technology. Lasting some 30 years, it promoted a style that featured sharp definition, glossy surface, and strong contrasts. In response to this preference, Blanquart-Evrard's *Imprimerie Photographique* (Photographic Printing Works) at Lille, the first successful photographic printing plant to employ a substantial labor force of men and women, began to process prints for the

dozen different publications issued during the 11 years of its existence. Similar firms soon appeared in Alsace, Germany, England, and Italy, as photographically illustrated books and portfolios became popular.

However, despite the optimistic scenario for the future of the albumen print, problems with stability continued to haunt photographers, making large-scale production a demanding undertaking. At times the unappealing yellow-brown tonality of faded albumen prints was likened to that of stale cheese. Again, sizings were blamed, and it was determined that impurities in the water used in paper manufacture also left a residue that caused the discoloration; only two mills in northeastern France were thought capable of producing paper free from such mineral contamination. Stock from these mills was shipped to nearby Dresden to be albumenized, establishing this German city as the main production center for photographic paper throughout the collodion era.

Other causes of fading, among them imperfect washing, inadequate fixing with hypo baths, interaction with mounting adhesives and air pollution, were confirmed by individuals and by committees set up to study the situation by the two most prominent photographic organizations of the era—the Photographic Society of London and the *Société Française de Photographie*. A two-part prize offered in 1856 by an eminent French archeologist, Honoré d'Albert, Duc de Luynes, testified to the fact that the solution would be found in two spheres of activity related to photography. In offering a larger sum for photomechanical procedures and a smaller one for the discovery of a truly permanent method of chemical printing, De Luynes and other French industrialists recognized the importance of mechanical over hand methods for reproducing photographs. Alphonse Louis Poitevin, a noted French chemist who was recipient of both parts of the prize, worked out a photolithographic process called the collotype *(see A Short Technical History, Part II)* and a non-silver procedure for printing collodion negatives. Based on researches undertaken in 1839 by the Scottish scientist Mungo Ponton that established the light-sensitivity of potassium bichromate, this process, called carbon printing, used a mixture of bichromated gelatin and powdered carbon instead of silver salts to effect a positive image.

During the 1860s, the results obtained by printing with carbon were greatly admired for their deep, rich tonalities as well as their resistance to fading. The technique was actively promoted in Europe, especially after Joseph Wilson Swan, the holder of numerous British patents in the photochemical field (and the inventor of the incandescent light bulb), simplified manipulation by manufacturing carbon tissues in various grades and tonalities. Called Autotype in England, the Swan carbon process was franchised to the Annan brothers in Scotland, Hanfstaengl in Germany, and Braun in France, rendering these large-scale photographic publishing firms more productive than formerly. However, despite a campaign to promote the carbon method by a leading American publication, *The Philadelphia Photographer*, no great interest developed in the United States, perhaps because efforts already were underway to find a method of printing photographs on mechanical presses through the creation of a metal matrix. Another process that utilized similar chemical substances—the Woodburytype, named after its English creator Walter Woodbury—began to supplant carbon production printing in the early 1870s. It, too, produced a richly pigmented permanent image, but because it incorporated elements of mechanical printing technology it was more productive. Despite these improvements in positive printing materials, albumen paper continued in use for portraits and scenic views until the 1880s when significant new developments in both negative and printing materials made it obsolete. The pigmented carbon process was used less frequently in commercial photographic printing after the 1880s; however, it then became a means of individualized artistic expression for pictorialist photographers.

## *The Stereograph and Stereoscope*

One final element in this inaugural period of photography helped assure the medium's incredible popularity. This was the invention of the stereograph and stereoscope —an image and a device that fused photographic technology with entertainment. Stereographs—two almost identical images of the same scene mounted side by side on a stiff support and viewed through a binocular device to create an illusion of depth—held late-19th-century viewers in thrall. Early examples, which had used daguerreotypes to create this effect, were not entirely successful because reflections from the metal surfaces interfered with the illusion; but after collodion/albumen preempted other technologies, stereograph views became more convincing and immensely salable. Produced in large editions by steam-driven machinery and mounted on cards using assembly-line methods, they reached a substantial clientele, especially in the United States, through mail-order and door-to-door sales. Stereograph publishers offered an unparalleled selection of pictorial material; besides the landscapes, views of monuments, and scenes of contemporary events that often were available in regular format photographs also, there were educational images of occupations and work situations around the globe, reproductions of works of art, especially sculpture, and illustrations of popular songs and anecdotes—all of which provided middle-class viewers with unprecedented materials for entertainment.

26. Holmes-Bates Stereoscope with stereograph. Keystone-Mast Collection, California Museum of Photography, University of California, Riverside.

Histories of the medium have acknowledged this popular appeal, but the stereograph should be seen as more than a faddish toy. After Queen Victoria had expressed her approval at the Crystal Palace Exhibition of 1851, where stereographs were on public display for the first time, the purchase, exchange, and viewing of stereographs became a veritable mania. It was promoted in the United States as a significant educational tool by Oliver Wendell Holmes in two long articles in the *Atlantic Monthly*, in 1859 and 1862. Besides envisioning "a comprehensive and systematic library . . . where all . . . can find the special forms they desire to see as artists . . . as scholars, . . . as mechanics or in any other capacity,"[17] Holmes suggested that in the future the image would become more important than the object itself and would in fact make the object disposable. He also designed an inexpensive basic viewer *(pl. no. 26)* to enable ordinary people of little means to enjoy these educational benefits. In the latter part of the 19th century, stereography filled the same role as television does in the 20th, providing entertainment, education, propaganda, spiritual uplift, and aesthetic sustenance. Like television, it was a spectator activity, nourishing passive familiarity rather than informed understanding. Long viewed as a pleasant household pastime, its effect on attitudes and outlook in the 19th century only recently has become the subject of serious study.[18]

Looking back at the evolution of the medium during the first half of the 19th century, it is obvious that photography's time had come. Industrialization and the spread of education mandated a need for greater amounts of comprehensible pictorial material encompassing a broader range of subjects—a necessity to which only the camera image was able to respond. Besides the figures mentioned in this chapter, other all-but-forgotten individuals were attempting to produce images by the means of light. And as soon as the glimmers of success were hinted at in London and Paris, people in outlying areas of Europe and the Americas began to embrace the new technology, hoping to expand its possibilities and, in the process, to make or improve their own fortunes.

Within 25 years of Niépce's first successful image, enough of the major technical difficulties had been worked out to insure that both daguerreotype and photograph could be exploited commercially. This activity, which centered on two areas—portraiture and the publication of scenic views—created a photographic profession with its own organizations and publications. Amateurs employed the medium for documentation and for personal expression, while graphic artists came to rely on photography as an indispensable tool for providing a record of appearances and, eventually, for suggesting different ways of viewing actuality. As will become apparent in the chapters that follow, the traditional divisions separating amateur from professional, art from commerce, document from personal expression were indistinct from the earliest days of the medium, and any boundaries that did exist became even more indefinite as camera images increased their authority and scope.

## *Profile: Louis Jacques Mandé Daguerre*

Nothing in Daguerre's early career as a successful scenic designer hinted that eventually he would become transfixed by the problems of producing permanent images by using light. He was born in 1787 into a *petit bourgeois* family in Cormeilles-en-Parisis; when his natural artistic gifts became apparent he was apprenticed to a local architect. Paris beckoned in 1804, the year of Napoleon's coronation, so Daguerre served another apprenticeship in the studio of the stage designer Ignace Eugène Marie Degotti. His intuitive sensitivity to decorative effect enabled him to rise quickly, and in 1807 he became an assistant to Pierre Prévost, who was renowned for his realistically painted panoramas. During the nine years that Daguerre worked for Prévost, he occasionally submitted oils to the Paris Salon and made sketches and topographical views for the 20-volume *Voyages pittoresques et romantiques en l'ancienne France (Picturesque and Romantic Travels in Old France)*, a work to which the painters Géricault, Ingres, and Vernet also contributed.

In 1816, Daguerre's exceptional skill and imagination

were recognized by his appointment as stage designer to one of the best-known small theaters in Paris; three years later he also was designer for the *Opéra*. The audience for these entertainments was drawn from the new urban middle class, whose taste ran to verisimilitude in execution and romanticism in content. When, in 1821, Daguerre undertook to promote a new entertainment, The Diorama, he was convinced that the public would pay for illusionistic deception on a grand scale. The Diorama, which opened in July, 1822, with his own deceptively real-looking representation of "The Valley of the Sarnen" (and one of "The Interior of Trinity Chapel, Canterbury Cathedral," painted by his partner Charles Marie Bouton) achieved its striking effects by the manipulation of light that transformed the scene from a serene day to one of tempestuous storminess, underscoring the desolation of the painted landscape. Despite a temporary setback during the political troubles of 1830, The Diorama continued to offer romantic subjects until 1839, when it was entirely destroyed by fire.

To achieve the perspective effects on the large scrims, and on the easel paintings that he sometimes painted of the same subjects, Daguerre used the conventional tool of his trade—the *camera obscura*. At what point he began to consider how to make the view on the translucent glass surface permanent is not known, but in 1824 he started to frequent the shop of the Chevalier brothers, well-known Parisian makers of optical instruments. The result was an association with Niépce, through the Chevaliers, that led first to an agreement to perfect Niépce's process and finally to the daguerreotype.

After the French government had acquired the process, Daguerre occasionally demonstrated its methods and entered into arrangements to supply cameras and manuals of instruction, but he was considerably less active than others in perfecting his discovery. He preferred creating scenic effects on his estate in Bry-sur-Marne and in the local church where he painted a large *trompe l'oeil* perspective scene behind the altar. Although at Bry he made a small

27. Louis Jacques Mandé Daguerre. *Still Life*, 1837. Daguerreotype. Société Française de Photographie, Paris.

number of daguerreotypes of family and scenery, no further discoveries issued from his workshop nor did he develop artistically between 1839 and his death in 1851.

On the whole, Daguerre's output in the new medium reveals the influence of his artistic training and experience as the creator of picturesque yet convincing-looking scenes. His earliest surviving metal-plate image, an 1837 still life of plaster casts *(pl. no. 27)*, discloses a subject dear to Romantic artists, one to which he returned on a number of occasions. These works, and views made in Paris and Bry, demonstrate sensitivity to tonal balance, feeling for textural contrast, and a knowledge of compositional devices such as diagonal framing elements to lead the eye into the picture, but from Daguerre's complete output—some three dozen plates according to Helmut and Alison Gernsheim[19]—it is difficult to credit him with exceptional perception regarding the stylistic or thematic possibilities of the new pictorial medium.

## *Profile: William Henry Fox Talbot*

As an heir of the Enlightenment, Talbot was concerned with practical application as well as with scientific theory, with combining intellectual interests and commercial endeavor. A patrician background, close and supportive family relationships, and the ownership of a lucrative estate, Lacock Abbey, made it possible for him to pursue his multifarious interests to successful conclusions. Besides inventing the first duplicatable image system generated by light, he envisaged the many uses to which photography has since been put, prophesying that "an alliance of science with art will prove conducive to the improvement of both."[20]

Born in 1800, shortly after the death of his father, Talbot was educated at Harrow and Cambridge and became learned in several fields of science. Despite the paltriness of scientific instruction in English universities of the time, he received satisfactory grounding in mathematics and optics, two areas that remained fundamental to his interests throughout his lifetime. Talbot augmented his formal training by closely following the work of British and foreign scientists, including Brewster, Herschel, Arago, Joseph von Fraunhofer, and Augustin Jean Fresnel, and during the 1830s and '40s he traveled abroad almost yearly on scholarly pursuits.

In 1839, events forced Talbot's hand with reference to the researches in photography that he had commenced in 1834—efforts to make images appear on light-sensitive materials—which he then had put aside to continue studies in optics and spectrology. In order to establish the priority of his discovery, Talbot exhibited at the Royal Society the photogenic drawings he had made in 1835 both by direct contact and in the camera, although he apparently had not considered them especially significant prior to the French announcement. His pictures' unflattering comparison with the daguerreotype's greater detail and shorter exposure time, coupled with the realization that his system possessed greater potential, caused Talbot to resume experimentation and resulted shortly in his perfection of the negative/positive process that he called calotype (a name derived from the Greek *kalos*: beautiful), which he patented in 1841. Unlike Daguerre, Talbot continued to improve the discovery, to envision its possibilities, and to devise practical methods of reproducing photographic images by photomechanical means, at the same time producing some 600 photographs, among them genre subjects, landscapes, urban views, and portraits.

In the 1850s, following unsuccessful legal battles to secure his patent rights, he turned again to studies in theoretical mathematics and etymology, and to a new interest, Assyriology, contributing substantially to the decipherment of Assyrian cuneiform. After his death in 1877, the achievements of this fine, if somewhat unfocused scholar were obscured for a long period despite the fact that he had written seven books and more than 50 papers on a variety of scientific topics, held 12 significant patents, and made at least eight comprehensive translations from Assyrian literature, besides discovering the system of photographic image-making that continues in use today.

# 2.

# A PLENITUDE OF PORTRAITS

## *1839–1890*

*From that moment onwards, our loathsome society rushed, like Narcissus, to contemplate its trivial image on a metallic plate. A form of lunacy, an extraordinary fanaticism took hold of these new sun-worshippers.*

*—Charles Baudelaire, 1859*[1]

*It is required of and should be the aim of the artist photographer to produce in the likeness the best possible character and finest expression of which that face and figure could ever have been capable. But in the result there is to be no departure from truth in the delineation and representation of beauty, and expression, and character.*

*—Albert Sands Southworth, 1871*[2]

VIRTUALLY FROM ITS INCEPTION, photography has been involved with portraiture, continuing in a new medium the impulse to represent human form that goes back to the dawn of art. The daguerreotype and negative-positive technologies provided the basis for flourishing commercial enterprises that satisfied the needs for public and private likenesses, while individuals who wished to express themselves personally through portraiture were able to do so using the calotype and collodion processes. Approaches to camera likenesses, whether made for amateur or commercial purposes, ranged from documentary to artistic, from "materialistic" to "atmospheric," but whatever their underlying aesthetic mode, photographic portraits reflected from their origin the conviction that an individual's personality, intellect, and character can be revealed through the depiction of facial configuration and expression.

Indeed, from the Renaissance on, portraits have been most esteemed when they portrayed not only the sitter's physical appearance but inner character as well. Toward the end of the 18th century, the concept that pose, gesture, and expression should reveal the inner person became codified in a number of treatises that exhorted the portraitist to rise above merely mechanical graphic representation of the human features. The most significant expression of this idea was contained in the 1789 publication *Essays on Physiognomy* by Johann Kaspar Lavater, a work that proposed that painters develop the "talent of discovering the interior of Man by his exterior—of perceiving by certain natural signs, what does not immediately attract the senses."[3] These ideas still were current when the early promoters of photography were endeavoring to provide quickly made and inexpensive likenesses, and they have continued to inform serious portrait photography on into the 20th century.

Before photography was invented, however, artists already had devised methods to respond to the demand for portraits from a new clientele emerging as a result of the rise of bourgeois societies in England, France, Holland, and America from the 17th century on. Earlier, the painted portrait had been largely the privilege of aristocrats and the very wealthy, but simplifications in terms of what was included in the painting, and transformations in size and materials enabled merchants and farming gentry in the 18th and early 19th centuries to contemplate having portraits made of themselves and their families. By the mid-19th century, in addition to the large, officially sanctioned portraits of royalty and public figures that still were being commissioned, the miniature, the silhouette, the physionotrace, the *camera lucida* drawing, and finally the photograph had arrived to accommodate the needs of new patrons for likenesses. Of these, the miniature was most like the traditional large-scale portrait. Although small, it was painted in full color, often on an ivory surface, and required imaginative skill and a delicate touch to evoke the character of the sitter. Regarded as precious keepsakes, miniatures such as the American example shown—a portrait of Eben Farley by Edward Greene Malbone *(pl. no. 28)*—usually were enclosed in elegant cases or inserted in lockets, the manner in which the daguerreotype portrait would be pre-

28. EDWARD GREENE MALBONE. *Eben Farley*, 1807. Miniature on ivory. Worcester Art Museum, Worcester, Mass.

sented also. The silhouette, on the other hand, might be considered the poor man's miniature, though it was not always small and often it appealed to those who could also afford a painted likeness. Traced from a cast shadow and inked in, or cut freehand from black paper, which then was mounted on a lighter ground, the silhouette showed only the profile, which would seem to leave little room for disclosing expression. Nevertheless, the conviction that profiles were as strong a key to character as other views impelled Lavater to include an illustration of a silhouetting device *(pl. no. 29)* in his work on physiognomy.

Both miniature and silhouette were unique objects—one-of-a-kind images. For duplicates of the same likeness, whether for personal use or in conjunction with a printed text, different systems were required—among them one made possible by a device called the physionotrace. Invented in France in 1786 by Gilles Louis Chrétien, it consisted of a pointer attached by a series of levers to a pencil, by means of which the operator could trace on paper a profile cast onto glass. A pantograph reduced and transferred the image to a copper plate, which, when engraved and inked, would permit the printing of an edition.[4] From Paris, the physionotrace was introduced to other cities in Europe and taken to the United States by a French émigré, Charles Fevret de Saint-Memin, who practiced the technique in the major New World centers between 1793 and 1844. Numerous figures in the arts, sciences, and public life, among them Thomas Jefferson *(pl. no. 30)*, sat for the four minutes required to make a portrait tracing by physionotrace.

## *Daguerreotype Portraits*

That the photograph might provide a more efficient method than either physionotrace or silhouette to produce faithful likenesses seems obvious today, but when first announced, neither Daguerre's nor Talbot's process was capable of being used to make portraits. In 1839, sittings would have required about 15 minutes of rigid stillness in blazing sunshine owing to the primitive nature of the lenses used and the insufficient sensitivity to light of the chemically treated plates and paper. Because the highly detailed daguerreotype was considered by many the more attractive of the two processes and, in addition, was unrestricted in many localities, individuals in Europe and the United States scrambled to find the improvements that would make commercial daguerreotype portraits possible. They were aided in their purpose by the general efforts in progress to improve the process for all kinds of documentation.

Among the means used to accomplish this goal were the reduction of plate size, the improvement of lenses, the use of mirrors to reverse the plate's laterally inverted image back to normal, the shortening of exposure times by the addition of chemical accelerants in the sensitizing process, and the toning of the plate. Experimentation along these lines took place wherever daguerreotypes were made—in France, the German-speaking countries, and the United States—even in England where there was less commercial daguerreotyping activity owing to patent restrictions.

The earliest improvements were made to cameras and lenses. Daguerre's cumbersome experimental camera was redesigned, and lighter models, accommodating smaller plates, were manufactured in France by both amateurs and optical-instrument makers, among them Alphonse Giroux, a relative of Daguerre's wife who became the first commercial producer of the daguerreotype camera. These changes made it possible to carry the equipment to the countryside or abroad and even to make likenesses, provided the sitter did not object to holding absolutely still for two minutes. But commercial portraiture could not be contemplated until after chemical procedures were improved and a faster portrait lens, designed by Viennese scientist Josef Max Petzval to admit more than 20 times as much light, was

29. JOHANN KASPAR LAVATER. *Silhouette Machine*, c. 1780. Engraving from *Essays on Physiognomy*. Gernsheim Collection, Humanities Research Center, University of Texas, Austin.

30. Charles Fevret de Saint-Memin. *Thomas Jefferson*, 1804. Pastel, charcoal and chalk on paper. Worcester Art Museum, Worcester, Mass.

introduced in 1840 by his compatriot Peter Friedrich Voigtländer.

The first efforts to make the silver surface more receptive to light resulted from experiments conducted late in 1840 by English science lecturer John Frederick Goddard. By fuming the plate in other chemicals in addition to mercury vapor, he decreased exposure time considerably; plates sensitized in this manner and used in conjunction with the Petzval lens required exposures of only five to eight seconds. Alongside these developments, a method of gilding the exposed and developed plate in a solution of gold chloride—the invention of Hippolyte Fizeau in 1840—made the image more visible and less susceptible to destruction, and prepared the daguerreotype for its first paying customers.

With the stage set for the business of making portraits by camera, one might ask where the photographers would be found. As is often true when older professions seem on the verge of being overtaken by new technologies, members drift (or hurry) from allied fields into the new one. A large number of miniature and landscape painters, in France especially, realized during the 1840s that their experiences as craftsmen might fit them for making camera portraits (and other documents). French author Charles Baudelaire's contention that the photographic industry had become "the refuge of failed painters with too little talent"[5] may have been too harsh, but it is true that unemployed and poorly paid miniaturists, engravers, and draftsmen turned to portrait photography for the livelihood it seemed to promise. Watchmakers, opticians, tinkers, and

31. Antoine François Claudet. *The Geography Lesson*, c. 1850. Daguerreotype. Gernsheim Collection, Humanities Research Center, University of Texas, Austin.

other artisans also were intrigued by the new technology and the chance it offered to improve their material well-being.

In England and the United States, portraiture sometimes attracted businessmen who hired artists and others to make exposures and process plates. Antoine François Claudet, a French émigré residing in London, had been in the sheet glass business before opening a daguerreotype studio. Eminently successful as a portraitist, Claudet also demonstrated a broad interest in photography in general—in technical problems, paper processes, and aesthetic matters. In spite of his belief that the process was so difficult that "failure was the rule and success the exception,"[6] the portraits made in his studio are exceptional in their fine craftsmanship and in the taste with which groups of figures were posed, arranged, and lighted *(pl. no. 31)*.

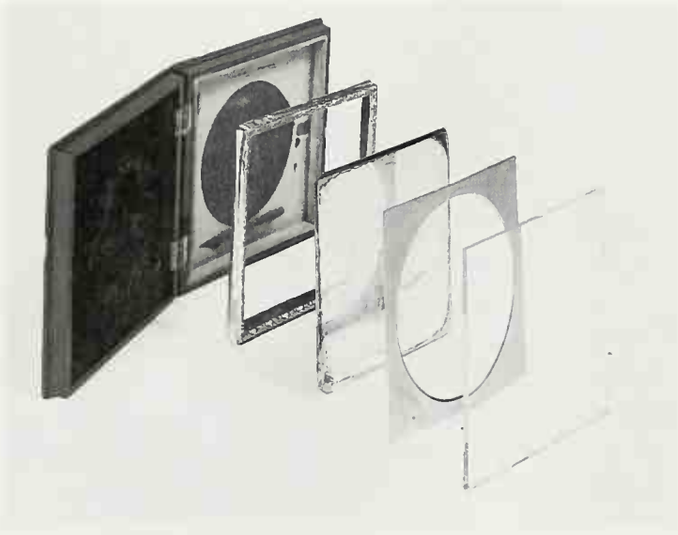
Richard Beard, partner in a coal firm who had bought a patent from Daguerre's agent in 1841 to sell the rights in England, Wales, and the colonies, started his portrait studio with the idea that the new American Wolcott camera, in which he held an interest, would insure the financial prospects of daguerreotype portraiture. In addition to selling licenses to others, Beard eventually owned three establishments in London, with daguerreotypists hired to operate the cameras, as seen in the image of Jabez Hogg *(pl. no. 32)* making an exposure in Beard's studio (Hogg, however,

is believed to have been an associate rather than a paid employee).

Since this image may be the earliest representation of the interior of a portrait studio showing a photographer at work, it affords an opportunity to examine the equipment and facilities in use in the opening years of portraiture. A tripod—actually a stand with a rotating plate—supports a simple camera without bellows. It is positioned in front of a backdrop painted in rococo style, against which female figures probably were posed. The stiffly upright sitter—in this case a Mr. Johnson[7]—is clamped into a head-brace, which universally was used to insure steadiness. He clutches the arm of the chair with one hand and makes a fist with the other so that his fingers will not flutter. After being posed, the sitter remains in the same position for longer than just the time it takes to make an exposure, because the operator must first obtain the sensitized plate from the darkroom (or if working alone, prepare it), remove the focusing glass of the camera, and insert the plate into the frame before beginning the exposure. Hogg is shown timing the exposure with a pocket watch by experience while holding the cap he has removed from the lens, but in the course of regular business this operation was ordinarily left to lowly helpers. In all, the posing process was nerve-wracking and lengthy, and if the sitter wished to have more than one portrait made the operator had to repeat the entire procedure, unless two cameras were in use simultaneously—a rare occurrence except in the most fashionable studios. No wonder so many of the sitters in daguerreotype portraits seem inordinately solemn and unbending.

Following the exposure, the plate, with no image yet visible, would have been removed from the camera and taken to the darkroom to develop by fuming in mercury vapor. By 1842/43, when this image was made, darkroom

32. Unknown Photographer. *Jabez Hogg Making a Portrait in Richard Beard's Studio*, 1843. Daguerreotype. Collection Bokelberg, Hamburg.



33. Daguerreotype case, frame, and matte. International Museum of Photography at George Eastman House, Rochester, N.Y.

operations already were performed under red safelight, an invention Claudet devised to facilitate development. The plate then would have been fixed in hypo and washed in chloride of gold. Because the daguerreotype's principal drawback was thought to be its "ghastly appearance . . . like a person seen by moonlight, or reflected in water,"[8] the portrait would have been hand-colored by a method Beard patented in 1842, but such coloring was practiced almost universally in all the better studios. Although gold toning had made the daguerreotype less susceptible to oxidation, its delicate pigmented surface required protection and was sheathed in a metal mat, covered with glass, and enclosed in a case *(pl. no. 33)*, lending the final assemblage the appearance of the more expensive painted miniatures. Daguerreotype portraits were made in a variety of sizes, all derived from the standard "whole plate," which measured 6½ x 8½ inches. The most common portrait sizes were "quarter plate," 3¼ x 4¼ inches—the size of the Hogg image—and "sixth plate," 2¾ x 3¼ inches.

Unfortunately, the interior shown in the Hogg portrait does not reveal the method of lighting the subject, for illumination was a most important factor in the success of the portrait. Early studios usually were situated on the roofs of buildings where sunlight was unobstructed. On clear days, exposures might be made out-of-doors, although not ordinarily in direct sunlight because of the strongly cast shadows, while interior rooms somewhat resembled greenhouses with banks of windows, adjustable shades, and, occasionally, arrangements of blue glass to soften the light and keep the sitter from squinting in the glare.

With the introduction of the Petzval portrait lens and the knowledge of the accelerating action of a combination of chemicals in sensitizing the plate, portrait daguerreotyping began to expand throughout Europe. Its popularity in France was immediate. In 1847 some thousand portraits were exhibited in Paris alone, and daguerreotypists were active in many provincial cities as well. A hand-tinted daguerreotype of a family group, made in Paris in the 1850s, is typical of the general level and style of commercial portraiture in that it conveys the manner in which the figures were disposed in the space and the handling of lighting directed to focus the eye both on the familial relationship and on material facts *(pl. no. 34)*.

In the German-speaking cities of Berlin, Hamburg, Dresden, Vienna, and Bern, the volume of daguerreotype portraiture was smaller than that produced in France but seems otherwise comparable in style and craftsmanship. Although artists who took up daguerreotyping occasionally were denounced as "paint-sputterers" who had turned themselves into artistic geniuses with the help of sunlight,[9] they produced skillfully realized and authoritative images, among them *Alexander von Humboldt (pl. no. 35)* by Hermann Gunther Biow and *Mother Albers (pl. no. 36)* by Carl Ferdinand Stelzner, a miniature painter of repute who for a brief period was associated with Biow in a Hamburg daguerreotype studio. Another example, an 1845 portrait of three young girls *(pl. no. 37)* by Berlin daguerreotypist Gustav Oehme, displays a feeling for grace and symmetry in the grouping of the figures and an unusual sense of presence in the direct level gaze of the three youngsters. The Dresden photographer Hermann Krone was acclaimed not only for excellent portrait daguerreotypes but for his topographical views, nude studies, and still lifes *(see Chapters 3 and 5)*; like a number of serious daguerreotypists of this era, he was interested in the widest application of the medium and in its potential for both art and documentation.

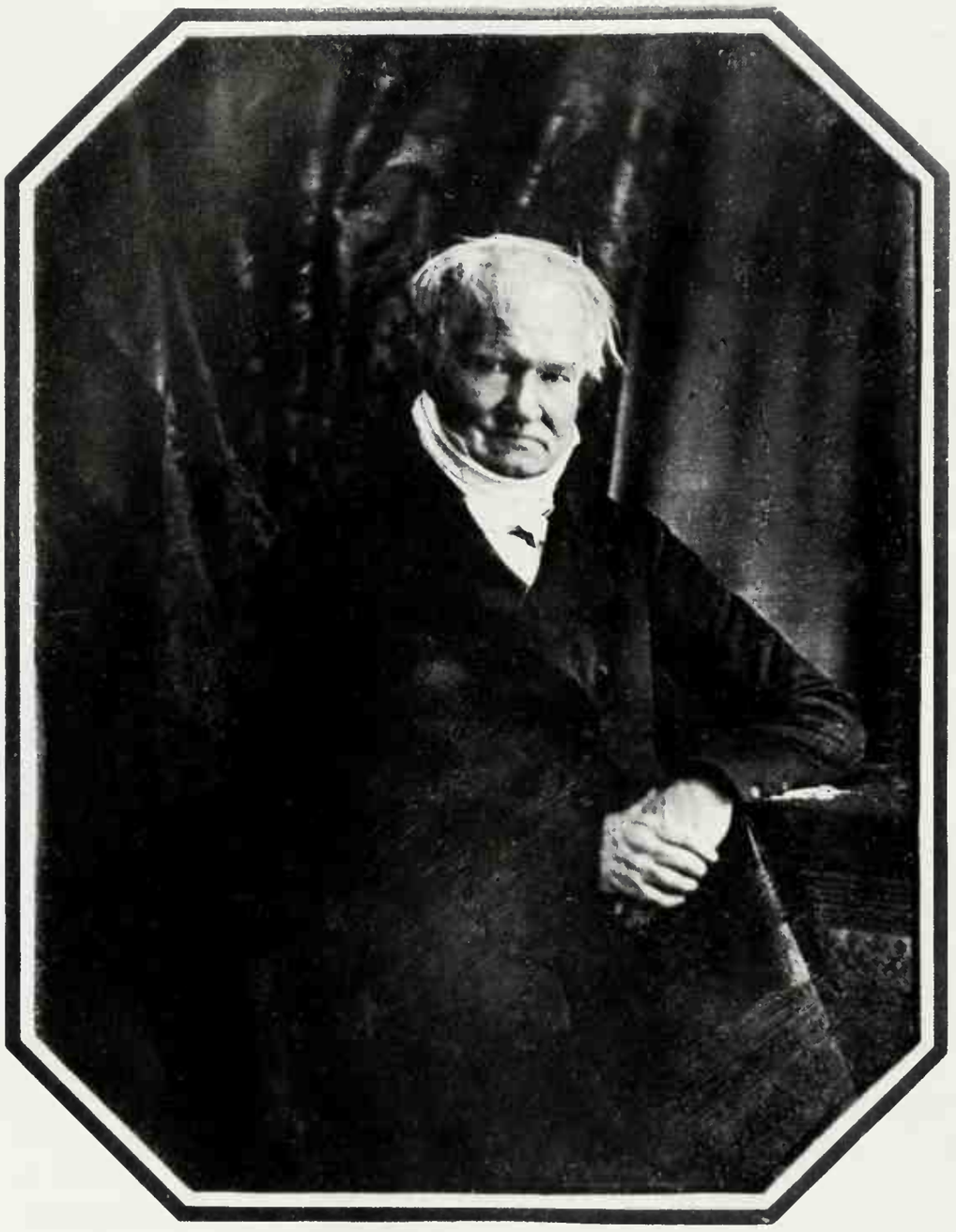
The taking of likenesses by daguerreotype spread more slowly through the rest of Europe during the 1840s and '50s. Investigations have turned up a greater amount of activity than once was thought to exist, but, other than in the larger cities, portrait work in Central Europe was done mainly by itinerants. However, much of that was lost in the nationalistic and revolutionary turmoils of the 19th century. In a number of countries, the daguerreotype and, later, photography on paper and glass came to be considered apt tools for ethnic self-realization. One example entitled *A Magyar Föld és Népei* (*The Land of Hungary and Its People*), published in 1846/47, was illustrated with lithographs based on daguerreotypes thought to have been made by János Varsányi, and included ethnographic portraits as well as the expected images of landscape and monuments.

34. D. F. Millet. *Couple and Child*, 1854–59. Daguerreotype. Bibliothèque Nationale, Paris.

Farther east, the progress of both daguerreotype and calotype in France and England was monitored in Russia by the Petersburg Academy of Sciences, and in 1840 Aleksei Grevkov, who tried to work with the less costly metals of copper and brass for the sensitized plate, opened the first daguerreotype studio in Moscow. Sergei Levitskii, who started a portrait studio in Petersburg in 1849 following a period of practice in Italy and study in Paris, experimented with the electroplating of daguerreotypes and with calotype procedures before turning to collodion photography; he sought also to combine electric and natural light in order to shorten the lengthy exposure times made necessary by the long Russian winters. In general, however, the profession of portrait photography in all of these localities, whether practiced for commercial or artistic purposes, was not able to expand until about 40 years after its debut, an understandable state of affairs when one realizes that in the 1840s in Belgrade, for instance, a daguerreotype cost as much as a month of daily dinners in the finest restaurant.[10]

## *Daguerreotype Portraiture in America*

Daguerreotype portraiture was made to order for the United States, where it reached a pinnacle of success dur-



35. Hermann Gunther Biow. *Alexander von Humboldt, Berlin*, 1847. Daguerreotype. Museum für Kunst und Gewerbe, Hamburg.

ing the 20 years that followed its introduction into the country. In the conjunction of uncanny detail, artless yet intense expression, and naive pose, Americans recognized a mirror of the national ethos that esteemed unvarnished truth and distrusted elegance and ostentation. The power of "heaven's broad and simple sunshine" to bring out "the secret character with a truth that no painter would ever venture upon," which Nathaniel Hawthorne praised in *The House of the Seven Gables*,[11] helped propel the silver camera likeness into an instrument through which the nation might recognize its best instincts. Furthermore, the cohesive bodies of work produced to distill this message were the products of commercial studios, a fact that accorded with the native respect for entrepreneurial initiative.

Attempts to make daguerreotype portraits preoccupied Americans from the start. Shortly after instruction manuals arrived from England in September, 1839, Samuel F. B. Morse, his colleague John William Draper, Professor of Chemistry at New York University, Henry Fitz in Boston, and Robert Cornelius in Philadelphia managed to overcome the estimated 10-20 minute exposure time and produce likenesses—some with eyes closed against the glaring sunlight—by reducing the size of the plate and whitening the sitter's face. The exposure time for Draper's well-known 1840 portrait of his sister, Dorothy Catherine *(pl. no. 38)* (sent by the chemist to John Herschel as a token of esteem for the English scientist's contributions to photography), was 65 seconds, still too long for commercial

portraiture, and an image produced around the same time by Henry Fitz, Jr., a telescope maker, showed the face with eyes closed on a plate the size of a large postage stamp.

Europeans had to wait until 1841 to sit before the studio daguerreotype camera, but in America the first commercial enterprises were opened in New York City by Alexander S. Wolcott and John Johnson and in Philadelphia by Cornelius in the spring of 1840. Working with Fitz, Wolcott and Johnson patented a camera of their own design (mentioned previously in connection with Beard) and installed an ingenious plate glass mirror arrangement in their studio window that increased illumination on the sitter, softening the glare with a baffle of glass bottles filled with a blue liquid. Although their mirror camera was eventually discarded, improvements in daguerreotype technology in the United States were rapid. The finest lenses and plates continued to be imported, but, during the 1840s, optical systems and cameras as well as plates and chemicals also were manufactured locally, resulting in less expensive products and in the setting-up of photographic supply houses, the forerunners of the giant companies of today. Techniques for harnessing the buffing and polishing machinery to steam power and for creating a rational assembly line—the so-called German system—in manufacturing and studio processing procedures soon followed.

The absolute frontality in Draper's portrait of Catherine, the result of his scientific intent, is nevertheless emblematic of the approach taken by a great many early daguerreotypists in America. The work of John Plumbe, an enterprising businessman out to make a success of selling equipment, supplies, and lessons as well as inexpensive likenesses, who opened a studio in Boston in 1841 and by the mid-'40s was the owner of a chain of portrait estab-

36. Carl Ferdinand Stelzner. *Mother Albers, The Family Vegetable Woman*, 1840s. Daguerreotype. Museum für Kunst und Gewerbe, Hamburg; Staatliche Landesbildstelle, Hamburg.

37. GUSTAV OEHME. *Three Young Girls*, c. 1845. Daguerreotype. Collection Bokelberg, Hamburg.

lishments in 14 cities, is typical of this style. As in the Draper image, the portrait of Mrs. Francis Luqueer *(pl. no. 39)*, taken in one of the Plumbe studios, fills the space frontally and centrally, with no attempt at artistic pose, dramatic lighting, or grandiloquent props such as the drapery swags and statuary found in European daguerreotype portraits. This style must have appealed to Americans in part because of its similarity to the solemn portraits by native limners, exemplified in the likeness of Mrs. John Vincent Storm *(pl. no. 40)* by Ammi Phillips, made just a few years earlier. Nor was the sober approach limited to ordinary folk; the same directness and lack of artifice is seen in an 1847 daguerreotype, by an unknown maker, of the future abolitionist leader Frederick Douglass *(pl. no. 41)*. In this work, the absence of artistic pretension is moderated by the sense of powerful psychological projection, by the suggestion of a distinctive presence.

The successes of the portrait establishments in New York and Washington started by Mathew Brady *(see Profile, Chapter 4)* are now legendary *(pl. no. 42)*. After taking lessons in the daguerreotype process from Morse, this former manufacturer of cases for jewelry and daguerreotypes opened his first "Daguerrean Miniature Gallery" on lower Broadway in 1844. His stated aim, "to vindicate true art" by producing better portraits at higher prices than the numerous competitors who were to be found in the same part of the city, was realized in part as a result of the patronage of Tammany Hall politicians and entertainment entrepreneur P. T. Barnum, and in part because Brady seems to have recognized the value of public relations.[12] By

38. JOHN WILLIAM DRAPER. *Dorothy Catherine Draper*, 1840. Original ruined. Collotype from a daguerreotype. Chandler Chemical Museum, Columbia University, New York.

39. JOHN PLUMBE. *Mrs. Francis Luqueer*, n.d. Daguerreotype. New-York Historical Society, New York.

sending portraits of celebrities and views of the gallery interior to the newly launched picture journals, *Frank Leslie's* and *Harper's Weekly*, for translation into wood-engraved illustrations *(pl. no. 43)*, he was able to focus attention on his own enterprise and on the role the daguerreotype might play in urban communication despite the fact that it was a one-of-a kind image.

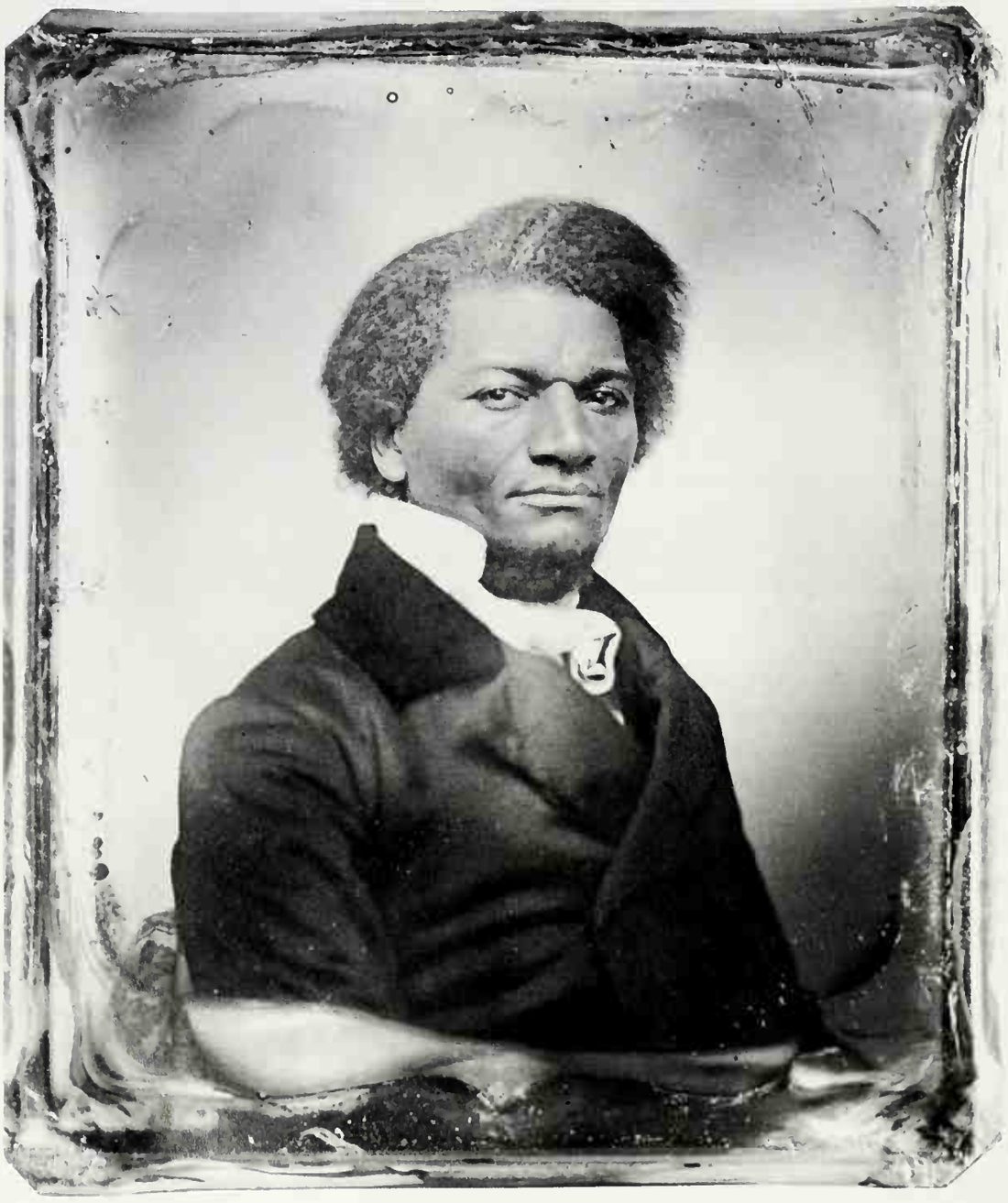
This limitation had prompted the enterprising Plumbe to circumvent the unduplicatable nature of the daguerreotype by issuing in 1846 a series of engravings entitled *The National Plumbeotype Gallery*, based on his camera portraits of national figures. Brady followed with his *Gallery of Illustrious Americans*. Issued in 1850, it comprised 12 lithographs by François D'Avignon based on Brady studio daguerreotypes of famous Americans, among them the artist John James Audubon *(pl. no. 44)*. In both publications, the implicit assumption that the character of an individual's contribution to public life can be seen in physical features and stance is testament to the continuing vigor of Lavater's ideas about physiognomy.

An even stronger belief in the conjunction of appearance and moral character is evident in the fine daguerreotype portraiture that issued from the Boston studio of

40. AMMI PHILLIPS. *Mrs. John Vincent Storm*, c. 1835–40. Oil on canvas. Brooklyn Museum; gift of Mrs. Waldo Hutchins, Jr.

Albert Sands Southworth and Josiah Hawes. In business for almost 20 years—1843 to 1862—during the ascendancy of transcendentalist thought in that city, the partners approached portraiture with a profound respect for both spirit and fact. Convinced that "nature is not at all to be represented as it is, but as it ought to be and might possibly have been," they sought to capture "the best possible character and finest expression"[13] of which their sitters were capable without departing from the truth. Southworth and Hawes made more than 1,500 likenesses, a great many of which exhibit the exceptional authority apparent in an 1856 image of Charles Sumner *(pl. no. 45)*. A medallion portrait of an unknown sitter *(pl. no. 46)*, made with a sliding plateholder patented by Southworth in 1855, is unusually fine. The varied positions of the head, the split dark and light backgrounds, and the arrangement of ovals to suggest a lunar cycle convey the sense that camera images can ensnare time as well as depict physical substances.

It would be a mistake to think that most American daguerreotype portraiture attained the level of the work produced by Southworth and Hawes or even Brady. Most likenesses were simply records, whether made in fashionable studios or by small-town or itinerant daguerreotypists who charged little enough—from 25 cents to one dollar—to enable a broad sector of the populace to afford a portrait. On occasion, such images are appealing because of unusual pose or piquant expression or because of boldness and singular subject matter, as in a portrait of the Sauk chief



41. UNKNOWN PHOTOGRAPHER. *Frederick Douglass*, 1847. Daguerreotype. Collection William Rubel; National Portrait Gallery, Smithsonian Institution, Washington, D.C.

42. François D'Avignon. *Portrait of Mathew Brady* from *The Photographic Art Journal*, Vol. I. 1851. Lithograph. Print Collection, New York Public Library, Astor, Lenox, and Tilden Foundations.

Keokuk *(pl. no. 47)* made by Thomas Easterly, working in Missouri in 1847. On the whole, however, daguerreotype likenesses were remarkably similar to each other in their unrelieved straightforwardness and the solemn, almost frozen demeanor of the sitters. As a writer for *Ballou's Pictorial Drawing-Room Companion* of 1855 observed of a daguerreotype display: "If you have seen one of these cases you have seen them all. There is the militia officer in full regimentals . . . there is the family group, frozen into wax statuary attitudes and looking . . . as if . . . assembled for a funeral. . . . the fast young man, taken with his hat on and a cigar in his mouth; the belle of the locality with a vast quantity of plaited hair and plated jewelry . . . the best baby . . . the intellectual . . . and the young poet. . . . There is something interesting in the very worst of these daguerreotypes because there must be something of nature in all of them."[14]

43. A. Berghaus. *M. B. Brady's New Photographic Gallery, Corner of Broadway and Tenth Street, New York* from *Frank Leslie's Illustrated Newspaper*, Jan. 5, 1861. Engraving. Library of Congress, Washington, D.C.

44. François D'Avignon. *John James Audubon* from *Gallery of Illustrious Americans*, 1850. Lithograph after a photograph by Brady. Print Collection, New York Public Library, Astor, Lenox, and Tilden Foundations.

Of course, the unrelieved seriousness of expression in daguerreotype portraiture was in part the result of the lengthy process of arranging the sitter, head in clamp and hand firmly anchored, and then making the exposure, but spontaneity not only was technically difficult to achieve, it also was considered inappropriate to the ceremonial nature of an undertaking that for most sitters required proper deportment and correct attire. Even more joyless were the images of the dead *(pl. no. 48)* made as keepsakes for bereaved families for whom they possessed "the sublime power to transmit the almost living image of . . . loved ones."[15] Nevertheless, this "Phantom concourse . . . mute as a grave,"[16] evoked a singular response in the United States. As Richard Rudisill has pointed out in a provocative study, "the daguerreotypists employed their mirror images for the definition and recording of their time and their society. . . . They confronted Americans with themselves and sought to help them recognize their own significance."[17]

In the rest of the Americas, both north and south, portraiture followed a course similar to that in eastern Europe, with the exception that the first portraits in Canada and Latin America often were made by itinerants from the United States and Europe seeking a lucrative employment. By the 1850s permanent studios had been established in the major cities of Canada and South America, where despite the provincial character of urban life in those regions, both metal and paper portraits were seen as symbols of economic well-being and national self-realization.

Among the itinerant photographers traveling to Canada, mention is made of a female daguerreotypist who spent a month making likenesses in Montreal in 1841. The names of other women crop up in notices and reports on photography's early years to suggest that in spite of the medium's association with chemicals and smelly manipulations, it was not in itself regarded as an unsuitable pastime for women. Anna Atkins, Julia Margaret Cameron, Geneviève Elizabeth Disdéri, Lady Clementina Hawarden, Mrs. John Dillwyn Llewelyn, and Constance Talbot in Europe and Mary Ann Meade in the United States are only the best known of the women drawn to photography either in association with other members of the family or on their own. Women also were active behind the scenes in daguerreotype and paper printing establishments where they worked on assembly lines; later they were employed in

45. Albert Sands Southworth and Josiah Johnson Hawes. *Charles Sumner*, 1856. Daguerreotype. Bostonian Society, Boston.

46. Albert Sands Southworth and Josiah Johnson Hawes. *Unknown Lady*, n.d. Medallion daguerreotype. Museum of Fine Arts, Boston; gift of Edward Southworth Hawes in Memory of his Father, Josiah Johnson Hawes.

47. THOMAS EASTERLY. *Keokuk, Sauk Chief*, 1847. Modern gelatin silver print from a copy negative of the original daguerreotype in the collection of the Missouri Historical Society. National Anthropological Archives, Smithsonian Institution, Washington, D.C.

firms that produced and processed photographic materials, among them those owned by George Eastman and the Lumière brothers.

## *Portraits on Paper: The Calotype*

Calotype portraiture never achieved the commercial popularity of the daguerreotype. Talbot's first successes in portraying the human face occurred in October, 1840, when he made a number of close-ups of his wife Constance, among them a three-quarter view of exceptional vitality requiring a 30 second exposure *(pl. no. 50)*. Convinced that paper portraiture was as commercially feasible as the daguerreotype, Talbot entered into an arrangement with a painter of miniatures, Henry Collen, to make calotype likenesses, but the resulting portraits, including one of Queen Victoria and the Princess Royal *(pl. no. 49)*, often were so indistinct that considerable retouching—at which Collen excelled—was necessary. Since neither Collen nor Talbot's next partner in portraiture, Claudet, were able to convince the public that the duplicatable paper image with its broad chiaroscuro style was preferable to the fine detail

48. UNKNOWN PHOTOGRAPHER (American). *Dead Child*, c. 1850. Daguerreotype. Collection Richard Rudisill, Santa Fe, N.M.

49. HENRY COLLEN. *Queen Victoria with Her Daughter, Victoria, Princess Royal*, 1844–45. Calotype. Royal Library, Windsor Castle. Reproduced by Gracious Permission of Her Majesty Queen Elizabeth II.

of the daguerreotype, commercial paper portraiture in England languished until the era of the glass negative.

The situation was different in Scotland, where, as noted in Chapter 1, Talbot's associate Sir David Brewster was instrumental in introducing the calotype to David Octavius Hill and Robert Adamson *(see Profile)*. In an endeavor to record the 400 or so likenesses to be included in a painting that Hill decided to make in 1843 commemorating the separation of the Church of Scotland from the Church of England, the two became so caught up in photography that they also produced hundreds of commanding portraits of individuals who had no relationship to the religious issues that were the subject of the painting. Aware that the power of the calotype lay in the fact that it looked like the "imperfect work of man . . . and not the perfect work of God,"[18] Hill and Adamson used the rough texture of the paper negative to create images with broad chiaroscuro effects that were likened by contemporaries to the paintings of Sir Joshua Reynolds and Rembrandt.

Among the sitters, who posed for one to two minutes either in an out-of-doors studio in Edinburgh, with a minimum of furnishings arranged to simulate an interior, or on location, were artists, intellectuals, the upper-class gentry of Scotland, and working fisherfolk in the nearby town of Newhaven. Simplicity of pose and dramatic yet untheatrical lighting emphasize the solid strength of the sitter James Linton *(pl. no. 51)*, a working fisherman. On the other hand, the genteel character of well-bred Victorian women is brought out in the poses, softer lighting, and gracefully intertwined arrangement of the three figures in *The Misses Binny and Miss Monro (pl. no. 52)*. Such Hill and Adamson images recall the idealized depictions of women in paintings by Daniel McClise and Alfred Chalons, popularized in the publication *Book of Beauty*, but as photographs they gain an added dimension because the camera reveals a degree of particularity entirely lacking in the paintings.

In artistic and literary circles in Britain and France, these photographs were considered the paradigm of portrait photography in that they made use of traditional artistic concepts regarding arrangement and employed atmospheric effects to reveal character. During the 1850s, a

50. William Henry Fox Talbot. *"C's Portrait" (Constance Talbot)*, Oct. 10, 1840. Calotype. Royal Photographic Society, Bath, England.

group that included William Collie in the British Isles and Louis Désiré Blanquart-Evrard, Charles Hugo, Gustave Le Gray, Charles Nègre, and Victor Regnault on the Continent followed a similar path, using themselves, members of their families, and friends to make calotype portraits that emphasize light and tonal masses and suppress fussy detail.

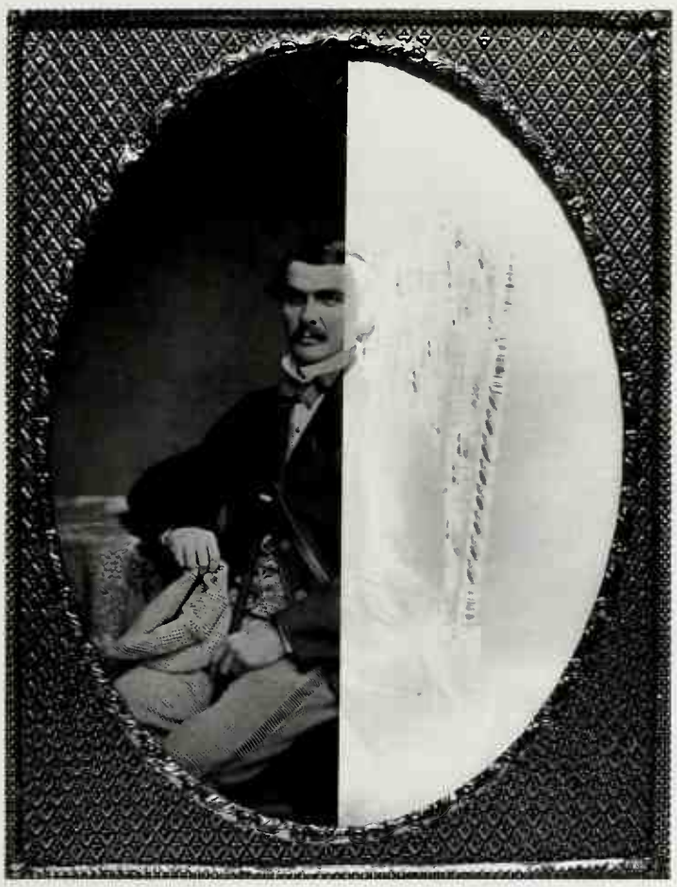
## *Portraits on Paper: Collodion/Albumen*

For commercial portraitists, Frederick Scott Archer's invention of the collodion negative seemed at first to solve all problems. The glass plate made possible both sharp definition and easy duplication of numbers of prints on paper from one negative, while the awkward chemical procedures that the wet-plate process entailed were minimized in a studio setting. Collodion opened up an era of commercial expansion, attracting to the profession many photographers who resorted to all manner of inducements to entice sitters—among them elegantly appointed studios; likenesses to be printed on porcelain, fabric, and other unusual substances, as well as on paper; or set into jewelry; photosculpture; and the most popular caprice of them all—the *carte-de-visite*.

But before public acceptance of paper portraiture was established, photographers were occupied for a number of years with a half-way process, in which the collodion glass negative was used to create a one-of-a-kind image that was less costly than the daguerreotype. While both Talbot and Archer had been aware that a bleached or underexposed

51. David Octavius Hill and Robert Adamson. *Redding the Line (Portrait of James Linton)*, c. 1846. Calotype. Scottish National Portrait Gallery, Edinburgh.

52. David Octavius Hill and Robert Adamson. *The Misses Binny and Miss Monro*, c. 1845. Calotype. Metropolitan Museum of Art, New York; Harris Brisbane Dick Fund, 1939.



53. UNKNOWN PHOTOGRAPHER (American). *Untitled Portrait*, c. 1858. Ambrotype with backing partially removed to show positive and negative effect. Gernsheim Collection, Humanities Research Center, University of Texas, Austin.

glass negative could be converted to a positive by backing the glass with opaque material (paper or fabric) or varnish *(pl. no. 53)*, the patent for this anomaly was taken out by an American, James Ambrose Cutting, in 1854. Called ambrotypes in the United States and collodion positives in Great Britain, these glass images were made in the same size as daguerreotypes and were similarly treated—hand-colored, framed behind glass, and housed in a slim case. In an unusual cultural lag, Japanese photographers adopted and used this technique until the turn of the century, long after it had been discarded in Europe and the United States. Framed in traditional kiri-wood boxes, the portraits were commissioned by Japanese sitters rather than intended for sale to foreign visitors.

By the mid-1850s, when this process was supplanting the metal image in Europe (though not yet in the United States), the case-making industry was expanding. The earliest daguerreotypes had been enclosed in cases of *papier mâché* or wood covered with embossed paper or leather and usually were lined with silk in Europe and velvet in the United States, when they were not encased in lockets, brooches, and watchcases. In 1854, the "union" case was introduced. Made in the United States of a mixture of sawdust and shellac, these early thermoplastic holders were exported globally, eventually becoming available in a choice of about 800 different molded designs.

The tintype, even less expensive than the ambrotype (to which it was technically similar), was patented in 1856 by an American professor at Kenyon College in Ohio.[19] Like the daguerreotype, it was a one-of-a-kind image on a varnished metal plate (iron instead of silvered copper) that had been coated with black lacquer and sensitized collodion. Dull gray in tone without the sheen of the mirrorlike daguerreotype, the tintype was both lightweight and cheap, making it an ideal form for travelers and Civil War soldiers, many of whom were pictured in their encampments by roving photographers with wagon darkrooms.

The combination of a negative on glass coated with sensitized collodion and a print on paper coated with sensitized albumen—the collodion/albumen process—made commercial portraiture possible on a previously undreamed-of scale, despite the fact that the prints themselves were subject to fading and discoloration. From the 1850s until the 1880s, studios in the major capitals of the world invested in ever-more elegant and unusual furnishings in order to attract a well-paying clientele. As the display of status through attire and props grew more prominent, the goal of revealing character became secondary, and portraits often seemed merely to be topographies of face and body, "dull, dead, unfeeling, inauspicious,"[20] as expressed in the words of the time.

The skillful handling of pose, lighting, props, and decor visible in the works of the highly regarded European portraitists Franz Hanfstaengl, Antoine Samuel Adam-Salomon, and Camille Silvy became models for emulation. Hanfstaengl, already renowned as a lithographer, opened a photographic art studio in Munich in 1853. He soon won acclaim internationally for the tasteful poses, modulated lighting, and exceptional richness of his prints on toned albumen paper, as exemplified by *Man with Hat (pl. no. 54)*. Hanfstaengl's earlier work—exhibited at the 1855 *Exposition Universelle* in Paris, where it was criticized for extensive retouching on the negative—is believed to have inspired Adam-Salomon to change his profession from sculptor to photographer. The poses (modeled on antique sculpture) preferred by Adam-Salomon and his penchant for luxurious fabrics and props appealed to the materialistic French bourgeoisie of the Second Empire. The photographer's heavy hand with the retouching brush—the only thing considered disagreeable about his work—is apparent in the lighter tonality behind the figure in this image of his daughter *(pl. no. 55)*.

Besides attesting to the sitter's status, props and poses could offer clues to personality, enriching the image psychologically and visually. The oval picture frame used

54. Franz Hanfstaengl. *Man with Hat,* 1857. Salt print. Agfa-Gevaert Foto-Historama, Cologne, Germany.

55. Antoine Samuel Adam-Salomon. *Portrait of a Girl,* c. 1862. Albumen print. Daniel Wolf, Inc., New York.

coyly as a lorgnette and the revealing drapery in the portrait of the Countess Castiglione *(pl. no. 56)* by Louis Pierson,[21] a partner in the Paris studio of Mayer Brothers and Pierson, suggest the seductive personality of Napoleon III's mistress (who was rumored to be an Italian spy). Oscar Gustav Rejlander's portrait of Lewis Carroll (the Reverend Charles L. Dodgson—*pl. no. 57*), which depicts the author of *Alice in Wonderland* holding a lens and polishing cloth, suggests through his expression and demeanor the sense of propriety that Carroll believed he was bringing to his photography. This work is one of Rejlander's numerous portraits, which include images of friends as well as amusing views of himself, his female companion, and the children who figured in the genre scenes for which he is better known *(pl. no. 266)*.

As studio photography preempted the role of the portrait painter, the aesthetic standards of handmade likenesses were embraced by the photographic portraitists. Manuals appeared early in the daguerreotype era and continued through the collodion period (and into the 20th century), giving directions for appropriate dress and the correct colors to be worn to take advantage of the limited sensitivity of daguerreotype and glass plates. Included also were instructions for the proper attitudes that sitters should assume when posing. Because the public still believed that hand-painted portraits were more prestigious than photographs, likenesses often were painted over in watercolors, oils, or pastels, without entirely obliterating the underlying trace of the camera image, as in a typical example *(pl. no. 332)* from the studio of T. Z. Vogel and C. Reichardt, in Venice.

Meanwhile, the professional portrait painter, aware of the public appetite for exactitude, found the photograph a convenient crutch, not just for copying the features but actually for painting upon. Projection from glass positives to canvas was possible as early as 1853; shortly afterward, several versions of solar projection enlargers—including one patented in 1857 by David Woodward, a professor of fine arts in Baltimore—simplified enlargement onto sensitized paper and canvas. When partially developed, the image could be completely covered with paint—as X-rays have disclosed was the case in the life-size painted portrait of Lincoln *(pl. no. 58)* by Alexander François. This practice, common in the last half of the 19th century, was not considered reprehensible because in the view of many painters the role of photography was to be the artist's helpmate in creative handwork. Although such photographic "underpainting" was rarely acknowledged, the desire for verisimilitude on the part of painter and public and the hope for artistic status on the part of the photographer resulted in a hybrid form of portraiture—part photochemical and part handwork.

56. Louis Pierson. *Countess Castiglione*, c. 1860. Albumen print (previously attributed to Adolphe Braun). Metropolitan Museum of Art, New York; David Hunter McAlpin Fund, 1947.

## *Carte-de-visite and Celebrity Portraits*

With the possibility of endless replication from the collodion negative, it was only a matter of time before a pocket-size paper portrait was devised. Suggestions along this line, made by several photographers in Europe and the United States, included the substitution of a likeness for the name and address on a calling card—the traditional manner of introducing oneself among middle- and upper-class gentry—and the affixing of small portraits to licenses, passports, entry tickets, and other documents of a social nature. However, André Adolphe Disdéri, a photographer of both portraits and genre scenes who also was active in improving processes and formulating aesthetic standards, patented the *carte-de-visite* portrait in 1854. This small image—3½ x 2½ inches, mounted on a slightly larger card—was produced by taking eight exposures during one sitting, using an ingenious sliding plate holder in a camera equipped with four lenses and a vertical and horizontal septum *(pl. no. 226)*. A full-length view of the figure in more natural and relaxed positions became possible, and it was not necessary for each pose to be exactly the same, as can be seen in an uncut sheet of *carte-de-visite* portraits taken by Disdéri *(pl. no. 59)*.

57. Oscar Gustav Rejlander. *Lewis Carroll (Rev. Charles L. Dodgson)*, March 28, 1863. Albumen print. Gernsheim Collection, Humanities Research Center, University of Texas, Austin.

58. Alexander François. *Abraham Lincoln*, n.d. Oil on canvas. Collection George R. Rinhart.

The reasons why the *carte* portraits became so enormously popular after 1859 are not entirely clear, but for a considerable part of the next decade this inexpensive format captured the public imagination in much the same way the stereograph view had. Portrait studios everywhere—in major cities and provincial villages—turned out millions of full- and bust-length images of working and trades people as well as of members of the bourgeoisie and aristocracy. These could be sold inexpensively because unskilled labor cut the images apart after processing and pasted them on mounts on which trademarks or logos of the maker appeared either on the front of the card, discreetly placed below the image, or on the reverse. Frequently, elaborate displays of type and graphic art suggested the connections between photography and painting. Backgrounds still included painted gardens, balustrades, drapery swags, and furniture, but sitters also were posed against undecorated walls, and vignetting—in which the

background was removed—was not uncommon. Adults displayed the tools of their trade, the marks of their profession, and the emblems of their rank; children were shown with toys; and attention was paid to women's attire and hair arrangements. Nevertheless, apart from the informality of pose that imbues some of these images with a degree of freshness, *carte* portraits offered little compass for an imaginative approach to pose and lighting as a means of evoking character.

As their popularity continued, famous works of art, well-known monuments, portraits of celebrities and of fashionably attired women (at times pirated and reproduced from other *cartes* rather than from the original collodion negative) appeared on the market. That the wide dispersal of celebrity images had consequences beyond that of a pleasant pastime can be seen in the fact that already in the 1860s such images influenced the course of a public career. Both the moderately gifted Jenny Lind and the unexceptional Lola Montez became cult figures in the United States largely owing to their promotion through *carte* portraits. Lincoln is said to have ascribed his election to the Presidency at least in part to Brady's *carte* of him when he still was an unknown, and both the French and British Royal families permitted the sales of *carte* portraits of themselves; on the death of Prince Albert, for example, 70,000 likenesses of Queen Victoria's consort were sold. *Cartes* also took over the function formerly performed by lithographs and engravings in popularizing types of female

59. André Adolphe Eugène Disdéri. *Portrait of an Unidentified Woman*, c. 1860–65.
Uncut albumen print from a *carte-de-visite* negative. Gernsheim Collection, Humanities Research Center, University of Texas, Austin.

beauty and fashionable attire. Silvy, a French photographer of artistic taste who in 1859 opened a studio in his lavishly decorated London residence, specialized in posing his upper-class sitters in front of mirrors so that the softly modulated lighting not only called attention to attire and hairstyle—fore and aft, so to speak—but surrounded them also with an aura of luxuriousness.

*Cartes* were avidly collected and exchanged, with ornate albums and special holders manufactured to satisfy the demand for gimmickry connected with the fad. This activity received a boost from the enthusiasm of Queen Victoria, who accumulated more than one hundred albums of portraits of European royalty and distinguished personages. Indeed, the British royal family was so taken with photography that they not only commissioned numberless portraits but purchased genre images, sent photographs as state gifts, underwrote photographic ventures, and were patrons of The Photographic Society; in addition they installed a darkroom for their own use in Windsor Castle. British and French monarchs staunchly supported photography in general because it represented progress in the chemical sciences, which was emblematic of the prosperity brought to their respective nations, and also because the easily comprehended imagery accorded with the taste for


60. Spencer y Cia. *Chilean Ladies*, n.d. Albumen print. Neikrug Photographica, Ltd., New York.

61. Unknown Photographer (American). *Seventy Celebrated Americans Including All the Presidents*, c. 1865. Albumen print. Library Company of Philadelphia.

verisimilitude evinced by the middle class and their royal leaders.

During the 1860s, portrait studios began to assemble a selection of individual likenesses on a single print. Produced by pasting together and rephotographing heads and portions of the torso from individual *carte* portraits, these composites paid scant attention to congruences of size and lighting, or to the representation of real-looking space. Designed as advertising publicity to acquaint the public with the range and quality of a particular studio's work, as in this example from the studio of a portrait photographer in Valparaiso and Santiago, Chile *(pl. no. 60)*, the format was taken over as a means of producing thematic composites of political *(pl. no. 61)* or theatrical figures that might be sold or given away as souvenirs.

One form of commercial exploitation of portrait photography in Europe that did not fare as well as *cartes* was called photosculpture. Invented by François Willême in France in 1860, this three-dimensional image was produced by a company whose English branch briefly included the usually prudent Claudet as artistic director. The procedure necessitated a large circular studio in which 24


62. Adolphe Jean François Marin Dallemagne. *Gallery of Contemporary Artists*, c. 1866. Albumen prints assembled into *Galerie des artistes contemporaines*. Bibliothèque Nationale, Paris.

63. Reutlinger Studio. *Mlle. Elven*, 1883. Albumen or gelatin silver print. Bibliothèque Nationale, Paris.

64. Paul Nadar. *Lillie Langtry*, n.d. Gelatin silver print. Bibliothèque Nationale, Paris.

cameras were positioned to take simultaneous exposures of a centrally placed sitter. These were processed into lantern slides, projected, and traced in clay (or wood in one adaptation) with a pantograph, theoretically insuring a head start on exactitude for the sculptor. Despite royal patronage, photosculpture had a short life, although every once in a while this gimmick crops up again as an idea whose time has come.

Editions of prints on paper in sizes and formats other than *cartes* also were popular from the 1860s on. Because the problems with albumen prints mentioned in Chapter 1 never were completely solved, carbon printing—often referred to as "permanent"—and Woodburytype reproduction were favored for the production of celebrity likenesses that appeared in the "galleries" and albums issued by photographers and publishers in western Europe and the United States. Well-known examples are Hanfstaengl's *Album der Zeitgnossen* (*Album of Contemporary Figures*), portraits of German scientists, writers, and artists; the British *Gallery of Photographic Portraits*, undertaken by the studio of Joseph John Elliott and Clarence Edmund Fry (who encountered refusals from politicians who found their likenesses too realistic); and the *Galerie des contemporaines* (*Gallery of Contemporaries*)—initiated in 1859 in Paris by Pierre Petit. This project was a precursor of the highly regarded French series, *Galerie contemporaine, litteraire, artistique* (*Contemporary Gallery of Writers and Artists*), published intermittently by Goupil and Company between 1876 and 1884, to which all the major portraitists of the period contributed. Less concerned than most studio portraiture with fashionable decor and dress, this collection was "physiognomic" in intent—to evoke the character of the giants of French literary and artistic life through pose and expression, as in the commanding presence projected in Etienne Carjat's portrait of Victor Hugo *(pl. no. 94)*. Other such publications catered to the taste for elaborate decor, as in Adolphe Jean François Marin Dallemagne's *Galerie des artistes contemporaines* (*Gallery of Contemporary Artists*) of 1866 *(pl. no. 62)*, a group of 50 portraits of artists shown posing in *trompe l'oeil* frames that are suggestive of the conceits of baroque portrait painting.

The best-known photographer of French intellectual,


65. NADAR (GASPARD FÉLIX TOURNACHON). *Sarah Bernhardt*, 1865. Albumen print. Bibliothèque Nationale, Paris.



LEFT:

66. NAPOLEON SARONY. *Sarah Bernhardt*, c. 1880. Albumen print. Library of Congress, Washington, D.C.

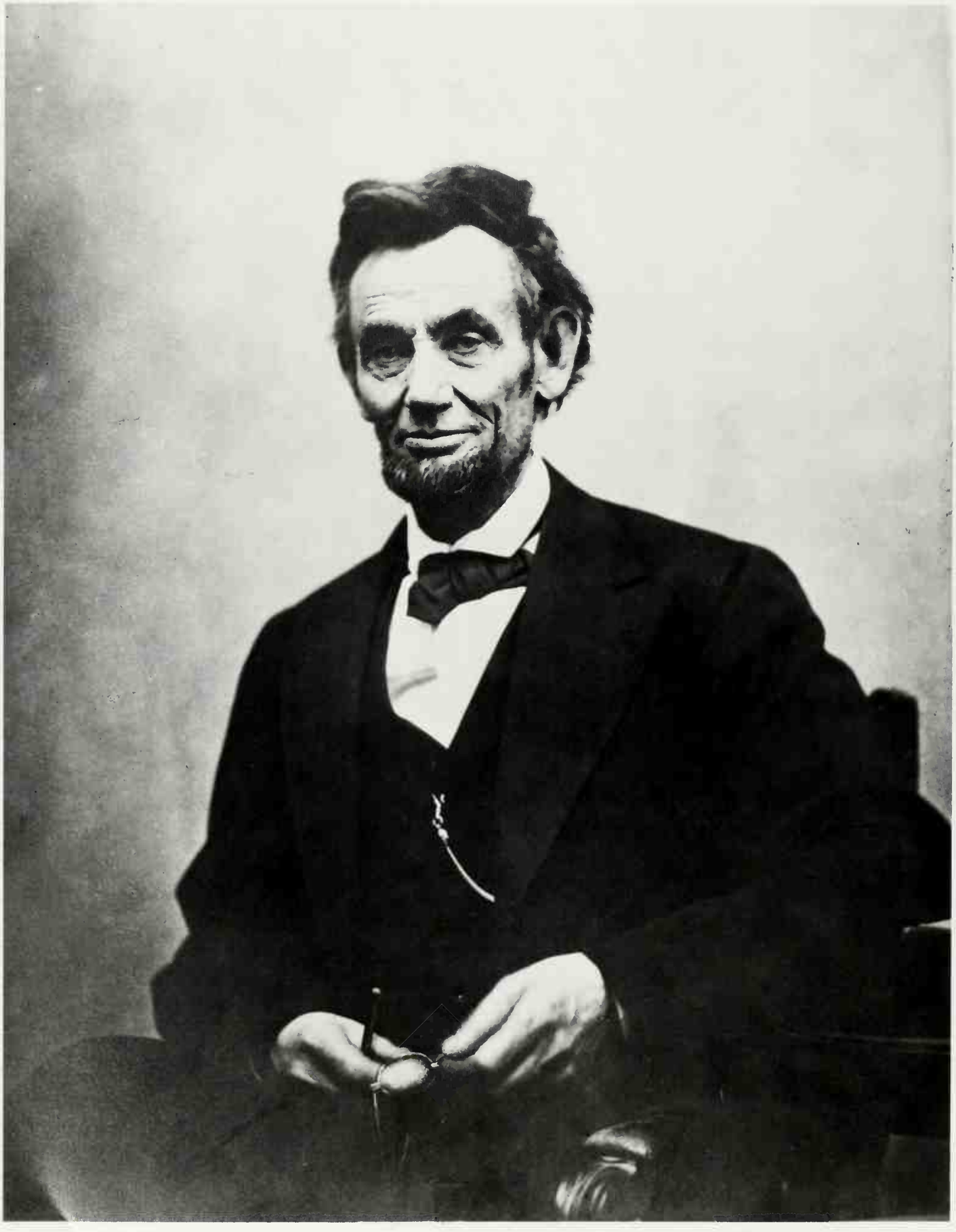
RIGHT:

67. NAPOLEON SARONY. *Eugene Sandow with a Leopard Skin (Posing as the Farnese Hercules)*, c. 1893. Albumen print. Harvard Theatre Collection, Cambridge, Mass.

literary, and artistic figures during the collodion era is Gaspard Félix Tournachon, known as Nadar *(see Profile)*. His aim in portraiture was to seek, as he wrote, "that instant of understanding that puts you in touch with the model—helps you sum him up, guides you to his habits, his ideas, and character and enables you to produce . . . a really convincing and sympathetic likeness, an intimate portrait."[22] One example—a portrait of the young Sarah Bernhardt in 1865 *(pl. no. 65)*—typifies Nadar's ability to organize the baroque forms of drapery, a truncated classical column, and the dramatic contrasts of hair and skin and still suggest character—in this case both the theatricality and vulnerability of a young actress who had just achieved her first stage success. As French art critic Philippe Burty wrote of Nadar's entries exhibited at the *Société Française de Photographie* exhibition in 1859, "his portraits are works of art in every accepted sense of the word," adding that "if photography is by no means a complete art, the photographer always has the right to be an artist."[23] Nadar's later output included many unexceptional portraits of entertainers and modishly dressed women, a direction necessitated by the demands of the middle class for glamorous images that became even more marked when his son Paul took control of the studio in the late 1880s. The style of Paul Nadar's portrait of the royal mistress Lillie Langtry *(pl. no. 64)*, like that of contemporaries such as Charles and Émile Reutlinger *(pl. no. 63)* whose firm began to specialize in fashion photography in the same years, was oriented toward evoking glamour by seductive pose, bland expression, and attention to elegant attire.

By the time collodion/albumen photographs had begun to displace daguerreotypes and ambrotypes in the United States, the Civil War had erupted, relegating portraiture to a secondary place in the minds of many photographers. Brady, whose Washington studio had been opened in 1858 to take advantage of the concentration of political figures in the Capital, turned his attention to war reportage (to be discussed in Chapter 4), but continued to make portraits. In addition, Lincoln, his family, the Cabinet members and the Army generals all sat for other well-known portraitists, among them Alexander Gardner, a former manager of Brady's Washington gallery who took what may be the last likeness of the President in April, 1865, shortly before his assassination *(pl. no. 68)*.[24]

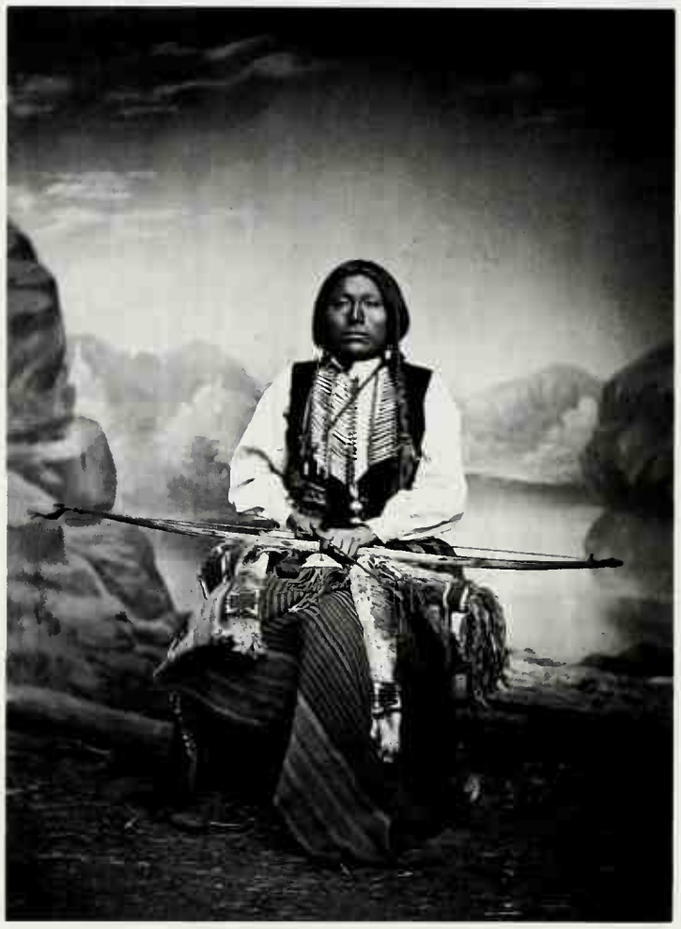
In the period after the Civil War, besides *cartes* and cabinet-size images (approximately 4 x 5½ inches, mounted on a slightly bigger card), larger formats called Promenade, Boudoir, and Imperial Panel were introduced to appeal to the newly rich bourgeoisie that had emerged. Fashionable portrait studios in large cities, among them Fredericks, Gurney, Falk and Kurtz in New York, Gutekunst in Philadelphia, and Bachrach in Baltimore, served as pacesetters in terms of pose, decor, lighting, and the manner of presenting the finished image. As in Europe, there was a



68. ALEXANDER GARDNER. *Abraham Lincoln*, April, 1865. Albumen print. Library of Congress, Washington, D.C.

69. HEINRICH TÖNNIES. *Four Young Blacksmiths,* c. 1881. Modern gelatin silver print from original negative. Formerly collection Alexander Alland, North Salem, N.Y.

70. AWIT SZUBERT. *Amelia Szubert*, c. 1875. Albumen print. Collection Konrad Pollesch, Cracow; International Center of Photography, New York.



71. WILL SOULE. *Brave in War Dress*, c. 1868. Albumen print. Western History Collection, Natural History Museum of Los Angeles County, Los Angeles.

demand for images of theatrical and entertainment personalities that was satisfied in the main by the New York studios of Napoleon Sarony and his competitor José Mora. A prominent lithographer before the War, Sarony made over 40,000 negatives of celebrities, some of whom were paid extravagantly for the sitting. The eclectic decor visible in his images of Sarah Bernhardt *(pl. no. 66)* and strongman Eugene Sandow *(pl. no. 67)* necessitated a large collection of fusty props and led to a reference to his studio as a "dumping ground . . . for unsaleable idols, tattered tapestry and indigent crocodiles."[25]

During the last 40 years of the 19th century, portraiture expanded more rapidly in the less-industrialized portions of Europe, and in Australia, India, China, Japan, Mexico, and South America. Owing to the fact that owners of commercial studios in provincial towns frequently served a clientele drawn from all classes, they sometimes produced extensive documentations not only of physiognomies but of social and psychological attitudes. One such example is the large output of portraits by Danish photographer Heinrich Tönnies, working in Aalborg from the 1860s into the 1900s, which includes some 750 portraits of working people attired in the garments and displaying the tools of their occupations. Despite the formality of the poses in studio settings *(pl. no. 69)*, these images are not merely descriptive but suggest prevailing attitudes toward work on the part of both photographer and sitters. In some localities, patriots saw the camera as a means of emphasizing ethnic or national origin. A fine line may separate the portrait taken by Polish photographer Awit Szubert of his wife in native dress *(pl. no. 70)* from many similar images of locally costumed figures that were made and sold in *carte* and cabinet size for the tourist trade, but even in some of these images a sense of national pride is discernible.

Besides playing a role in the development of cultural nationalism in Europe, portraits also reflected the rising interest in anthropology. In the western hemisphere, early manifestations of the interest in native types included portraits of individual members of the Indian tribes indigenous to the West, made in the course of the land surveys

and explorations *(see Chapter 3)* that followed the end of the Civil War. In the wake of these expeditions, several frontier studios opened their doors to Native American sitters, among them that of Will Soule, in Fort Sill, Oklahoma, which specialized in commercial portrayals of individuals posed formally in front of painted backdrops, as in an 1868 photograph titled simply *Brave in War Dress (pl. no. 71)*. In South America, Marc Ferrez, the best-known Brazilian photographer of the 19th century, photographed Indians of the Amazon region while on expeditions to the interior in the mid-1870s; in the same years strong interest in images of indigenous peoples prompted studios in Australia to photograph the Aborigines of the region.

## *Camera Portraits in Asia*

The introduction of portrait photography in the Far East coincided with changes from insular traditionalism to the acceptance of modern ideas in science, symbolized by the 1854 American diplomatic ultimatum that Japan be opened to the West; indeed, the ideographs used to denote photograph in Japanese *(shashin)* literally mean "copy truth." The first portrait daguerreotypes made in that country appear to be those by Eliphalet Brown, Jr., American artist and photographer attached to Commodore Matthew Perry's expedition to Japan, but experimentation with the daguerreotype process had been going on since 1848 when a Nagasaki merchant imported the first camera.[26] However, successful daguerreotypes by Japanese photographers were not made until 1857, only a year before the first collodion portraits by a Japanese photographer. As shown in a woodblock print of 1861, *French Couple with a Camera (pl. no. 72)*, photographers working in Japan during the early period were foreigners who not only provided views and portraits but taught the process to the Japanese. Apparently by the mid- to late-'70s they were so successful that professional studios were opened in all the major cities of Japan, with more than 100 in the Tokyo area alone; even the unapproachable royal family permitted members to sit for camera likenesses.

Although China remained isolated from Western ideas of progress longer than Japan, photographers from the West began to make portraits there, too, during the 1860s. Among the succession of foreigners, Milton Miller, a Californian who ran a studio in Hong Kong in the early 1860s, made formally posed yet sensitive portraits of Cantonese merchants, Mandarins, and their families, while the Scottish photographer John Thomson photographed workers and peasants as well, including their portraits in his ambitious four-volume work *Illustrations of China and Its People*, published in England in 1873/74. It is thought that native Chinese photographers were introduced to photography when they were employed during the 1850s as copyists and colorists in the Hong Kong studios run by foreigners, but while some 20 native studios with Chinese names are known, little else has been discovered about these portraitists. The studio of Afong Lai appears to have been the most stable of the native-owned commercial enterprises, lasting from 1859 on into the 20th century and with the artistry of its work acclaimed by Thomson.

On the Indian subcontinent, however, photography in all its varieties, including portraiture, was promoted by the British occupying forces and eagerly taken up by Indian businessmen and members of the ruling families. Commercial firms owned by Indian photographers, individuals appointed by the courts, and those working in bazaars began to appear in large cities after the 1860s in order to supply the British and Indian ruling class with images of themselves. The most renowned enterprise was that started


72. YOSHIKAZU ISSAN. *French Couple with a Camera*, 1861. Color woodblock print. Agfa-Gevaert Foto-Historama, Cologne, Germany.

73. Lewis Carroll (Rev. Charles L. Dodgson). *Edith, Lorina, and Alice Liddell*, c. 1859. Albumen print. Photography Collection, Humanities Research Center, University of Texas, Austin.

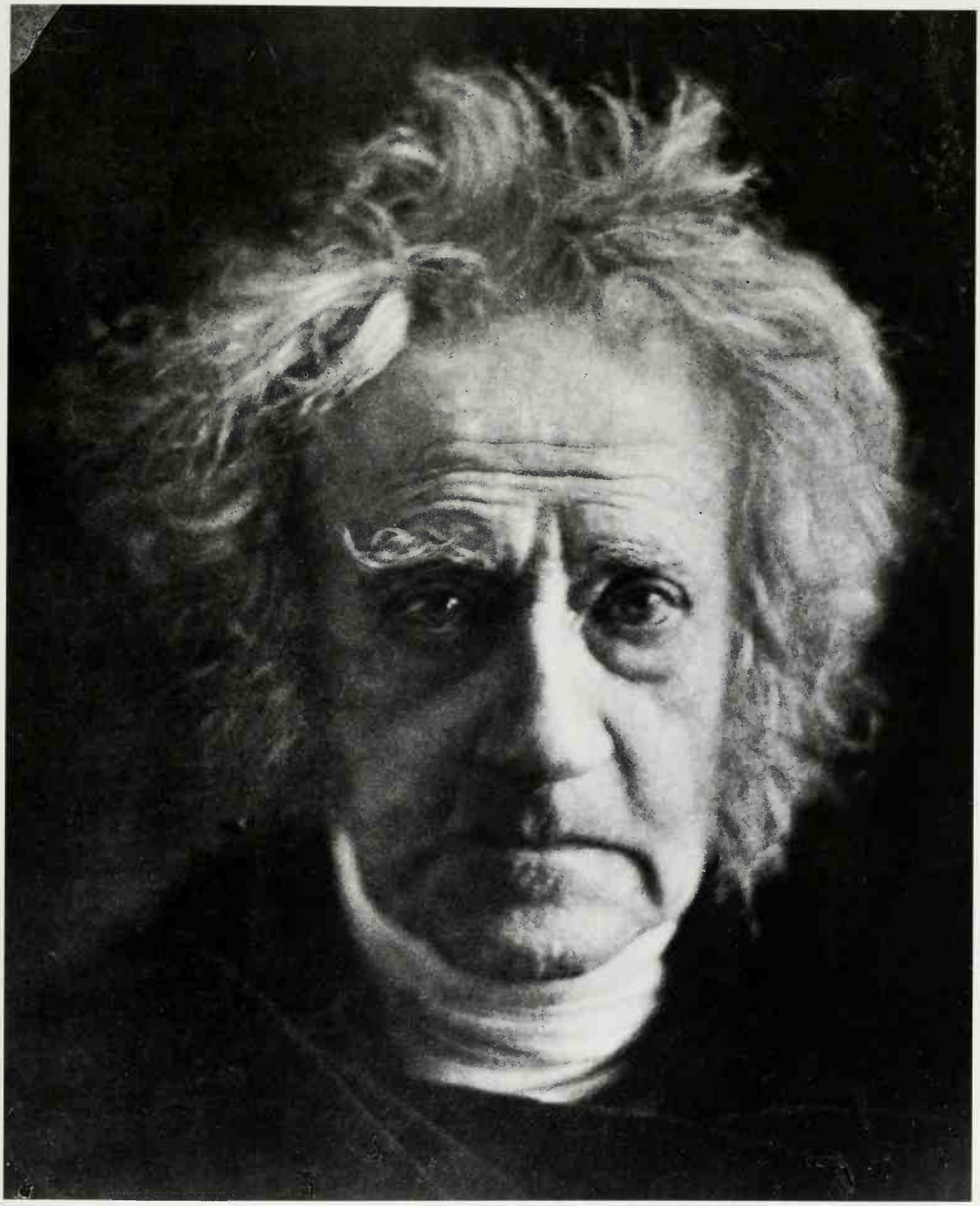
by Lala Deen Dayal, owner of studios in Indore, Bombay, and Hyderabad from the 1880s on, who became court photographer to the nizam of Hyderabad. Many portraits made in India during this period were painted over in the traditional decorative style of Indian miniatures, just as in the West painted camera portraits were treated naturalistically. This attitude toward the photographic portrait in India has led to the suggestion that the camera itself was used in a different fashion than in the West, that Indian photographers were somehow able to avoid the representation of space and dimensionality even before the paint was added.[27] However, allowing for obvious differences in pose, dress, and studio decor, Indian photographic portraits that were not painted over do not seem remarkably different from the general run of commercial portraiture elsewhere.

## *The Portrait as Personal Expression*

Alongside the likenesses produced by commercial studios, a more intimate style of portraiture developed in the work of amateurs—men and women in mostly comfortable circumstances who regarded photography as an agreeable pastime but did not make their living from it. During the 1860s and '70s this group—which included Olympe Count Aguado and Paul Gaillard on the Continent and Julia Margaret Cameron, Lewis Carroll, Cosmo Innes, and Clementina, Lady Hawarden, in Britain—used the collodion process to portray family and associates, at times in elaborately casual poses, in actual domestic interiors and real gardens. When Carroll photographed his artistic and intellectual friends and their children, he favored the discreet and harmonious arrangements seen in his grouping of the Liddell sisters—Edith, Lorina, and Alice *(pl. no. 73)*. At the same time, his stress on the virginal beauty of these young sitters (also evident in his nude photos, *pl. no. 334*) reflects an ambivalence that embraced ideals of feminine innocence and his own deep-seated sexual needs.

Cameron, the most widely known Victorian portraitist (usually considered an amateur even though she sold and exhibited her work), also used the camera to idealize her subjects. Seeking out men and women whose individuality or impressive artistic and literary contributions appeared to her to redeem the materialism of the time, she importuned them to pose so that she might record, in her words, "faithfully, the greatness of the inner as well as the features of the outer man."[28] Avoiding sharp focus, she concentrated on the evocative handling of light, seen at its most effective in portraits of Sir John Herschel—a family friend of many years *(pl. no. 74)*—and of her niece Julia Jackson, who had just wed Herbert Duckworth and was to be the mother of novelist Virginia Woolf *(pl. no. 75)*.

Cameron's work, like that of Carroll, can be related to the Pre-Raphaelite search for ideal types, but her portrait style especially seems to have been inspired by the paintings of her artistic mentor, George Frederic Watts, which in turn reflected the taste among the British intelligentsia for Rembrandt-like chiaroscuro effects in the treatment of



74. JULIA MARGARET CAMERON. *Sir John Herschel*, April, 1867. Albumen print.
Museum of Fine Arts, Boston; Gift of Mrs. J. D. Cameron Bradley.

75. JULIA MARGARET CAMERON. *My Niece Julia Jackson*, 1867. Albumen print. National Portrait Gallery, London.

form. Critical reaction from Cameron's contemporaries was divided; while art critics for the general press and a number of photographers in England and abroad approved of her approach, the medium's most vocal proponents of art photography criticized the "slovenly manipulation" and regarded her work as "altogether repulsive."[29]

Newly emerging scientific ideas provided still other uses for the photographic portrait during the collodion era. Aside from the documentation of strictly medical problems (skin lesions, hydrocephalism, etc.), the camera was called upon to document psychological reactions and mental aberrations. Dr. Hugh Welch Diamond, who became interested in the calotype shortly after the announcement of Talbot's discovery, was one of the first to advocate such scientific documentation. After he was introduced to collodion by Archer—a former patient—he used the new technology to photograph female inmates in the Surrey County Asylum *(pl. nos. 76–77)*, where he was superintendent. In a paper read to the Royal Society in 1856, Dr. Diamond outlined the relationship of photography to psychiatry, suggesting that portraits were useful in diagnosis, as treatment, and for administrative identification of the patients. In *The Physiognomy of Insanity*, illustrated with engravings based on Dr. Diamond's likenesses, physiognomic theories that had related photography to the depiction of normal character were extended to embrace the mentally abnormal.

Fleeting facial expressions were photographed in 1853 by Adrien Tournachon (brother of Félix) for a work on human physiognomy by the noted Dr. Guillaume Benjamin Duchenne de Boulogne, the founder of electrotherapy, and in 1872 Charles Darwin chose to use photographs to illustrate *The Expression of the Emotions in Man and Animals*, for which he approached Rejlander. In addition to images supplied by Duchenne, and by two lesser-known figures, the book included a series showing emotional states, and for five of them Rejlander himself posed as model *(pl. nos. 78–79)*. Despite the theatricality of a number of the expressions depicted in these portraits, the use of the camera image in this capacity relegated to a minor role the traditional graphic conventions for portraying the human passions.

In the 30 years following the discovery of photography, the camera portrait occupied center stage. Images on metal, glass, and paper provided likenesses for large numbers of people—the newly affluent as well as many who formerly could not have imagined commissioning a painted portrait. Many of these images can be regarded today as no more than "archeological relics," but in their time they served to make generations of sitters more aware of their position in society and of themselves as individuals, even when they glossed over physiological and psychological

76–77. Dr. Hugh Welch Diamond. *Inmates of Surrey County Asylum*, 1852. Albumen prints. Royal Photographic Society, Bath, England.

78, 79. Oscar Gustav Rejlander, Guillaume Benjamin Duchenne de Boulogne. Illustrations for *The Expression of the Emotions in Man and Animals*, by Charles Darwin, 1872. Heliotypes. Photography Collection, The New York Public Library, Astor, Lenox, and Tilden Foundations.

frailties. In addition, photographs taken at various stages of life—youth, middle age, and elderly—made people more conscious of mortality and their relationship to ephemeral time. The cult of individualism also was promoted by the practice of publishing and selling likenesses of famous persons. With the image as a surrogate, more people were made to feel closer to political and cultural figures, even while the likenesses themselves emphasized distinctiveness. On the whole, the general run of commercial camera portraiture is quickly exhausted in terms of insight or aesthetic interest, yet in the hands of creative individuals (both amateur and professional), among them Southworth and Hawes, Hill and Adamson, Cameron, Carroll, and Nadar, portraits seemed to distill an artistic ideal while still probing individual personality. The importance of studio portraiture was diminished by the invention of new cameras and technologies that permitted people to make likenesses of family and friends at home, but the portrait itself—as a mirror of personality, as an artistic artifact, and as an item of cultural communication—has remained an intriguing challenge to photographers.

## *Profile: David Octavius Hill and Robert Adamson*

At his death in 1870, David Octavius Hill was mourned for being a deeply religious but blithe spirit who had devoted his life to improving the arts in Scotland. An unexceptional though competent painter of the Scottish countryside *(pl. no. 80)*, Hill played an important role in the cultural life of Edinburgh. He was born into a family of booksellers and publishers in Perth and learned lithography early in his career, publishing, in 1821, the first lithographic views of Scotland in *Sketches of Scenery in Perthshire*. In association with other artists who were dissatisfied with the leadership of the Royal Institution, Hill established the Scottish Academy in 1829, and remained connected with it in unpaid and, later, official capacity until his death. By the 1830s, Hill's interest turned to narrative illustration; among his works were lithographs for *The Glasgow and Garnkirk Railway Prospectus*, The Waverly Novels, and *The Works of Robert Burns*.

Involvement in the Scottish Disruption Movement, which led to the establishment of the Free Church of Scotland and independence from the Church of England, inspired in Hill a wish to commemorate this event in a painting of the clergymen who took part in the dispute. Introduced by Sir David Brewster to Robert Adamson *(pl. no. 81)*, through whom he became aware of Talbot's process, Hill planned to use photography as an aid in painting the likenesses of the 400 members of the Disruption Movement. In 1843 he entered into a partnership with Adamson, about whom relatively little is known, to produce calotypes in a studio at Rock House, Calton Hill, Edinburgh, and

80. David Octavius Hill. *On the Quay at Leith*, 1826. Oil on wood. Scottish National Portrait Gallery, Edinburgh.

sometimes on location. In their joint work, each man provided an element missing in the other. Before 1843, Adamson's work was wanting in composition and lighting, while, on the evidence of work done with another collaborator some 14 years after Adamson's premature death, Hill lacked sensitivity and skill in handling the camera. During the partnership, Hill energetically organized the sittings for his proposed painting, but as the two partners became more deeply involved with the medium, they calotyped subjects, persons, and landscape views that had no relation to the Disruption painting, producing between 1843 and 1848 about 2,500 separate calotypes. Unfortunately, Hill discovered that many of the negatives tended to fade, a circumstance that along with Adamson's death seemed to make further involvement in photography unattractive.

After 1848, Hill continued to use photographs as studies for his paintings and to sell individual calotypes from his brother's print shop, while devoting time to the affairs of the Scottish Academy and other local art associations. Following a second marriage in 1862 and the unsuccessful attempt to photograph in collodion with another partner, Hill returned to the Disruption painting, completing it in 1866. Compared with the vitality and expressiveness of the calotype studies, the painted figures are unconvincing and seem to exist without air or space; the picture, however, was greeted with kindness, and Hill's last photographic project involved an endeavor to make photographic facsimiles of this work. Had he not become involved with photography, it is unlikely that Hill would have merited more than a footnote in the history of the arts of the 19th century.

81. David Octavius Hill. *Robert Adamson*, c. 1843. Calotype. Gernsheim Collection, Humanities Research Center, University of Texas, Austin.

82. Julia Margaret Cameron. *The Rising of the New Year*, 1872. Albumen print. Private Collection.

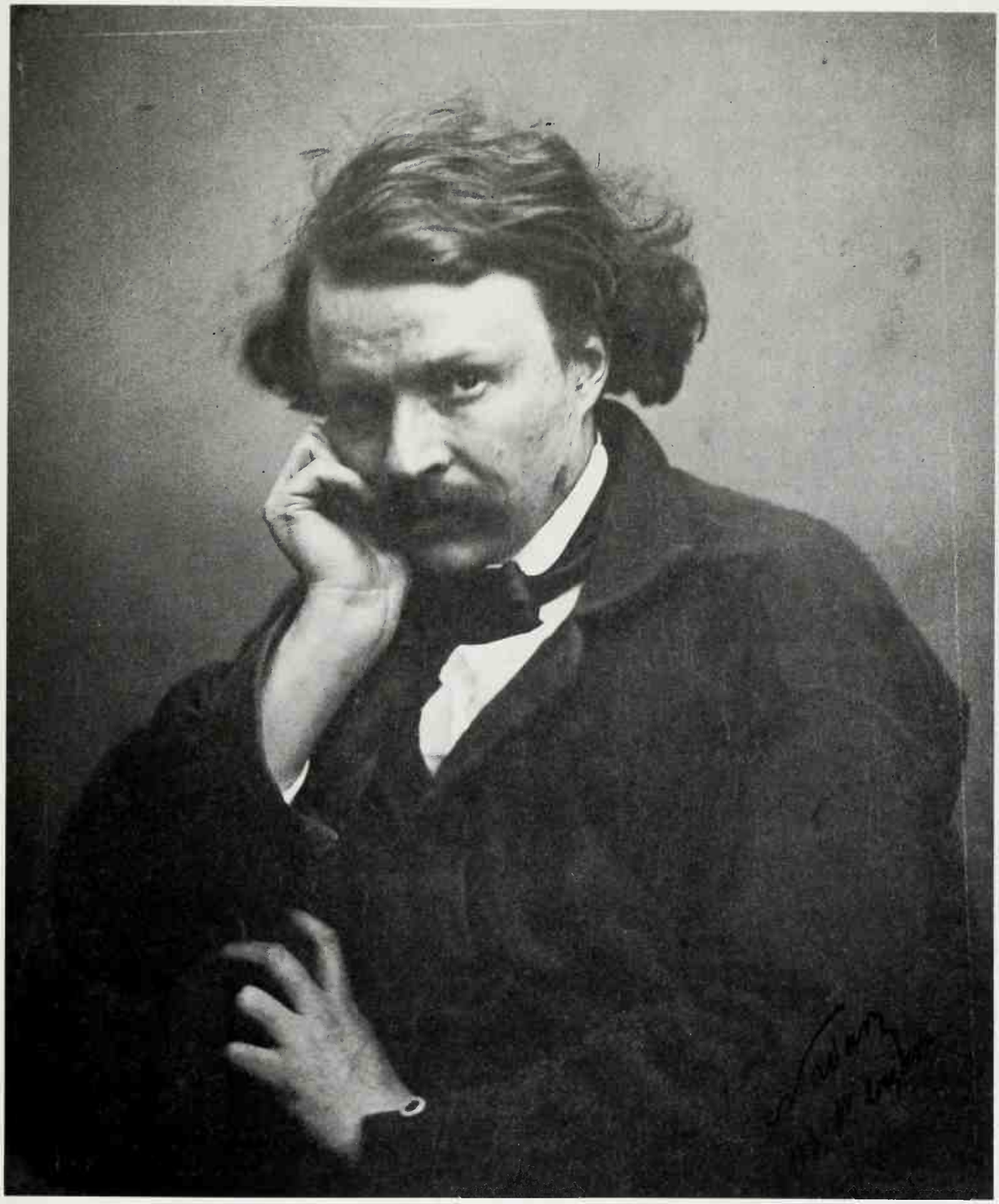
## *Profile: Julia Margaret Cameron*

One of seven daughters of a prosperous British family stationed in India, Julia Margaret Pattle was regarded by friends as generous, impulsive, enthusiastic, and imperious—"a unique figure, baffling beyond description."[30] Educated in England and France after the death of her parents, she returned to India and in 1838 married Charles Hay Cameron, an eminent jurist and classical scholar, who invested his fortune in coffee plantations in Ceylon. In the ten years prior to their return to England, Mrs. Cameron assumed the social leadership of the Anglo-Indian colony, raised money for victims of the Irish Famine, and translated the well-known German ballad *Lenore,* but her boundless energy craved even greater challenges.

After settling in Freshwater, on the Isle of Wight, Cameron, using a camera given her by her daughter in 1863, embarked on a career in photography, concentrating on portraits and allegorical subjects. Models, at times paid but mainly importuned, were drawn from among her family; the household staff at the Cameron residence, *Dimbola;* and the households and visitors to the homes of Alfred, Lord Tennyson, and Sara Prinsep, Cameron's sister. These were many of the most famous figures in British artistic and literary circles, including Thomas Carlyle, Darwin, Herschel, Marie Spartali, Ellen Terry, and Watts, but the photographer also was interested in portraying the unrenowned as long as she found them beautiful or full of character. Besides hundreds of idealized portraits, she created allegorical and religious subjects, particularly of angels *(pl. no. 82)* and the Madonna, which emphasized motherhood. Because of her disappointment with the poor quality of the woodcut transcriptions of Tennyson's *Idylls of the King,* Cameron raised money to issue two editions that were photographically illustrated.

Cameron's attitude toward photography was that of a typical upper-class "amateur" of the time. She refused to consider herself a professional, although the high cost of practicing the medium led her to accept payment for portraits on occasion and to market photographic prints through P. and D. Colnaghi, London printsellers. They often bore the legend: "From Life. Copyright Registered Photograph. Julia Margaret Cameron," to which she sometimes added that they were unretouched and not enlarged. Her work was shown at annual exhibitions of the Photographic Society of London and in Edinburgh, Dublin, London, Paris, and Berlin; at the latter it was acclaimed by Hermann Wilhelm Vogel and awarded a gold medal in 1866. In 1875, the Camerons returned to Ceylon, where for the three years before her death she continued to photograph, using native workers on the plantations and foreign visitors as models.


83. Nadar (Gaspard Félix Tournachon). *Panthéon Nadar*, 1854. Lithograph. Bibliothèque Nationale, Paris.



84. NADAR (GASPARD FÉLIX TOURNACHON). *Self-Portrait*, c. 1855. Salt print. J. Paul Getty Museum, Los Angeles.

85. Adrien Tournachon. *Emile Blavier*, c. 1853. Albumen print. Bibliothèque Nationale, Paris.

86. Unknown Photographer (French). *Façade of Nadar's Studio at 35 Boulevard des Capucines, Paris*, after 1880. Albumen print. Bibliothèque Nationale, Paris.

## *Profile: Nadar*

In many ways Nadar (Gaspard Félix Tournachon) *(pl. no. 84)* typifies the best qualities of the bohemian circle of writers and artists that settled in Paris during the Second Empire. Born into a family of printer tradespeople of radical leanings, young Nadar became interested in many of the era's most daring ideas in politics, literature, and science. After an ordinary middle-class education and a brief stab at medical school, he turned to journalism, first writing theater reviews and then literary pieces. Although a career in literature seemed assured, he gave up writing in 1848 to enlist in a movement to free Poland from foreign oppressors, an adventure that ended suddenly when he was captured and returned to Paris. There followed a period of involvement with graphic journalism, during which he created cartoons and caricatures of well-known political and cultural figures for the satirical press. This culminated in the *Panthéon Nadar (pl. no. 83)*, a lithographic depiction of some 300 members of the French intelligentsia. Only mildly successful financially, it made Nadar an immediate celebrity; more important, it introduced him to photography, from which he had drawn some of the portraits.

In 1853, Nadar set up his brother Adrien as a photographer and took lessons himself, apparently with the intention of joining him in the enterprise. However, despite the evident sensitivity of Adrien's portrait of the sculptor Emile Blavier *(pl. no. 85)*, his lack of discipline is believed to have caused Nadar to open a studio on his own, moving eventually to the Boulevard des Capucines *(pl. no. 86)*, the center of the entertainment district. He continued his bohemian life, filling the studio with curiosities and *objets d'art* and entertaining personalities in the arts and literature, but despite this flamboyant personal style he remained a serious artist, intent on creating images that were both life-enhancing and discerning.

Ever open to new ideas and discoveries, Nadar was the first in France to make photographs underground with artificial light and the first to photograph Paris from the basket of an ascendant balloon. Even though a proponent of heavier-than-air traveling devices, he financed the construction of *Le Géant*, a balloon that met with an unfortunate accident on its second trip. Nonetheless, he was instrumental in setting up the balloon postal service that made it possible for the French government to communicate with those in Paris during the German blockade in the Franco-Prussian War of 1870.

Ruined financially by this brief but devastating conflict, Nadar continued to write and photograph, running an establishment with his son Paul that turned out slick commercial work. Always a rebel, at one point he lent the recently vacated photo studio to a group of painters who wished to bypass the Salon in order to exhibit their work, thus making possible the first group exhibition of the Impressionists in April, 1874. Although he was to operate still another studio in Marseilles during the 1880s and '90s, Nadar's last photographic idea of significance was a series of exposures made by his son in 1886 as he interviewed chemist Eugène Chevreul on his 100th birthday, thus foreshadowing the direction that picture journalism was to take. During his last years he continued to think of himself as "a daredevil, always on the lookout for currents to swim against."[31] At his death, just before the age of ninety, he had outlived all those he had satirized in the famous *Panthéon*, which had started him in photography.

# *The* Galerie Contemporaine— *Appearance and Character in 19th-Century Portraiture*

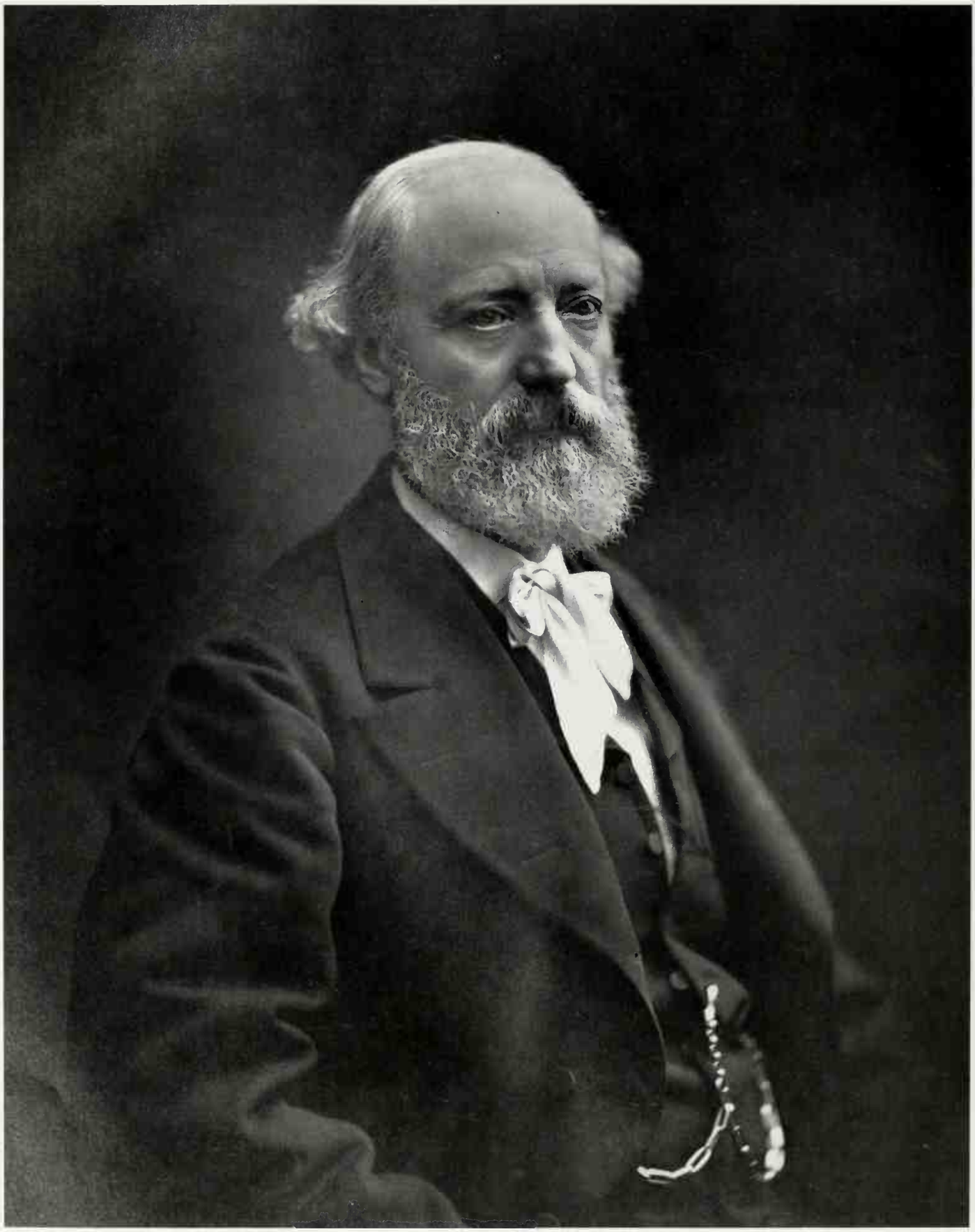
The *Galerie Contemporaine*, a series of 241 portraits of celebrated artistic, literary, and political figures in France during the Second Empire and Third French Republic, was issued in Paris between the years 1876 and 1894. A different portrait, accompanied by biographical text, appeared each week from 1876 to 1880; after that the album became an annual devoted almost exclusively to those in the mainstream pictorial arts. The images were the work of some 28 photographers who operated studios in Paris during this period; they were published in different sizes, depending on the dimensions of the original negative or plate, and usually were presented within a decorative border. Because in some cases they were taken long before they were used in the *Galerie*, the individual portraits are difficult to date. Whether these photographs were produced by carbon process or Woodburytype has not been definitively established, but the fact that the publisher, Goupil et Cie., had purchased a franchise for the Woodburytype process in France some years earlier suggests that the images were made by this method.

In this selection, portraits by noted photographers Etienne Carjat and Nadar exemplify the pictorial excellence possible through adroit manipulation of pose, demeanor, and lighting, while the image by Tourtin indicates that the work of little-known portraitists included in this ambitious publication also achieved a high level of excellence.

87. Etienne Carjat. *Alexandre Dumas*, from *Galerie Contemporaine*, 1878. Woodburytype.
International Museum of Photography at George Eastman House, Rochester, N.Y.

88. NADAR (GASPARD Félix TOURNACHON). *George Sand*, from *Galerie Contemporaine*, 1877.
Woodburytype. International Museum of Photography at George Eastman House, Rochester, N.Y.

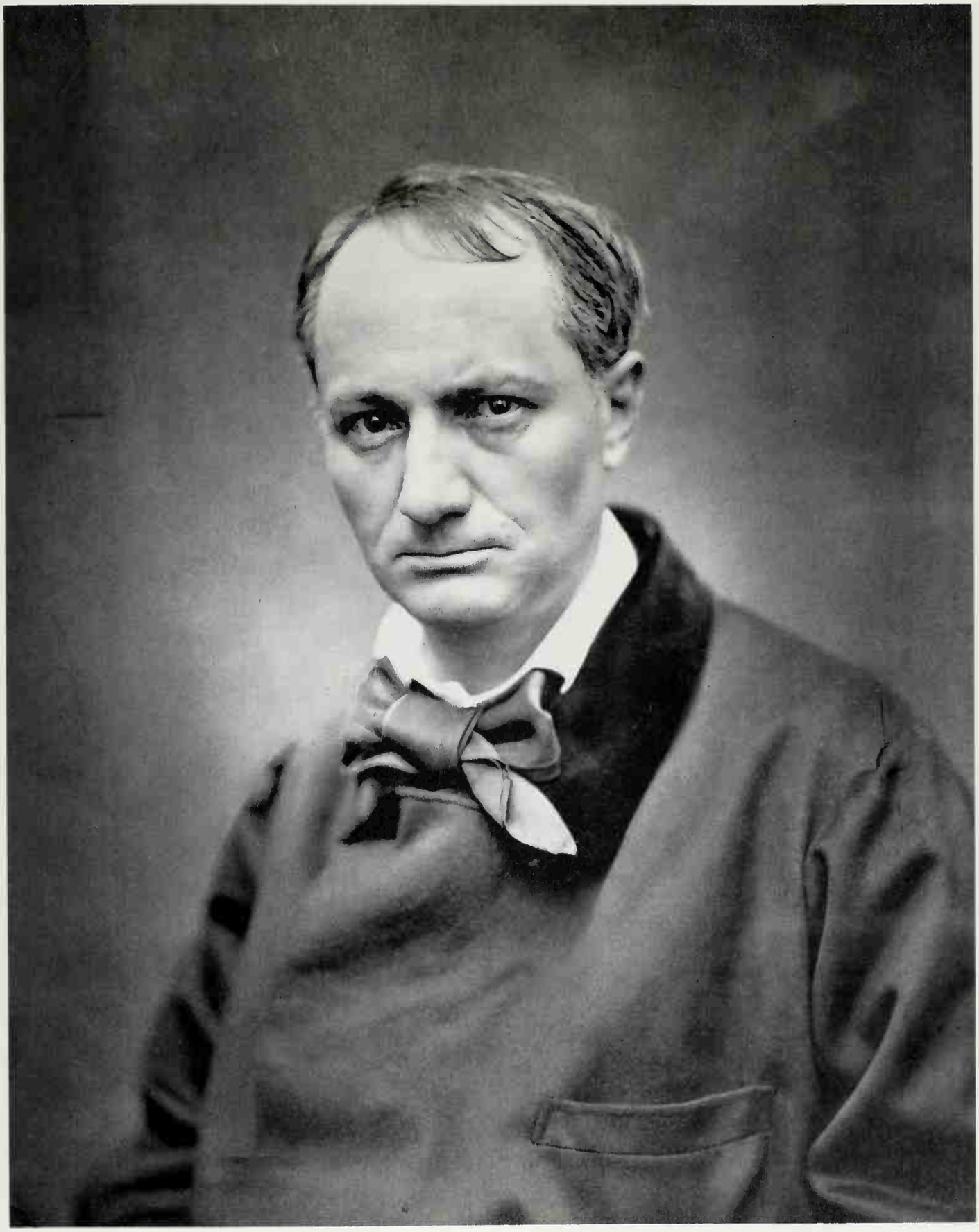
89. ETIENNE CARJAT. *Gioacchino Antonio Rossini*, from *Galerie Contemporaine*, 1877.
Woodburytype. International Museum of Photography at George Eastman House, Rochester, N.Y.



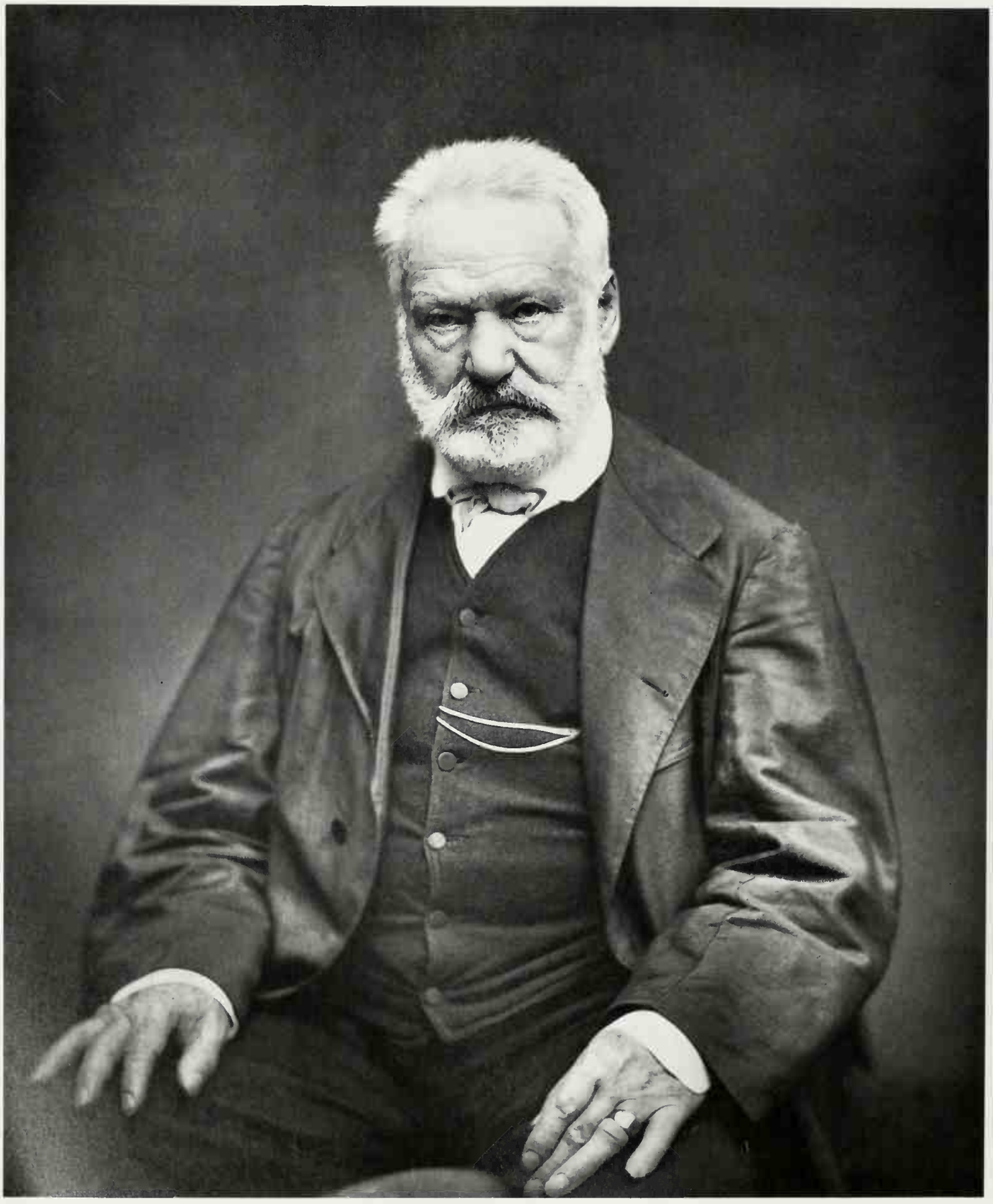
90. NADAR (GASPARD FÉLIX TOURNACHON). *Eugène Emmanuel Viollet-le-Duc*, from *Galerie Contemporaine*, 1878. Woodburytype. International Museum of Photography at George Eastman House, Rochester, N.Y.

91. ETIENNE CARJAT. *Emile Zola*, from *Galerie Contemporaine*, 1877.
Woodburytype. Private Collection.

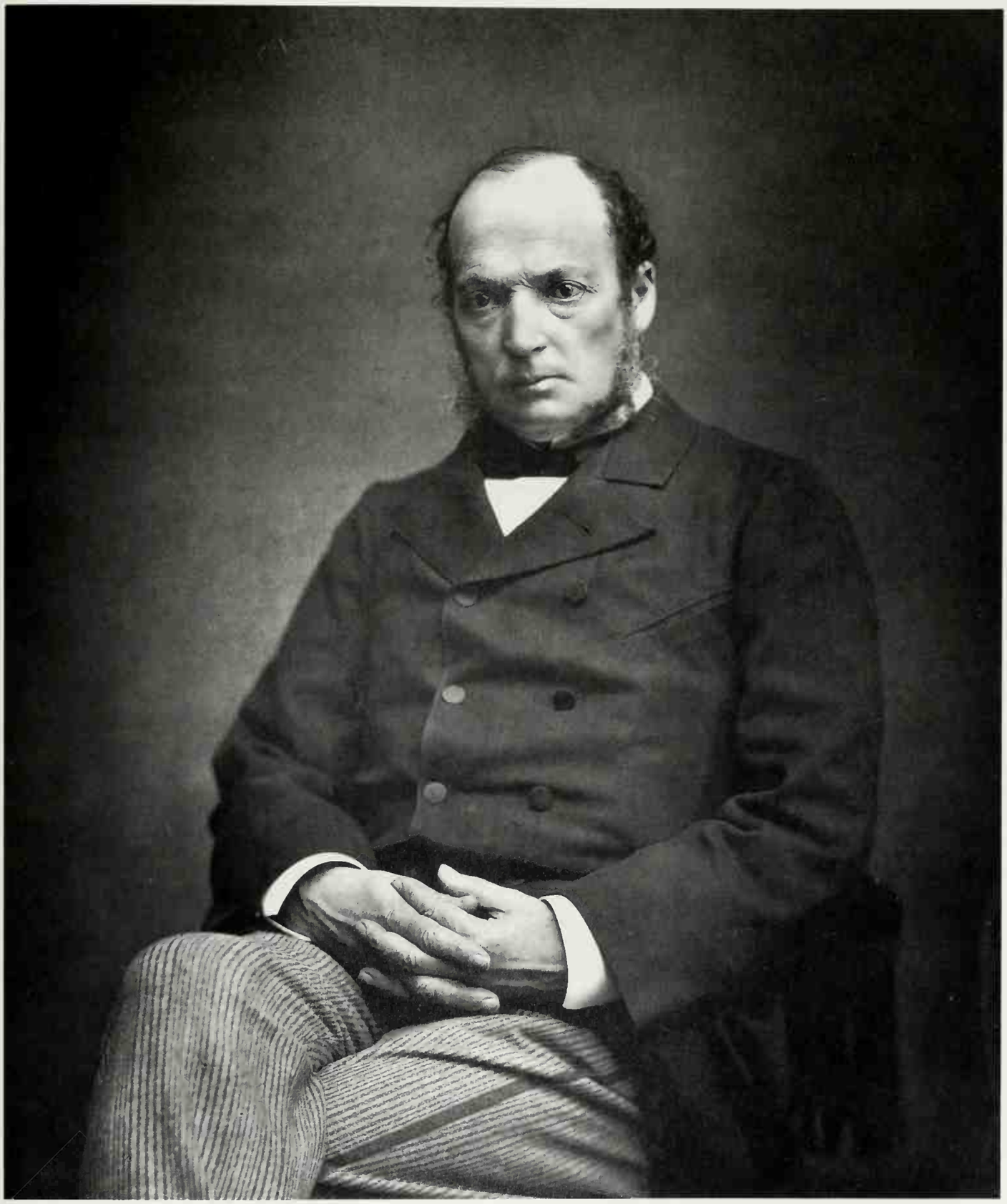
92. TOURTIN. *Sarah Bernhardt*, from *Galerie Contemporaine*, 1877. Woodburytype.
International Museum of Photography at George Eastman House, Rochester, N.Y.



93. ETIENNE CARJAT. *Charles Baudelaire*, from *Galerie Contemporaine*, 1878. Woodburytype.
International Museum of Photography at George Eastman House, Rochester, N.Y.



94. Etienne Carjat. *Victor Hugo*, from *Galerie Contemporaine*, 1876. Woodburytype. Private Collection.



95. Etienne Carjat. *Emile Louis Gustave de Marcère*, from *Galerie Contemporaine*, 1878. Woodburytype. Private Collection.

# 3.

# DOCUMENTATION: LANDSCAPE AND ARCHITECTURE

## *1839–1890*

*To represent . . . the beautiful and the sublime in nature . . . demands qualities alike of head and of heart, in rapt accordance with the Infinite Creative Spirit.*

*—Marcus Aurelius Root, 1864*[1]

*There is only one Coliseum or Pantheon; but how many millions of potential negatives have they shed,—representatives of billions of pictures,—since they were erected! Matter in large masses must always be fixed and dear; form is cheap and transportable. . . . Every conceivable object of Nature and Art will soon scale off its surface for us.*

*—Oliver Wendell Holmes, 1859*[2]

EASY OF ACCESS, generally immobile, and of acknowledged artistic appeal, landscape, nature, and architecture provided congenial subjects for the first photographers. The desire for accurate graphic transcription of scenery of all kinds—natural and constructed—had led to the perfection of the *camera obscura* in the first place, and it was precisely because exactness was so difficult even with the aid of this device that Talbot and others felt the need to experiment with the chemical fixation of reflected images. Beginning with the daguerreotype and the calotype, 19th-century scenic views evolved along several directions. They provided souvenirs for the new middle-class traveler, and brought the world into the homes of those unable to make such voyages. Photographs of natural phenomena provided botanists, explorers, geologists, and naturalists with the opportunity to study previously undocumented specimens and locations. And as scientific knowledge increased, as changing conditions of life in urban centers promoted new concepts of how to understand and represent the material world, the camera image itself became part of the shifting relationship between traditional and modern perceptions of nature and the built environment.

From the Renaissance up until the middle of the 18th century, painted landscape, with few exceptions, had been considered important mainly as a background for historical and religious events; landscape as such occupied a low position in the hierarchy of artistic subjects. With the relaxation of academic art strictures and the introduction during the Romantic era of a more sensuous depiction of nature, artists turned to a wider range of motifs from the material world. These extended from pastoral landscapes, seen from afar, to depictions of singular formations—water, skies, trees, rocks, and fruits of the field. As heirs to these evolving attitudes toward nature, photographers, armed with a device they believed would faithfully record actuality, approached the landscape with the conviction that the camera might perform a dual function—that photographs might reveal form and structure accurately and at the same time present the information in an artistically appealing fashion.

The public appetite for scenic views had a significant effect on early landscape photographs also. Through most of the 18th century, oil paintings, watercolors, engravings, and (after 1820) lithographs of topographical views (often

96. FREDERICK CATHERWOOD. *The Ruins of Palenqué, Casa No. 1*, 1841. Lithograph from *Incidents of Travel in Central America, Chiapas, and Yucatan*, vol. II, 1841, by John Lloyd Stephens. Collection George R. Rinhart.

based on drawings made with the *camera obscura* or *camera lucida*, *see A Short Technical History, Part I*) had become increasingly popular. The landscape or view photograph was welcomed not only because it was a logical extension of this genre, but also for its supposedly more faithful representation of topography, historic monuments, and exotic terrain. As an example of the overlap that came about in the wake of changing technologies, drawings made by the American explorers Frederick Catherwood and John L. Stephens of their findings on expeditions to the Yucatan peninsula *(pl. no. 96)* in 1839 and 1841 were based on unaided observation, on the use of a *camera lucida*, and on daguerreotypes the two had made. Since many views, including these, were made with publication in mind, the camera image promoted a more accurate translation from drawing to mechanically reproduced print, supplying the engraver or lithographer with detailed information at a time when inexpensive methods of transferring the photograph directly to the plate had not yet been developed.

## *Landscape Daguerreotypes*

Truthful representation of the real world without sentimentality presented itself as an important objective to many

19th-century scientists and intellectuals, including French novelist Gustave Flaubert, who held that the artist should be "omnipotent and invisible."[3] This position reflected one aspect of the positivist ideas of social philosopher Auguste Comte and others who were convinced that a scientific understanding of material reality was the key to economic and social progress. The camera image was regarded as a fitting visual means for just such an impersonal representation of nature. Nevertheless, it is difficult to determine the full extent of daguerreotyping activities with reference to views of nature, architecture, and monuments. Many plates have been lost or destroyed; others, hidden away in archives or in historical and private collections, have been surfacing in recent years, but no overall catalogs of such images exist. From the works most often seen, it seems apparent that the finely detailed daguerreotype was supremely suited to recording architectural features while somewhat less useful for pure nature. The influential British art critic John Ruskin, who in 1845 began to make his own daguerreotypes as well as to use those of others in preparing the drawings for his books on architecture, praised the verisimilitude of the daguerreotype image as "very nearly the same thing as carrying off the palace itself."[4]

Daguerreotype scenic views made on both sides of the Atlantic reveal attitudes about nature and art of which neither the photographer nor the viewer may have been aware at the time. The stark mountains and graceless buildings in an 1840 image by Samuel Bemis of a farm scene in New Hampshire *(pl. no. 97)* seem to suggest the solitary and obdurate quality of the New England countryside. Admittedly, this Boston dentist, who acquired his photographic equipment from Daguerre's agent Gouraud, was working at the very dawn of photography, when materials and processes were in a state of flux. In contrast, the harmonious landscape *(pl. no. 98)* by Alexandre Clausel, probably made near Troyes, France, in 1855, attests to not only a firmer grasp of technique but also to a greater sensitivity to the manner in which the traditional canons of landscape composition were handled.

Landscape photography evolved as a commercial enterprise with the taking of views of well-known or extraordinary natural formations for the benefit of travelers. A favorite site in the United States, Niagara Falls was daguerreotyped by Southworth and Hawes in 1845, ambrotyped as well as daguerreotyped by George Platt Babbitt in 1848, and photographed on stereographic glass plates by the Langenheim brothers in 1855. Albumen prints from collodion negatives of the Falls were made by English commercial photographers John Werge and William England in 1853 and 1859 respectively, and from dry plates by George Barker. In the Midwest, daguerreotypes of similar scenic wonders were made by Alexander Hesler and others in larger numbers than is generally appreciated today.

97. Samuel Bemis. *New Hampshire Landscape*, 1840. Daguerreotype. Collection Ken Heyman, New York.

98. Alexandre Clausel. *Landscape, Probably Near Troyes, France*, c. 1855. Daguerreotype. International Museum of Photography at George Eastman House, Rochester, N.Y.

The urban scene also was considered appropriate for the daguerreotypist. *Bridge and Boats on the Thames (pl. no. 9)* of 1851 by Baron Jean Baptiste Louis Gros typifies the incredible amount of detail made visible by this process, and indicates the way bodies of water might be used to unify sky and foreground, a solution that virtually became a formula for many landscape photographers. The drama of dark silhouette against a lighter sky, seen in Wilhelm Halffter's image of Berlin *(pl. no. 10)* demonstrates another method of treating the problem of visually unrelated rectangles of light and dark areas that the actual land- or cityscape frequently presented; this, too, became a commonplace of view photography.

Most landscape imagery was designed for a broad market—the buyers of engraved and lithographed scenes—so the problem of the nonduplicatable metal plate was solved by employing artists to translate the daguerreotype into engravings, aquatints, and lithographs. One of the first publishers of an extensive work based on daguerreotypes, Noël Marie Paymal Lerebours (an optical-instrument maker who had been associated with Daguerre's endeavors), made use of daguerreotyped scenes from Europe, the Near East, and the United States; these were either commissioned or purchased outright as material for engravings, with figures and fillips often added by artists. Among the daguerreotypists whose work appeared in Lerebours's *Excursions daguerriennes: Vues et monuments les plus remarquables du globe (Daguerrian Excursions: The World's Most Remarkable Scenes and Monuments)*, issued between 1840 and 1843, were Frédéric Goupil-Fesquet, Hector Horeau *(pl. no. 99)*, Joly de Lote-binière, and Horace Vernet, all of whom supplied views of Egypt. Daguerreotyping, it seems, had become indispensable both for travelers who could not draw and artists who did not have the time to make drawings.

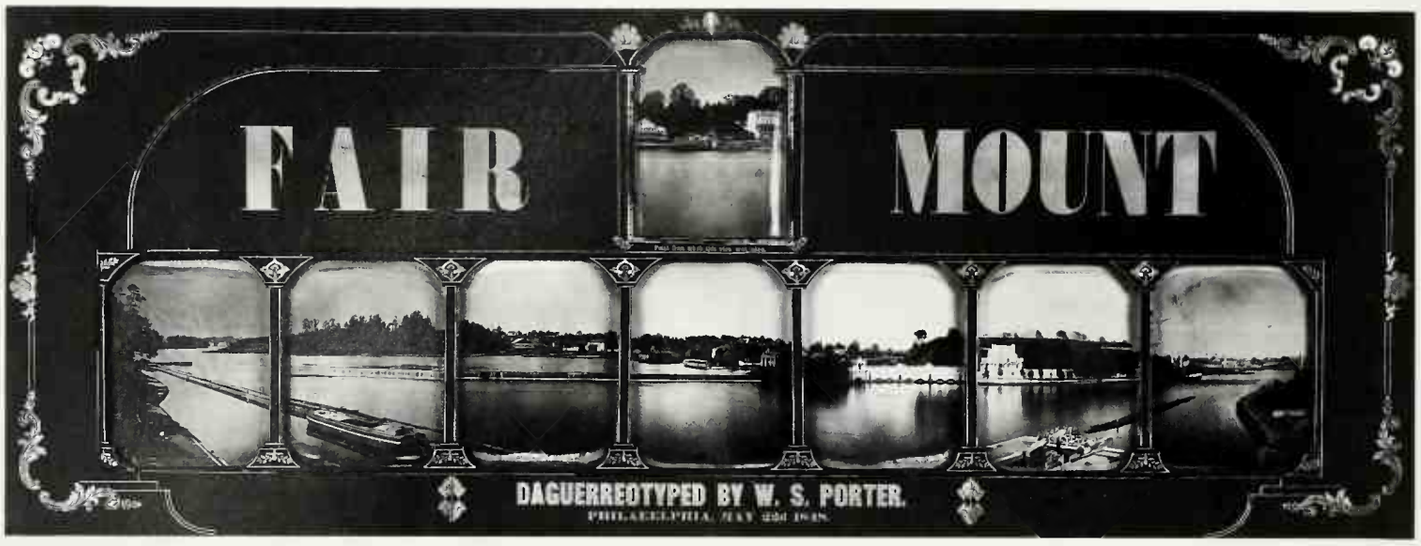
Interest in unusual scenery and structures was so strong that even though daguerreotyping in the field was not easy, a number of other similar projects were initiated in the early 1840s, generally by affluent individuals who hired guides and followed safe routes. Dr. Alexander John Ellis, a noted English philologist, was inspired by *Excursions daguerriennes* to conceive of *Italy Daguerreotyped*, comprising views of architecture engraved from full-plate daguerreotypes that he had supervised or made himself in 1840–41; the project was abandoned, although the plates still exist. The British physician Dr. George Skene Keith and a well-to-do French amateur, Joseph Philibert Girault de Prangey, took daguerreotypes, hoping to publish works on Near Eastern architecture that might show details and structure in close-ups and suggest connections between architecture and biblical history. In Switzerland, Johann Baptist Isenring, a painter and engraver turned daguerreotypist, and Franziska Möllinger, one of the early women daguerreotypists, each traveled by caravan throughout the country taking views of scenery to be engraved and published.

## *Panoramic Views*

Before giving way to the more practicable negative-positive process, the daguerreotype achieved a measure of additional popularity with respect to panoramic views—images that are much wider than they are high. It will be recalled that panoramas (and in Paris, The Diorama) with minutely rendered landscape detail were among the most popular entertainments of the early 1800s in Europe and the United States.[5] Soon after the announcement of the daguerreotype, photographers attempted to capitalize on the appetite for this kind of encompassing yet accurate visual experience. At first, series of individual daguerreotypes arranged in contiguous order to depict a wider prospect were popular, especially in the United States. There the urge to document urban development occupied photographers in virtually all major cities, as exemplified by *Fairmount Waterworks (pl. no. 100)*, a series by William Southgate Porter consisting of eight plates made in Philadelphia in 1848. Photographers throughout the nation made panoramic views of the cities in an attempt to encompass the urban growth taking place before their eyes; a 360-degree panorama of Chicago made by Alexander Hesler in 1858 was possibly the first such effort. Wilderness landscape was treated similarly by the San Francisco daguerreotypist Robert Vance and by John Wesley Jones, early American daguerreotypists of western scenery. Jones took 1,500 views in the Rockies and the Sierra Nevada (none of which has survived) on which to base a painted panorama entitled *The Great Pantoscope*.[6]

Panoramic views also were made on single plates of extended width, achieved either by using a wide-angle lens, or by racking the camera to turn slowly in an arc

99. Hector Horeau. *Abu Simbel*, 1840. Aquatint. Collection Gérard-Lévy, Paris.




100. WILLIAM SOUTHGATE PORTER. *Fairmount Waterworks*, 1848. Daguerreotype panorama in eight plates. International Museum of Photography at George Eastman House, Rochester, N.Y.

while the plate moved laterally in the opposite direction. In 1845, Fredrich von Martens, a German printmaker living in Paris, was the first to work out the optical and mechanical adjustments necessary to make single panoramic daguerreotypes of his adopted city, then he turned to a similar format in collodion for Alpine landscapes. Indeed with the advent of the wet plate, the panorama came into its own, even though panoramas on paper had been made by the calotype process. While exposure time for the glass negative often remained long, the resulting sharply detailed segments of a scene, printed and glued together to form an encompassing view, were taken as embracing reality even though the human eye could not possibly have seen the landscape in that fashion. However, these panoramas were more realistic than the lithographed bird's-eye views that were so popular. By using panoramic cameras that rotated in an arc of approximately 120 degrees, photographers might avoid the exacting calculations needed to assure that the panels of the panorama would join properly without overlaps or missing segments, but these devices could not encompass as wide an angle as the segmented panoramas and consequently seemed less dramatic. Panoramas were produced by photographers everywhere, by the Bisson brothers, Adolphe Braun, Samuel Bourne, and many now-unknown figures in Europe, Asia, and India, and by American photographers of both urban development and western wilderness. George Robinson Fardon, William Henry Jackson, Carleton E. Watkins, and especially Eadweard Muybridge, who devoted himself to making panoramic views of San Francisco on three different occasions, were among the more successful panoramists in the United States during the collodion/albumen era *(pl. no. 165)*.

## *Landscape Calotypes*

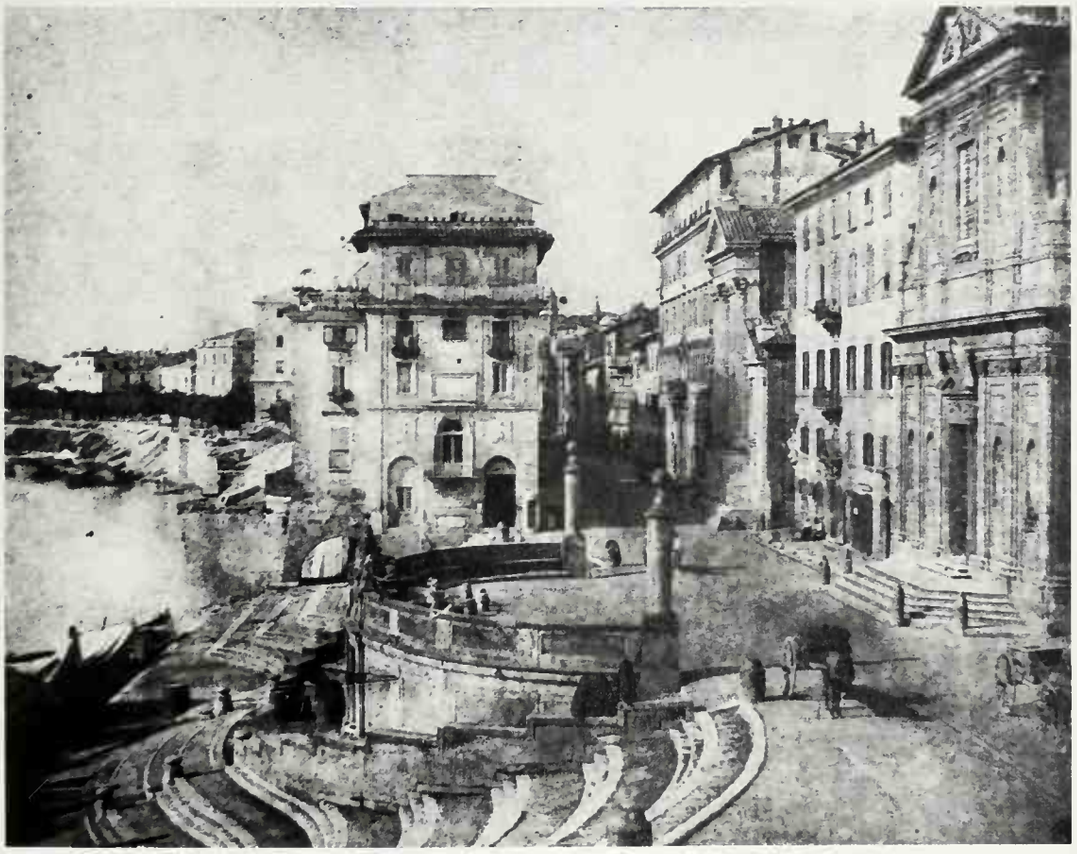
Despite unparalleled clarity of detail in landscape daguerreotypes, the difficulties in making and processing exposures in the field and the problems of viewing an image subject to reflections and of replicating the image for publication made it an inefficient technology with respect to views. From the start, the duplicatable calotype was accepted by many as a more congenial means of capturing scenery, and it achieved greater sensitivity and flexibility for this purpose after improvements had been made by Louis Désiré Blanquart-Evrard and Gustave Le Gray. Between 1841 and about 1855, when collodion on glass supplanted paper negatives entirely, calotypists documented cityscape, historic and exotic monuments, rural scenery, and the wilder, less-accessible terrains that were beginning to appeal to Europeans who had wearied of the more familiar settings. Because of their broad delineation, calotype views more nearly resembled graphic works such as aquatints, and this tended to increase their appeal to both artists and elitists in the intellectual community who preferred aesthetic objects to informational documents. Nevertheless, the calotype still had enough detail to recommend it as a basis for copying, as the British publication *The Art Union* pointed out in 1846 when it noted that painters, not being as enterprising as photographers, could depend on "sun-pictures" (calotypes) of places such as "the ruins of Babylon or the wilds of Australia"[7] for accurate views from which they could make topographical paintings.

Somewhat easier to deal with than daguerreotyping in the field, the chemistry of the early calotype still was complicated enough to make its use in travel a problem. Never-

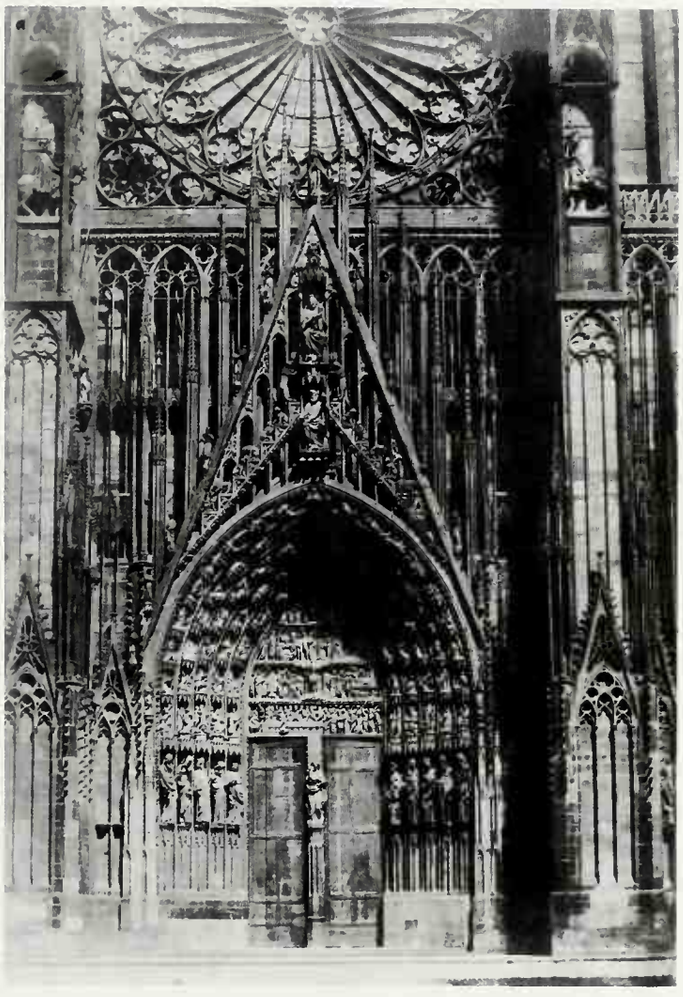
theless, a number of British amateurs (often aided by servants and local help) transported paper, chemicals, and cameras to the Continent and the Near East soon after Talbot's announcement. Three members of his circle—Calvert Jones, George W. Bridges, and Christopher Rice Mansel Talbot—were the first hardy souls to journey from Great Britain to Italy, Greece, and North Africa with calotype equipment. Through its high vantage point and pattern of light and shade, a view of the Porta della Ripetta in Rome *(pl. no. 101)* suggests that Jones (who photographed in Italy and Malta) was interested in atmospheric and artistic qualities as much as in description. Bridges, who traveled in the region for seven years, made some 1,700 pictures, which he found were subject to serious fading; a small group was published in 1858 and 1859 in an album entitled *Palestine as It Is: In a Series of Photographic Views . . . Illustrating the Bible.* Another group of calotypes of the area by Dr. Claudius Galen Wheelhouse was gathered together in an album entitled *Photographic Sketches from the Shores of the Mediterranean.* Ernest De Caranza in Anatolia, Maxime Du Camp in Egypt *(pl. no. 111)*, and Pierre Trémaux in the Sudan were others among the early figures who attempted, with varying degrees of success, to use the calotype process to photograph in North Africa and the Near East. These works were forerunners of the numerous views on paper whose appeal to the Victorian public may have been in part because they afforded a contrast between the progress visible at home and the undeveloped landscape of the region and in part because they recalled to viewers their biblical and classical heritage.

In spite of these efforts and even though Talbot placed no restrictions on the noncommercial use of calotypes, view-making did not exactly flourish in England during the first ten years of the process's existence. Instead, images of landscape and architecture achieved a pinnacle of excellence in France during the 1850s, as a result of interest by a small group of painter-photographers in an improved paper process that had evolved from experiments by Blanquart-Evrard and Le Gray. By waxing the paper negative before exposure, Le Gray achieved a transparency akin to glass, making the paper more receptive to fine detail. The spread of this improved technique in France during the early 1850s gave the calotype a new life and resulted in images of extraordinary quality. This flowering coincided with the concern among Barbizon landscape painters for capturing the quality of light and revealing the value of unspoiled nature in human experience.

The improved calotype also made conceivable the photographic campaign—government or privately sponsored commissions to produce specific images. One of the earliest was financed in 1850 by the Belgian treasury, but the most renowned, the *Missions héliographiques,* was



101. Rev. Calvert Jones. *Porta della Ripetta, Rome*, 1846. Calotype. Science Museum, London.



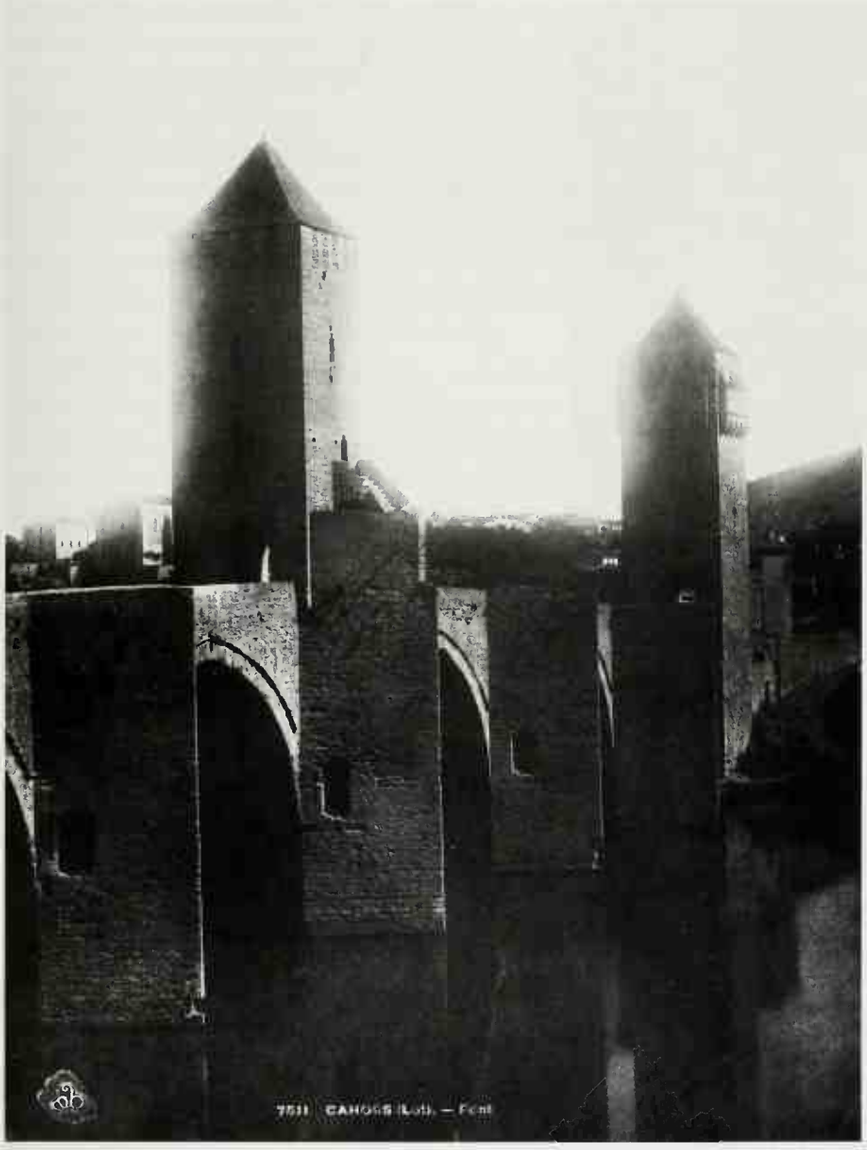
102. Henri Le Secq. *Strasbourg Cathedral*, 1851. Calotype. International Museum of Photography at George Eastman House, Rochester, N.Y.

organized in 1851 by the *Commission des Monuments historiques* (Commission on Historical Monuments) to provide a pictorial census of France's architectural patrimony. Undertaken initially during the Second Republic, in accord with continuing efforts by Napoleon III to preserve and modernize France, it involved the documentation of aged and crumbling churches, fortresses, bridges, and castles that were slated for restoration under the guidance of the architect Eugène Emmanuel Viollet-le-Duc.

The five photographers engaged in this innovative documentation were Edouard Denis Baldus, Hippolyte Bayard, Le Gray, Henri Le Secq, and O. Mestral. Photographers received itineraries and instructions, quite exact at times, detailing the localities to be photographed. Among the most accomplished of the group were Le Gray and Le Secq, both of whom had been trained as painters in the studio of Paul Delaroche (along with the British photographer Roger Fenton). Le Secq's *Strasbourg Cathedral (pl. no. 102)*, one of a series of architectural monuments, is an exhilarating organization of masses of sculptural detail. Le Gray *(see Profile)*, in whose studio many calotypists first learned the process, was a demanding technician who also was involved in making collodion negatives; his images will be discussed shortly in the context of developments in that material. Little is known of Mestral, a former daguerreotypist and an associate of Le Gray, other than that he photographed in Brittany and Normandy on his own and from the Dordogne southward in company with Le Gray. The image of the bridge Pont Valentré *(pl. no. 103)* in Cahors, included because of impending plans to restore what was then considered the finest example of medieval military architecture in France, suggests a distinctive feeling for volume and silhouette.

Unhappily, the *Missions* project never reached full fruition. Negatives—some 300—and prints were filed away without being reproduced or published, either because the project's sole aim was to establish an archive or because the photographers depicted these ancient structures in too favorable a light for the images to serve as propaganda for restoration efforts.[8] Individually, they were used by architects and masons working under Viollet-le-Duc's guidance in matching and fabricating decorative elements that had been destroyed. (More than a century later, these early photographs still proved to be useful guides in the restoration of ancient monuments.) Nevertheless, the government of France under Napoleon III continued to regard photography—whether calotype or collodion/albumen—as a tool integral to its expansive domestic and foreign programs, commissioning documentation of the countryside, the railroad lines, and of natural disasters as evidence of its concern for national programs and problems. Baldus produced about 30 large-format negatives of the flooding of the Rhône River in 1856 *(pl. no. 104)*. It is apparent from the amplitude of his vision and the sense of structure in the example seen here that no dichotomy existed in the photographer's mind between landscape art and documentation.

Not all French landscape calotypists were trained artists, nor was their work invariably commissioned. Indeed, one of the intriguing aspects of the epoch is that scientists as well as painters found the paper negative a congenial process for representing nature. Victor Regnault, director of the Sèvres porcelain factory (after 1852) and president of both the French Academy of Sciences and the *Société Française de Photographie*, had first become curious about paper photography when Talbot disclosed the process, but only pursued this interest in 1851 after improvements had been made by Blanquart-Evrard. Using the waxed-paper process, he experimented with exposure and produced a number of idyllic, mist-shrouded views of the countryside around the factory, among them *The Banks of the Seine at*

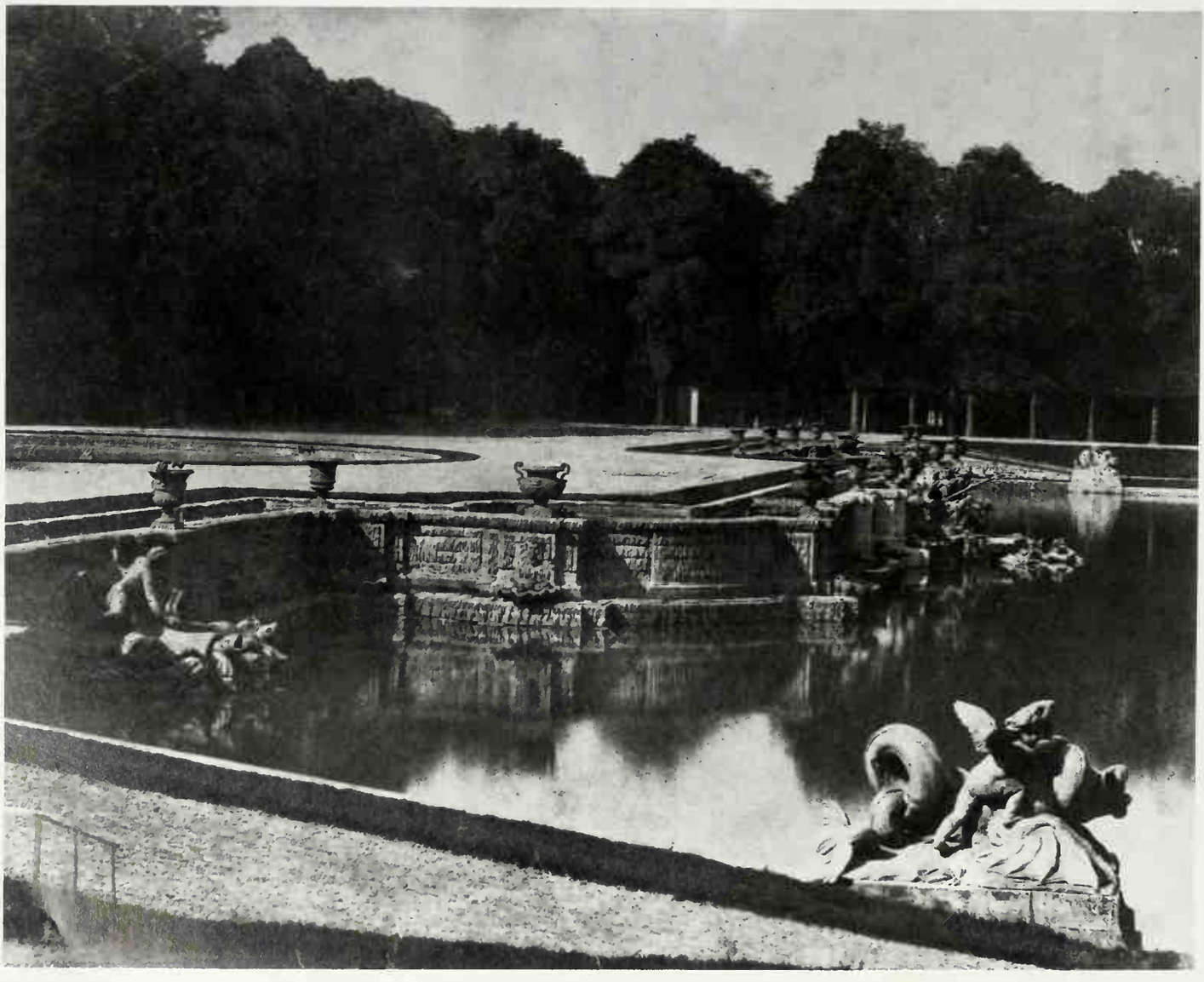



103. O. MESTRAL. *Cahors: Pont Valentré*, c. 1851. Calotype. Caisse Nationale des Monuments Historiques et des Sites, Paris. © Arch. Phot. Paris/SPADEM.

104. EDOUARD DENIS BALDUS. *The Flooding of the Rhône at Avignon*, 1856. Calotype. Caisse Nationale des Monuments Historiques et des Sites, Paris. © Arch. Phot. Paris/SPADEM.

105. VICTOR REGNAULT. *The Banks of the Seine at Sèvres*, 1851–52. Calotype. Collection André Jammes, Paris. Art Institute of Chicago.

106. LOUIS ROBERT. *Versailles, Neptune Basin*, c. 1853. Calotype. Collection André Jammes, Paris. Art Institute of Chicago.



*Sèvres (pl. no. 105)*, in which he included the everyday objects of rural existence such as casks and barrow. Louis Robert, chief of the painters and gilders at the porcelain factory, worked both at Sèvres and Versailles, using the calotype process before turning to albumen on glass; a number of his calotypes were included in Blanquart-Evrard's 1853 publication *Souvenirs de Versailles (pl. no. 106)*. These images display a sensibility that is similar to that of Barbizon painters in their lyrical approach to the homely and simple aspects and objects of nature and rural life.

British amateur photographers welcomed the improved calotype for its greater sensitivity and definition. As heirs to picturesque and topographical traditions in landscape imagery, they sought to maintain a delicate balance between affective expression and the descriptive clarity that the improved process made possible. At times, English camera images of buildings and their surroundings seem to reflect the notion put forth by contemporary writers that architectural structures have expressive physiognomies much like those of humans. For example, *Guy's Cliffe, Warwickshire (pl. no. 107)* by the English amateur Robert Henry Cheney brings to mind a melancholy spirit, a phrase used by Ruskin to describe the character of certain kinds of buildings. The most celebrated English photographer of this period, Roger Fenton (to be discussed shortly), was extravagantly praised in the British press for the marked "character" of his architectural images.

Benjamin Brecknell Turner, an English businessman who made pure landscape calotypes *(pl. no. 108)* as well as portraits and architectural views, found the paper negative so sympathetic to his vision of untrammeled nature that he continued to work with the material until 1862, long after most photographers had switched to glass plates. On the other hand, Thomas Keith, a Scottish physician, practiced the calotype for only a very few years, and then only on occasions when the quality of light enabled him to make negatives of great tonal range. Keith's interest in the expressive nature of light, inspired perhaps by his acquaintance with Hill and Adamson, is apparent in images made in 1856 on the island of Iona, among them *Doorway, St. Oran's Chapel (pl. no. 109)*, where the factual record of ancient church architecture is given unusual force by strongly accentuated illumination.

Calotyping also appealed to Englishmen who made their homes outside the British Isles, among them Maxwell Lyte and John Stewart, who lived in Pau in the Pyrenees in the 1850s. Stewart's views of the rugged terrain of this region *(pl. no. 110)*, published by Blanquart-Evrard and exhibited in England, were praised by his father-in-law Sir John Herschel for the artistic effects of their "superb combination of rock, mountain, forest and water."[9] Both Lyte and Stewart were members of the *Société Française de Photographie*. Along with Thomas Sutton, the first in Britain to use Blanquart-Evrard's process in a publishing venture, they kept open the channels of communication between the French and British regarding the latest in photochemical technology.

107. Robert Henry Cheney. *Guy's Cliffe, Warwickshire*, 1850s. Albumen print. Collection Centre Canadien d'Architecture/Canadian Centre for Architecture, Montréal.

108. Benjamin Brecknell Turner. *Old Willows*, c. 1856. Waxed paper negative. Collection André Jammes, Paris. Art Institute of Chicago.

French and British imperial interest in the countries of the Near East, Egypt in particular, continued to lure photographers using paper (and later glass) negatives into these regions. In 1849, the wealthy French journalist

109. THOMAS KEITH. *Doorway, St. Oran's Chapel, Iona*, 1856. Calotype. Thomas Keith Collection, Edinburgh City Libraries. © Iona Cathedral Trust.

Maxime Du Camp, accompanied by the young Flaubert, was sent on an official photographic mission to Egypt. Trained by Le Gray and equipped with calotyping apparatus "for the purpose of securing, along the way, and with the aid of this marvelous means of reproduction, views of monuments and copies of inscriptions," Du Camp also was expected to make facsimile casts of hieroglyphic inscriptions.[10] The calotypes, printed in 1852 by Blanquart-Evrard for his first publication, *Egypte, Nubie, Palestine et Syrie*,[11] display a concern for establishing accurate scale, as seen in the human yardstick provided by a native assistant in *The Colossus of Abu Simbel (pl. no. 111)*, but they also demonstrate the definition and clarity that the improved calotype made possible.

Five years later, the amateur French archaeologist Auguste Salzmann briefly used the calotype with similar authority to make documents of architectural ruins in Jerusalem in order to "render a service to science"[12] and to help solve a controversy about the antiquity of the monuments. Working with an assistant, Salzmann was able to produce about 150 paper negatives under difficult circumstances; these, too, were printed at the Blanquart-Evrard establishment at Lille. In addition to an avowed scientific aim, images such as *Jerusalem, Islamic Fountain (pl. no. 112)* indicate the photographer's mastery of composition and sensitivity to the effects of light. The work of both Du Camp and Salzmann indicates that in the hands of imaginative individuals the camera image might develop a unique aesthetic, an ability to handle volume and light in an evocative manner while also documenting actuality.

## *Landscapes in Collodion/Albumen*

The new collodion technology, discovered and publicized by Archer in 1850 and 1851, forced landscape photographers and documentarians operating in the field to transport an entire darkroom—tent, trays, scales, chemicals, and even distilled water—besides cameras and glass plates *(pl. nos. 113 and 114)*. It may seem astonishing today that, under such circumstances, this technique should have been considered an improvement over the calotype, which also was somewhat more sensitive to natural tonalities and had greater range. But paper negatives required time-consuming skills for complete realization. With the promise of sharper and more predictable results in less time, the glass negative with its coating of collodion and silver-iodide preempted all other processes for the next 30 years. Together with the albumen print, which retained the sharpness of the image because the printing paper was also coated with an emulsion, collodion made the mechanization of the landscape view possible, turning the scenic landscape into an item of consumption, and landscape photography into photo-business.

Limitations in the sensitivity of the collodion material itself were responsible for evoking contradictory aesthetic attitudes about images made from glass plates. Because of the limited responsiveness of silver-iodide to the colors of spectral light other than blue (and ultraviolet radiation), landscape images that displayed blank white skies and dark, relatively undifferentiated foregrounds were not uncommon. While commercial publishers seem not to have been unduly disturbed, this characteristic was decried by Lady Elizabeth Eastlake, one of the first serious English critics of photography. Writing in the *Quarterly Review* in 1857, she observed, "If the sky be given, therefore, the landscape remains black and underdone; if the landscape be rendered, the impatient action of light has burnt out all cloud form in one blaze of white."[13] She added that the collodion landscape photograph was unable to represent the tonal gradations that the eye accepts as denoting spatial recession, and that by its combined lack of atmosphere and too great precision, the image showed both too little and too much. Among others who objected to the lack of realism in the extreme contrast between dark and light areas in landscape photographs was Hermann Wilhelm Vogel, an influential German photographer, critic, and photo-chemical researcher, whose opinions appeared frequently in American periodicals during the 1860s and '70s, and who was successful in his efforts to improve the sensitivity of the silver halides to the various colors of light.

Photographers concerned with artistic landscapes avoided these problems with what was called "artifice." This involved using masks and combining two negatives on the same print—one for the sky and one for the ground—or employing hand-manipulations to remove unattractive mottled and gray areas. *Valley of the Huisne (pl. no. 115)* by Camille Silvy, praised as a "gem" when exhibited in 1858, exemplifies the possibilities of this technique for creating scenes that a contemporary critic characterized as "rich in exquisite and varied detail, with broad shadows stealing over the whole."[14] Le Gray, whose role in paper photography has been noted, used double printing in a number of collodion seascapes made at Sète (Cette) *(pl. no. 116)* around 1856—works similar in theme and style to seascapes painted by French artists Eugène Delacroix and Gustave Courbet at about the same time. Less traditionally picturesque than Silvy's scene, Le Gray transformed clouds, sea, and rocks into an evocative arrangement of volume and light, into an "abstraction called art," in today's language.[15] That composite landscapes of this period could be and often were unconvincingly pieced together is apparent from contemporary criticism that complained of pictures with clouds that were not reflected in the water or of foregrounds taken in early morning joined to skies taken at noon.

In Europe, where landscape views were considered souvenirs for travelers and restoratives for businessmen

110. JOHN STEWART. *Passage in the Pyrenees*, n.d. Calotype. Royal Scottish Academy, Edinburgh.

III. MAXIME DU CAMP. *The Colossus of Abu Simbel*, c. 1850. Calotype. Victoria and Albert Museum, London.

112. AUGUSTE SALZMANN. *Jerusalem, Islamic Fountain*, 1854. Calotype. National Gallery of Canada, Ottawa.

tied to the city, hundreds of thousands of scenes on albumen paper were turned out to be sold and pasted into albums or used in stereograph viewers. To satisfy this market, freelance photographers were dispatched around the globe by enterprising publishers, or they set up their own view-making businesses. Others, John Henry Parke among them, photographed to create accurate archaeological records. As a consequence, artistic effects were not usually considered of primary import in images intended to present information palatably. For example, Francis Frith and George Washington Wilson, to name two prominent publishers of landscape views for a mass audience, embraced artistic considerations insofar as they contributed to producing agreeable compositions. They aimed for the best vantage point and most harmonious tonalities but avoided expressive or dramatic effects of light and shadow such as had greatly delighted Keith, Salzmann, Baldus, and Le Gray. As Wilson noted, he had to "study the popular taste . . . and not only to get a pleasing picture of a place, but one also that can be recognized by the public."[16] Besides promoting a style that might be called "straight," this mass consumption of images had a profound if not always determinable effect on the viewing public, in that photographic evidence was considered synonymous with truth and the image as a substitute for firsthand experience.[17]

The government of Napoleon III, which had promoted the calotype as a means of documenting both scientific progress and royal patronage, continued to regard collodion images in the same light. What at first glance may

113–114. UNKNOWN. *European-style Portable Darkroom Tent*, 1877. Wood engravings from *A History and Handbook of Photography*, edited by J. Thompson, 1877. Metropolitan Museum of Art, New York; gift of Spencer Bickerton, 1938.

115. CAMILLE SILVY. *Valley of the Huisne, France*, 1858. Albumen print. Victoria and Albert Museum, London.

seem to be landscape pure and simple, such as views taken in the Alps by the Bisson brothers, was motivated by the Imperial desire to celebrate territorial acquisition—in this case the ceding to France of Nice and Savoy by the Kingdom of Sardinia. During the collodion era, the Bissons had rapidly extended their range of subjects to embrace art reproductions, architecture, and landscapes, often in very large format. *Passage des Echelles (pl. no. 117)*, one of the six views made by Auguste-Rosalie as a participant in the second scaling of Mont Blanc in 1862, integrates the description of distinctive geological formations with a classical approach to composition, achieving in its balance of forms and tonalities a work of unusually expressive power. A similar evocation of solitary nature unaltered by human effort can be seen in *Gorge of the Tamine (pl. no. 118)* by Charles Soulier, a professional view-maker who is better known for his urbane Paris scenes than for Alpine landscapes. In view of steadily encroaching urbanization, these images suggest a public nostalgia for virgin nature that will be encountered again, more forcefully, in camera images of the American wilderness during the 1860s and '70s.

Scenic views found an avid entrepreneur as well as photographer in Adolphe Braun. With studios in both Paris and Alsace, he was not only a prolific view-maker, but a large-scale publisher who supplied prints in a variety of formats—stereoscope to panoramic—to subscribers in England, France, Germany, and the United States. Responding to the imperial desire to make Alsatians aware of their French heritage, Braun first photographed the landscape and monuments of this province and then went on to make more than 4,000 images of Alpine, Black Forest, and Vosges mountain scenery, eventually printing in carbon instead of albumen in order to insure print stability. Braun's views, of which *Lake Steamers at Winter Mooring, Switzerland (pl. no. 119)* is an outstanding example, display a skillful blend of information and artistry but also present the landscape as accessible by the inclusion of human figures or structures.

England, too, had landscapists with an authentic respect for what the collodion process could accomplish, but government patronage was limited to royal acclaim and, at times, purchase of individual images by members of the royal family, with documentations of the countryside and historical monuments initiated by photographers them-

selves or by private publishers rather than by the state. Fenton, the commanding figure in English photography before his retirement in 1862, had made calotypes of architectural monuments in Russia in 1852. He changed to collodion in 1853, and after his return from the Crimean War *(see Chapter 4)*, he had another traveling darkroom constructed to facilitate making views of rugged rocks, mountain gorges, waterfalls, and ruins—romantic themes to which the British turned as industrialization advanced. Contemporary critics on both sides of the Channel considered his landscapes to have reached the heights to which camera images could aspire, especially with respect to capturing atmosphere and a sense of aerial perspective. However, because Fenton refused to combine negatives or do handwork, images with strong geometric pattern, such as *The Terrace and Park, Harewood House (pl. no. 120)*, were criticized as offensive.[18] A number of Fenton's landscapes were published as stereographs in *The Stereoscopic Magazine (see below)*, as photoengravings in *Photographic Art Treasures*, and as albumen prints in albums and books devoted to native landscape—these being the forms in which scenic images found an audience in the 1850s and '60s.

Albumen prints became popular as book illustration between 1855 and 1885 when, it is believed, more than a thousand albums and books, sponsored by private organizations and public personalities, were published, mainly in England, Scotland, France, India, and the United States.[19] Original photographs provided artistic, biographical, historical, and scientific illustration as well as topographical images to supplement and enhance texts on a wide variety of subjects. Even the small, relatively undetailed stereograph view was considered appropriate to illustrate scientific and travel books; one of the first to use the double image in this manner was C. Piazzi Smyth's *Teneriffe*,

116. Gustave Le Gray. *Brig Upon the Water*, 1856. Albumen. Albumen print. Victoria and Albert Museum, London.

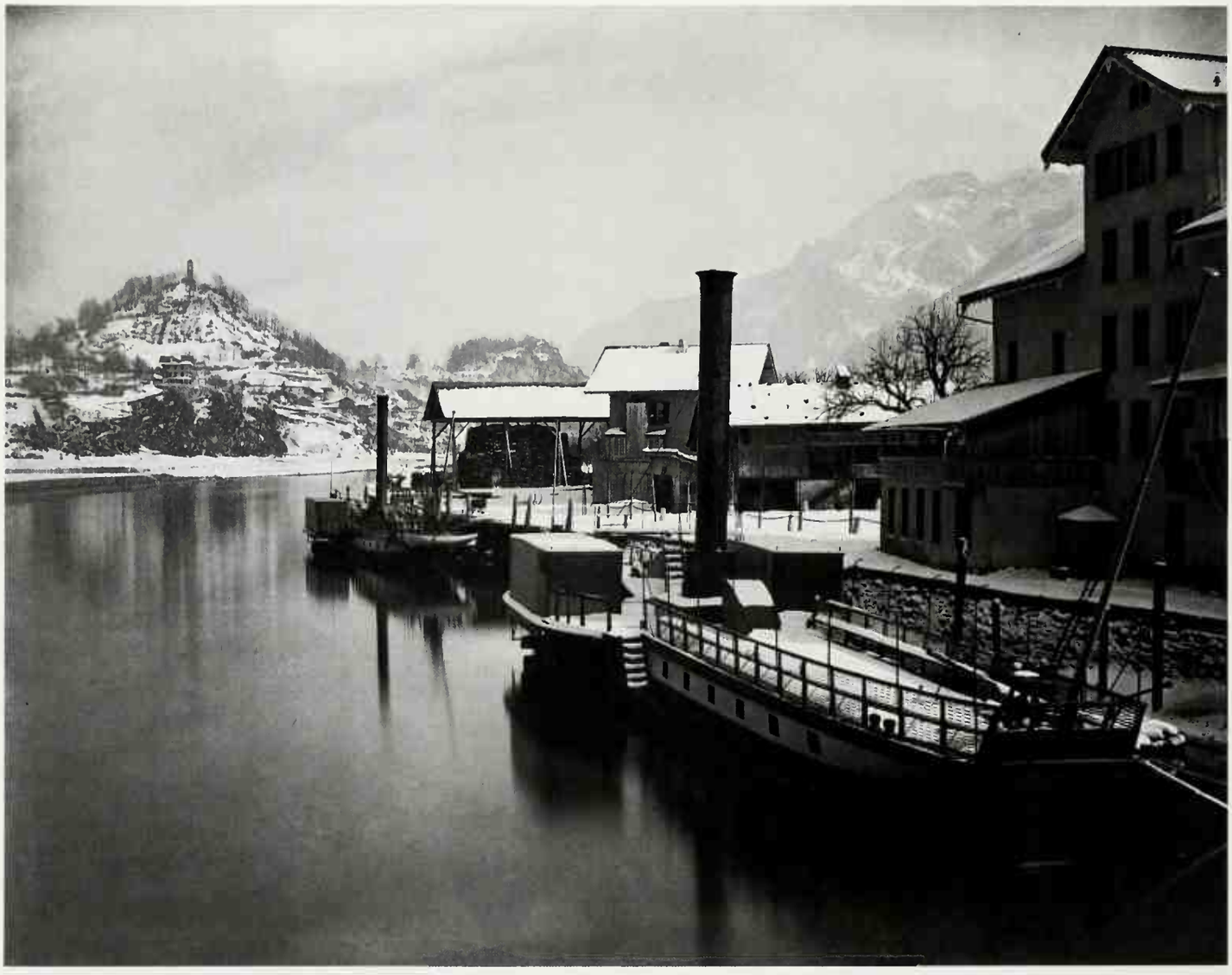
117. Auguste-Rosalie Bisson. *Passage des Echelles (Ascent of Mt. Blanc)*, 1862. Albumen print. Bibliothèque Nationale, Paris.

which appeared in 1858 with 18 stereograph views of the barren island landscape where Smyth and his party conducted astronomical experiments. It was soon followed by *The Stereoscopic Magazine*, a monthly publication that lasted five years and included still lifes and land- and cityscape stereographs. The success of illustration with photographic prints of any kind may be ascribed to their fidelity and cheapness and to the relative rapidity with which paper prints could be glued into the publication, while the decline of this practice was the result of even more efficient photomechanical methods that made possible the printing of text and image at the same time.

Wales and Scotland provided other English photographers besides Fenton with localities for wilderness images, among them Francis Bedford who made *Glas Pwil Cascade (pl. no. 122)* in 1865. In common with many landscapists of the period, Bedford issued stereographs as well as larger-format views because they were inexpensive and in popular demand. However, it was the Scottish photographer Wilson, probably the most successful of the view publishers, who is believed to have had the world's largest stock of scenic images in the 1880s *(pl. no. 121)*. Interested also in instantaneous pictures *(see Chapter 6)*, Wilson noted that "considerable watching and waiting is necessary before the effect turns up which is both capable and worthy of being taken."[20] Using a tent darkroom in the field to prepare the exposures, this meticulous former portrait painter employed over 30 assistants in his Aberdeen printing establishment to carefully wash and gold-tone the prints in order to remove all chemical residue. As a consequence, Wilson albumen prints are of greater richness and stability than was usual for the era. Other British landscapists of the collodion era included Frith *(see below)*, William England, and James Valentine whose successful enterprise in Dundee, Scotland, turned out views similar to those by Wilson. While competently composed and well-produced, the absence of atmosphere and feeling in commercial views were contributing factors in the endeavors that began in the 1870s to fashion a new aesthetic for landscape photography.

Similar ideas about landscape motivated German viewmakers of the 1850s and '60s. Outstanding calotype views had been made in the early 1850s by Franz Hanfstaengl and Hermann Krone, before these individuals changed to collodion. Krone, the more versatile of the two, who advertised his *Photographisches Institut* in Dresden as a source for

118. CHARLES SOULIER. *Gorge of the Tamine*, c. 1865. Albumen print. Collection Gérard-Lévy, Paris.

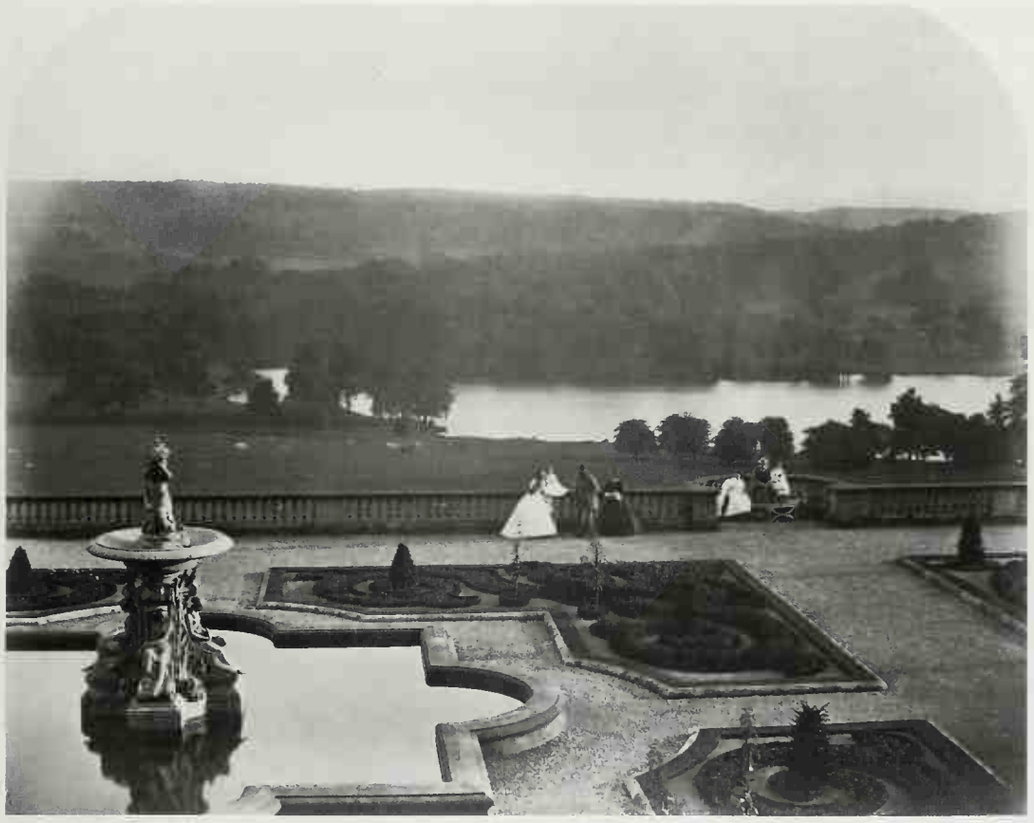


119. ADOLPHE BRAUN. *Lake Steamers at Winter Mooring, Switzerland*, c. 1865.
Carbon print. J. Paul Getty Museum, Los Angeles.

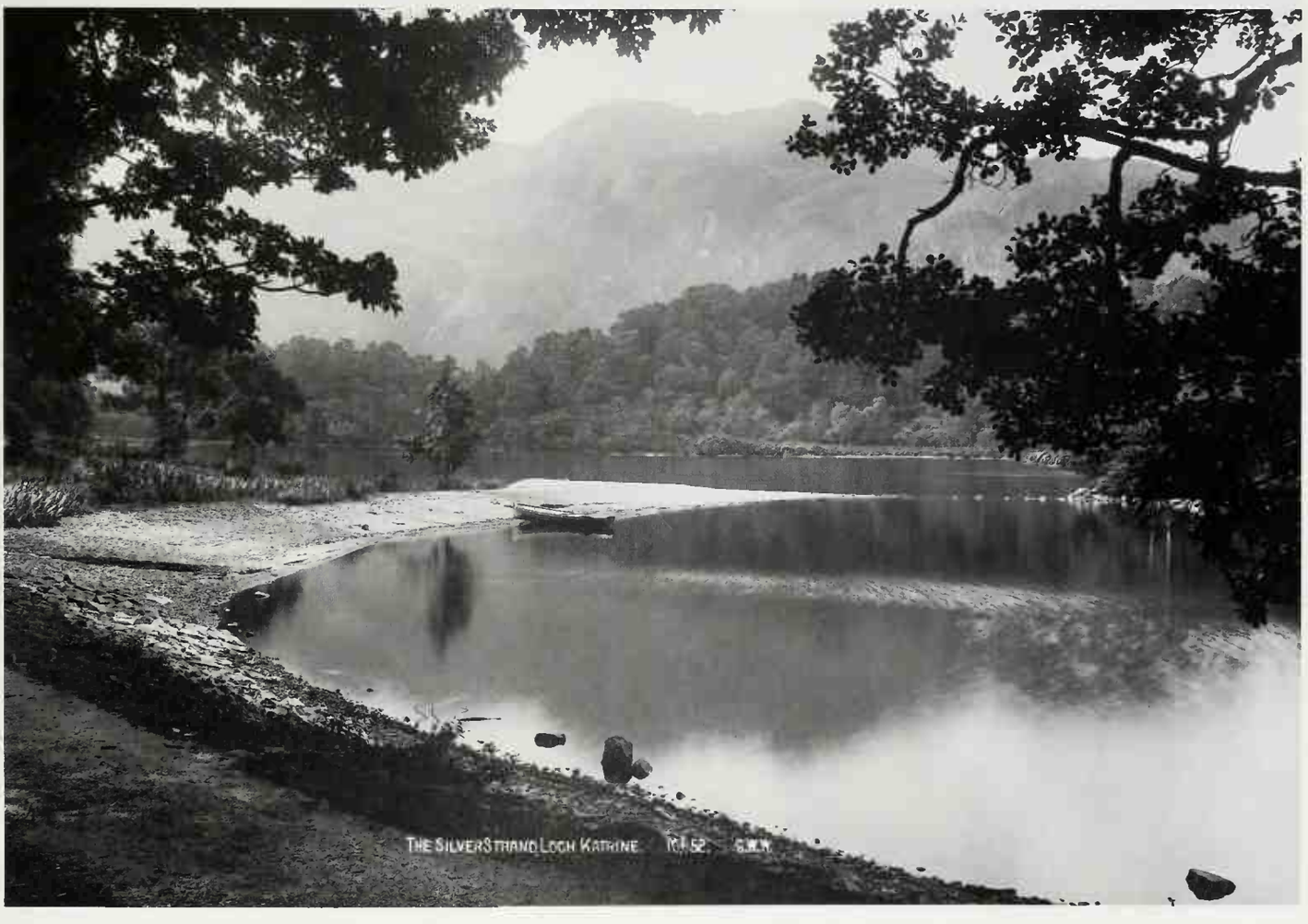
scenic views and stereographs as well as portraits, was commissioned by the crown to produce views of the countryside and cityscape throughout Saxony, which resulted in the appearance in 1872 of his *Koenigs-Album der Stadte Sachsens (King's Album of Saxon Cities)* to celebrate the golden wedding anniversary of the rulers of Saxony. Though less idealized than some, these views of Dresden and its natural environs, exemplified by *Waterfall in Saxon Switzerland (pl. no. 123)*, still reflect the romantic attitude of the view painters of the early 19th century. Romanticism also suffuses *Bridge Near King's Monument (pl. no. 124)*, an 1866 image by Vogel, but the focus of this work is light and not locality. In a still different vein, studies of forest foliage and trees *(pl. no. 125)* made in the mid- to late-1860s and typified by the work of Gerd Volkerling suggest the influence of the Barbizon style of naturalism.

Landscape photography developed in the Scandinavian countries in the 1860s and '70s in response to the tourism that brought affluent British and German travelers to the rocky coasts of this region in search of untamed nature. Photographers Marcus Selmer of Denmark, Axel Lindahl and Per Adolf Thören of Sweden, and the Norwegians Hans Abel, Knud Knudsen, and Martin Skøien, all supplied good souvenir images to voyagers who, there as elsewhere, wished to individualize their recollections with picturesque travel images. The most dramatic of these views—the mist-shrouded mountains and tormented ice and rock formations *(pl. no. 126)* captured by Knudsen during his 35 or so years as an outstanding scenic photographer—reflect the prominent influence of the German Romantic style of landscape painting in that they not only serve as remembrances of places visited but encapsulate a sense of the sublime.

Landscape photographs of Italy were made almost

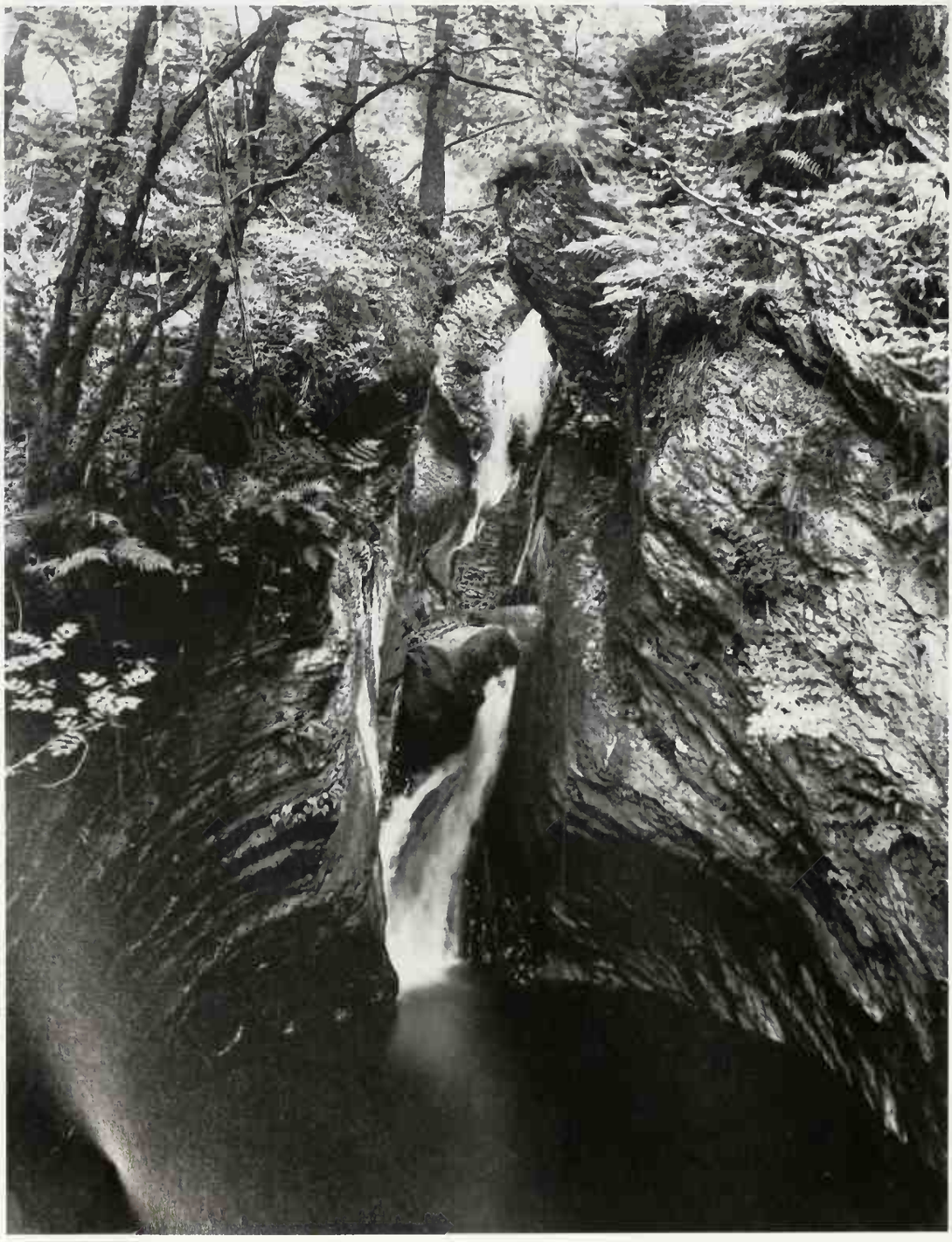


120. Roger Fenton. *The Terrace and Park, Harewood House*, 1861. Albumen print. Royal Photographic Society, Bath, England.




121. George Washington Wilson. *The Silver Strand, Loch Katrine*, c. 1875–80. Albumen print. George Washington Wilson Collection, Aberdeen University Library.

exclusively as tourist souvenirs. A continuing stream of travelers from northern Europe and the United States ensured an income for a group of excellent foreign and Italian photographers. Here, especially, the romantic taste for ruins was easily indulged, with most images including at least a piece of ancient sculpture, building, or garden. As photography historian Robert Sobieszek has pointed out, because Italy was seen as the home of civilization, early photographers were able to infuse their views with a sense of the romantic past at almost every turn.[21] In *Grotto of Neptune, Tivoli (pl. no. 127)*, taken in the early 1860s, Robert MacPherson, a Scottish physician who set himself up as an art dealer in Rome, captured the strong shadows that suggest unfathomable and ancient mysteries while fashioning an almost abstract pattern of tonalities and textures. Interest in romantic effects is apparent also in *Night View of the Roman Forum (pl. no. 128)* by Gioacchino Altobelli, a native Roman who at times collaborated with his countryman Pompeo Molins on scenic views. Altobelli, later employed by the Italian Railroad Company, was considered by contemporaries to be especially adept at combining negatives to recreate the sense of moonlight on the ruins—a popular



122. Francis Bedford. *Glas Pwll Cascade (Llynnau Llyfnant Valley)*, 1865. Albumen print. National Gallery of Canada, Ottawa.

123. HERMANN KRONE. *Waterfall in Saxon Switzerland*, 1857. Albumen print. Deutsches Museum, Munich.

124. HERMANN VOGEL. *Bridge near King's Monument*, 1866. Albumen print. Agfa-Gevaert Foto-Historama, Cologne, Germany.

image because of the touristic tradition of visiting Roman ruins by night.

The best known by far of the Italian view-makers were the Brogi family and the Alinari brothers; the latter established a studio in Florence that is still in existence. Like Braun in France, the Alinari ran a mass-production photographic publishing business specializing in art reproductions, but their stock also included images of fruit and flowers and views of famous monuments and structures in Rome and Florence. In the south, Giorgio Sommer, of German origin, began a similar but smaller operation in Naples in 1857, providing genre scenes as well as landscapes. In Venice, tourist views were supplied by Carlo Ponti, an optical-instrument maker of fine artistic sensitivity that is apparent in *San Giorgio Maggiore Seen from the Ducal Palace (pl. no. 129)*, made in the early 1870s. Given the long tradition in Italy of *vedute*—small-scale topographical scenes—it is not surprising that camera views of such subject matter should so easily have become accomplished and accepted.

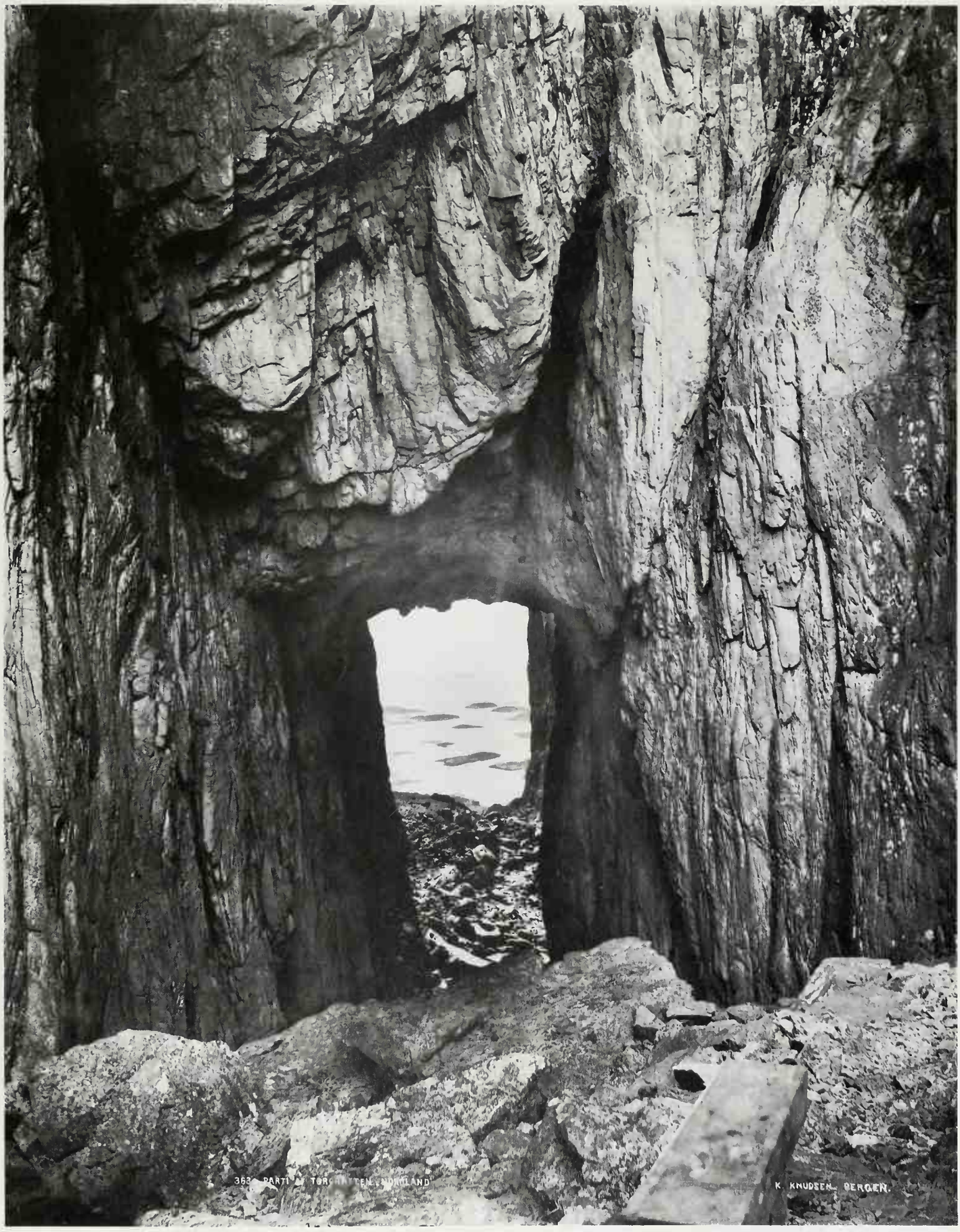
Other European nations on the Mediterranean such as Spain and Greece, while renowned for scenic beauty and ruins, were not documented with nearly the same enterprise as Italy, probably because they were outside the itineraries of many 19th-century travelers. The best-known photographs of Spain were made by Charles Clifford, an expatriate Englishman living in Madrid, who was court photographer to Queen Isabella II. Working also in other cities than the capital, Clifford photographed art treasures as well as landscapes and architectural subjects; his view *The Court of the Alhambra in Granada (pl. no. 130)* suggests a sense of sunlit quietude while still capturing the extraordinary richness of the interior carving. As one might anticipate, views of Greece, particularly the Acropolis, were somewhat more common than of Spain and also more commonplace. Photographed by native and foreign photographers, the most evocative are by James Robertson, Jean Walther, and William Stillman, an American associated with the British Pre-Raphaelites who had turned to photography as a result of disappointment with his painting. Stillman's images, published in 1870 as *The Acropolis of Athens Illustrated Picturesquely and Architecturally (pl. no. 131)*, were printed by the carbon process, which in England was called Autotype.

125. GERD VOLKERLING. *Oak Trees in Dessau*, 1867. Albumen print. Agfa-Gevaert Foto-Historama, Cologne, Germany.

## *Landscape Photography in the Near East and the Orient*

Tourists were the main consumers of the views of Italy, but armchair travelers bought scenes from other parts of the world in the hope of obtaining a true record, "far beyond anything that is in the power of the most accomplished artist to transfer to his canvas."[22] These words express the ambitious goal that Frith set for himself when he departed on his first trip to the Nile Valley in 1856. Before 1860, he made two further journeys, extending his picture-taking to Palestine and Syria and up the Nile beyond the fifth cataract *(pl. no. 132)*. In addition to photographing, he wrote voluminously on the difficulties of the project, especially owing to the climate, commenting on the "smothering little tent" and the collodion fizzing—boiling up over the glass—as well as on the sights in which he delighted—temples, sphinxes, pyramids, tombs, and rock carvings.

Frith's discussion of the compositional problems of view photography throws light on an aspect of 19th-century landscape practice often ignored. This was "the difficulty of getting a view satisfactorily in the camera: foregrounds are especially perverse; distance too near or too far; the falling away of the ground; the intervention of some brick




126. Knud Knudsen. *Torghatten, Nordland,* c. 1885. Albumen print. Picture Collection, Bergen University Library, Bergen, Norway.

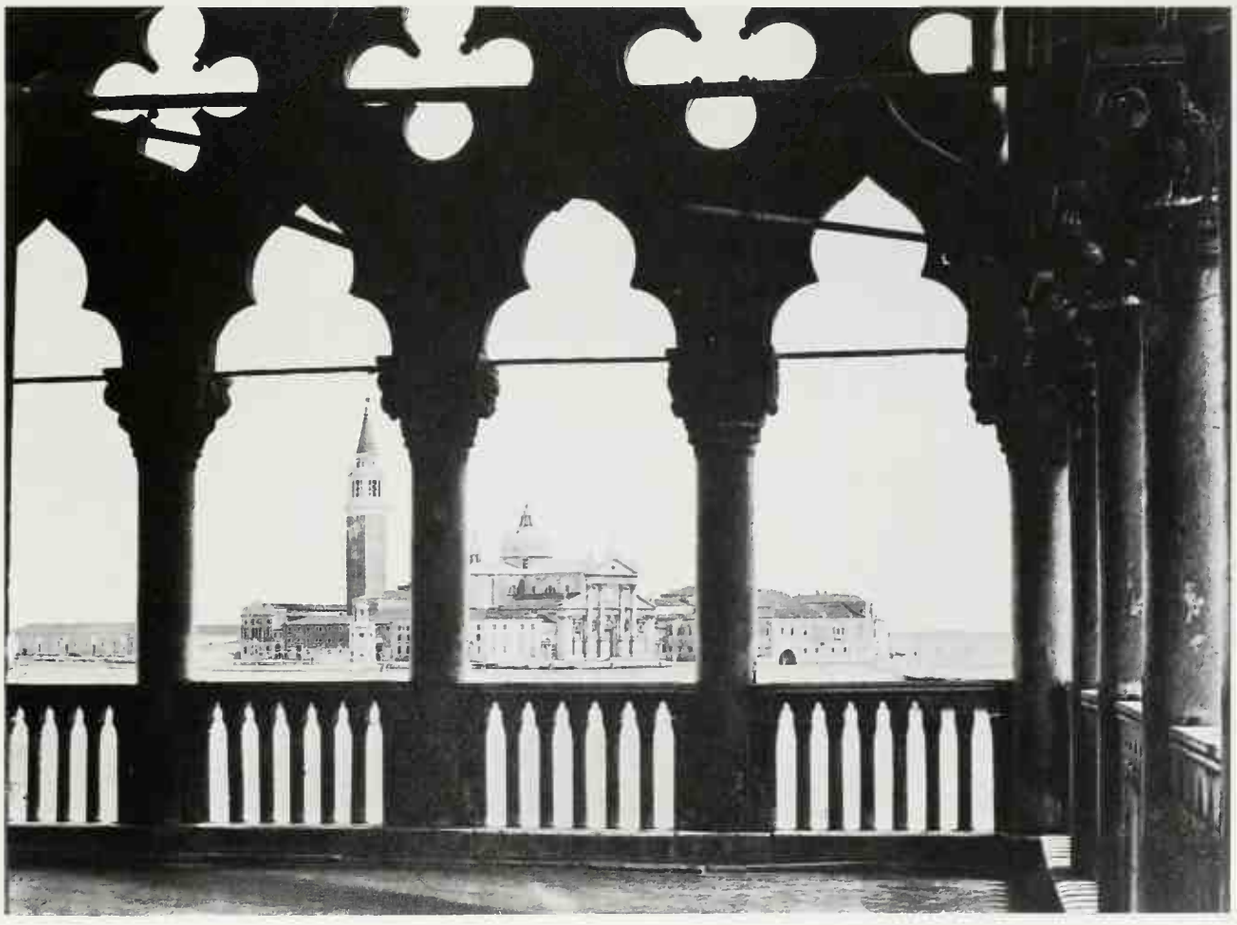
127. ROBERT MACPHERSON. *Grotto of Neptune, Tivoli,* 1861. Albumen print. J. Paul Getty Museum, Los Angeles.

RIGHT ABOVE:

128. GIOACCHINO ALTOBELLI. *Night View of the Roman Forum,* 1865–75. Albumen print. International Museum of Photography at George Eastman House, Rochester, N.Y.

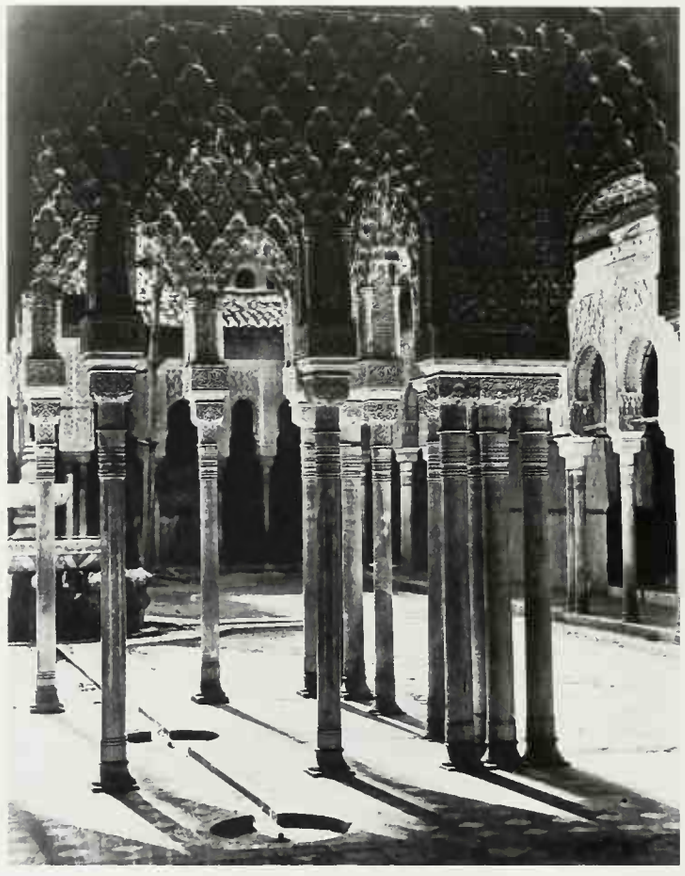
RIGHT BELOW:

129. CARLO PONTI. *San Giorgio Maggiore Seen from the Ducal Palace,* 1870s. Albumen print. Smith College Museum of Art, Northampton, Mass.



wall or other common object. . . . Oh what pictures we would make if we could command our points of view."[23] While Frith undoubtedly had traditional painting concepts in mind when he wrote this, images such as *Approach to Philae (pl. no. 133)* show that he was capable of finding refreshing photographic solutions to these problems. The Egyptian and Near Eastern views were published by Frith himself and by others in a variety of sizes, formats, and in a number of different volumes, some in large editions. The most ambitious, *Egypt and Palestine Photographed and Described*,[24] had a significant effect on British perceptions of Egypt, as Frith had hoped it would, because the photographer, in addition to sensing the money-making possibilities of the locality, had voiced the belief that British policy-makers should wake up to the pronounced French influence in North Africa.

Some 40 photographers, male and female, from European countries and the United States, are known to have been attracted to the Near East before 1880, among them Bedford, who accompanied the Prince of Wales in 1862, the Vicomte of Banville, Antonio Beato, Félice Beato, Felix and Marie Bonfils, Wilhelm Von Herford, and James Robertson. Studios owned by local photographers also sprang up. Due to the superficial similarities of subject and identical surnames, for many years the two Beatos, Antonio and Félice, were thought to be the same individual, com-



130. CHARLES CLIFFORD. *The Court of the Alhambra in Granada*, c. 1856. Albumen print. J. Paul Getty Museum, Los Angeles.

131. WILLIAM STILLMAN. *Interior of the Parthenon from the Western Gate*, 1869. Carbon print. Photograph Collection, New York Public Library, Astor, Lenox, and Tilden Foundations.

132. FRANCIS FRITH (?). *Traveller's Boat at Ibrim*, c. 1859. Albumen print. Francis Frith Collection, Andover, England.

133. FRANCIS FRITH. *Approach to Philae*, c. 1858. Albumen print. Stuart Collection, New York Public Library, Astor, Lenox, and Tilden Foundations.

134. Felix Bonfils, or family. *Dead Sea, A View of the Expanse*, 1860–90. Albumen print. Semitic Museum, Harvard University, Cambridge, Mass.

muting heroically between the Near and Far East, but now it is known that Antonio was the proprietor of an Egyptian firm based in Luxor that produced thousands of tourist images after 1862, among them this view of the interior of the Temple of Horus at Edfu *(pl. no. 135)*, while his brother, after a brief visit to Egypt with Robertson, was responsible for photographic activities in India and the Orient.[25]

The Bonfils family enterprise, operating from Beirut where they had moved from France in 1867, is typical of the second generation of Near East photographers. In a letter to the *Société Française de Photographie* in 1871, Bonfils reported that he had a stock of 591 negatives, 15,000 prints, and 9,000 stereographic views, all intended for an augmented tourist trade. Because the business was handed down from generation to generation, and stocks of photographs were acquired from one firm by another, there is no way of deciding exactly from whose hand images such as *Dead Sea, A View of the Expanse (pl. no. 134)* actually comes. Furthermore, by the 1880s, scenic views of the region and its monuments had lost the freshness and vitality that had informed earlier images, resulting in the trivialization of the genre even though a great number of photographers continued to work in the area.

Photographers working with paper and collodion began to penetrate into India and the Far East toward the end of the 1850s, but providing images for tourists was not their only goal. In India, photography was considered a documentary tool with which to describe to the mother country the exotic and mysterious landscape, customs, and people of a subject land; as such it was supported by the British military and ruling establishment. Dr. John McCosh and Captain Linnaeus Tripe were the first to calotype monuments and scenery, the latter producing prize-winning views that were considered "very Indian in their character and picturesquely selected."[26] As a consequence of imperialistic interest, a spate of photographically illustrated books and albums issued from both commercial and military photographers during the 1860s and '70s, with illustrations by Félice Beato, P. A. Johnston, and W. H. Pigou. Samuel Bourne, the most prominent landscapist working in collodion in India, was a partner with Charles Shepherd in the commercial firm of Bourne and Shepherd, and traveled at times with 650 glass plates, two cameras, a ten-foot-high tent, and two crates of chemicals. He required the assistance of 42 porters, without whom, it was noted in the British press, photography in India would not have been possible for Europeans.[27] As part of an endeavor to produce *A Permanent Record of India*, Bourne explored remote areas in the high Himalaya mountains and in Kashmir during his seven-year stay. A perfectionist who had left a career in banking to photograph, he claimed that he waited several days for the favorable circumstances that might allow him to achieve the tonal qualities seen in, for example, *Boulders on the Road to Muddan Mahal (pl. no. 136)*.[28] Colin Murray, who took over Bourne's large-format camera when the latter returned to England, apparently

135. Antonio Beato. *Interior of Temple of Horus, Edfu*, after 1862. Albumen print. National Gallery of Canada, Ottawa.

also inherited his approach to landscape composition; both believed that a body of water almost inevitably improved the image. The lyrical *Water Palace at Udaipur (pl. no. 137)* is one of a group of landscapes that Murray made for a publication entitled *Photographs of Architecture and Scenery in Gujerat and Rajputana*, which appeared in 1874.

Lala Deen Dayal, the most accomplished Indian photographer of the 19th century, and Darogha Ubbas Alli, an engineer by profession, appear to have been the only Indian photographers to publish landscape views. Deen Dayal of Indore began to photograph around 1870, becoming official photographer to the viceroy and soon afterward to the nizam (ruler) of Hyderabad; his studios in Hyderabad and Bombay, known as Raja Deen Dayal and Sons, turned out portraits, architectural views, and special documentary projects commissioned by his patron *(see Chapter 8)*. Architectural images by Ubbas Alli of his native city Lucknow, issued in 1874, are similar in style to

those produced by the Europeans who were responsible for the majority of Indian scenic views.

As on the Indian subcontinent, scenic views in China and Japan were made first by visiting Europeans who brought with them, in the wake of the rebellions and wars that opened China to Western imperialism, equipment, fortitude, and traditional Western concepts of pictorial organization. The earliest daguerreotypists of the Orient included Eliphalet Brown, Jr., who arrived with Commodore Perry's expedition, and Hugh McKay, who operated a daguerreotype studio in Hong Kong in the late 1840s; they were followed by other Westerners who arrived in China hoping to use wet-plate technology to record scenery and events in commercially successful ventures. Several of these photographers purchased the negatives of forerunners, amassing a large inventory of views that were turned out under the new firm name. Among the outsiders who were active in China during this period were M. Rossier, sent by the London firm of Negretti and Zambra (large-scale commercial publishers of stereographic views), and Félice Beato, who in addition to recording episodes in the conquests by the Anglo-French North China Expeditionary Force in 1860 *(see Chapter 4)* photographed landscapes and daily activities. Between 1861 and 1864, the American photographer Milton Miller, apparently taught by Beato and recipient of many of his negatives, worked in Hong Kong, specializing in portraiture and street scenes.

The most energetic outsider to photograph in China

136. SAMUEL BOURNE. *Boulders on the Road to Muddan Mahal*, c. 1867. Albumen print. Royal Photographic Society, Bath, England.

137. Colin Murray. *The Water Palace at Udaipur*, c. 1873. Albumen print. Collection Paul F. Walter, New York.

was John Thomson, originally from Scotland. Using Hong Kong as home base and traveling some 5,000 miles throughout the interior and along the coast—usually accompanied by eight to ten native bearers—Thomson worked in China between 1868 and 1872 before returning to England to publish a four-volume work on Chinese life. His images display a genuine interest in Chinese customs and seem influenced by traditional Chinese painting, as exemplified by his treatment of the landscape in *Wu-Shan Gorge, Szechuan (pl. no. 138)*.

Commercial view-making by native photographers began very slowly, but in 1859 a studio was opened in Hong Kong by Afong Lai, who was to remain preeminent in this area throughout the remainder of the century. Highly regarded by Thomson as "a man of cultivated taste" whose work was "extremely well executed,"[29] Afong Lai's images, such as a view of Hong Kong Island *(pl. no. 139)*, also reveal an approach similar to that seen in traditional Chinese landscape painting. Although Afong Lai was virtually alone when he began his commercial enterprise, by 1884 it was estimated that several thousand native photographers were in business in China, although not all made scenic views.

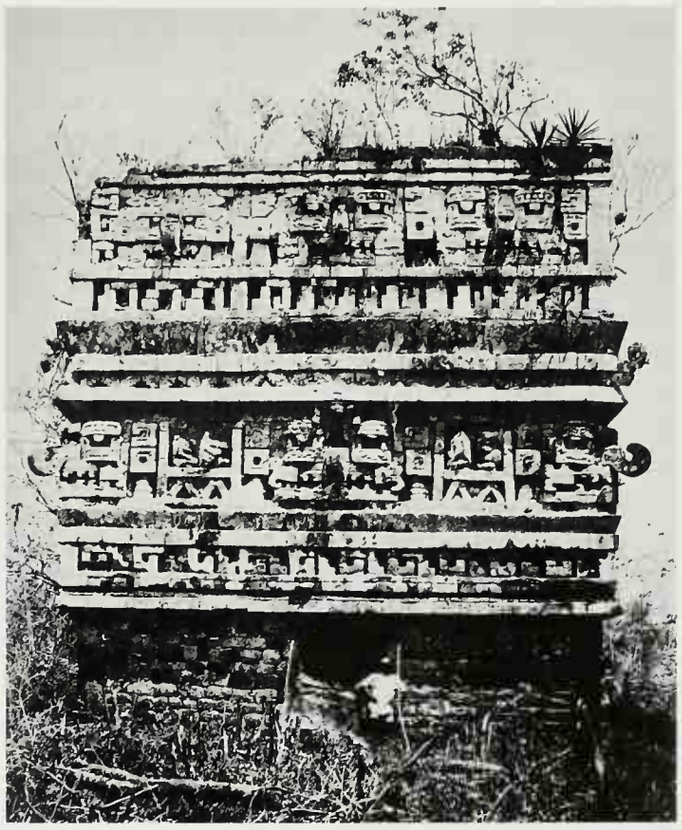
Amateur photography also appears to have begun slowly, with neither foreign residents nor native Chinese merchants expressing much interest in this form of expression before the turn of the century. One exception was Thomas Child, a British engineer working in Peking in the 1870s, who produced (and also sold) nearly 200 views he had taken of that city and its environs, including an image of a ceremonial gate *(pl. no. 140)*. After 1900, Ernest Henry Wilson, a British botanist made ethnographic views, while Donald Mennie, also British and the director of a well-established firm of merchants, approached Chinese landscape with the vision and techniques of the Pictorialist, issuing the soft-focus romantic-looking portfolio *The Pageant of Peking* in gravure prints in 1920.

Social and political transformations in Japan during the 1860s—the decade when the Meiji Restoration signaled the change from feudalism to capitalism—created an atmosphere in which both foreign and native photographers found it possible to function, but besides Beato, who appears to have come to Japan in 1864, few photographers were interested at first in pure landscape views. In general, a truly native landscape tradition did not evolve in India or the Far East during the collodion era, and, in the period that followed, the gelatin dry plate and the small-format snapshot camera combined with the influence of imported Western ideas to make the establishment of an identifiable national landscape style difficult.

138. JOHN THOMSON. *Wu-Shan Gorge, Szechuan*, 1868. Albumen print. Philadelphia Museum of Art.

139. AFONG LAI. *Hong Kong Island*, late 1860s. Albumen print. Collection H. Kwan Lau, New York.

140. THOMAS CHILD. *Damaged Portal of Yuen-Ming-Yuan, Summer Palace, Peking, after the Fire of 1860, set by English and French Allied Forces*, 1872. Albumen print. Collection H. Kwan Lau, New York.



141. DÉSIRÉ CHARNAY. *Chichén-Itzá, Yucatan*, c. 1858. Albumen print. Collection Centre Canadien d'Architecture/Canadian Centre for Architecture, Montréal.

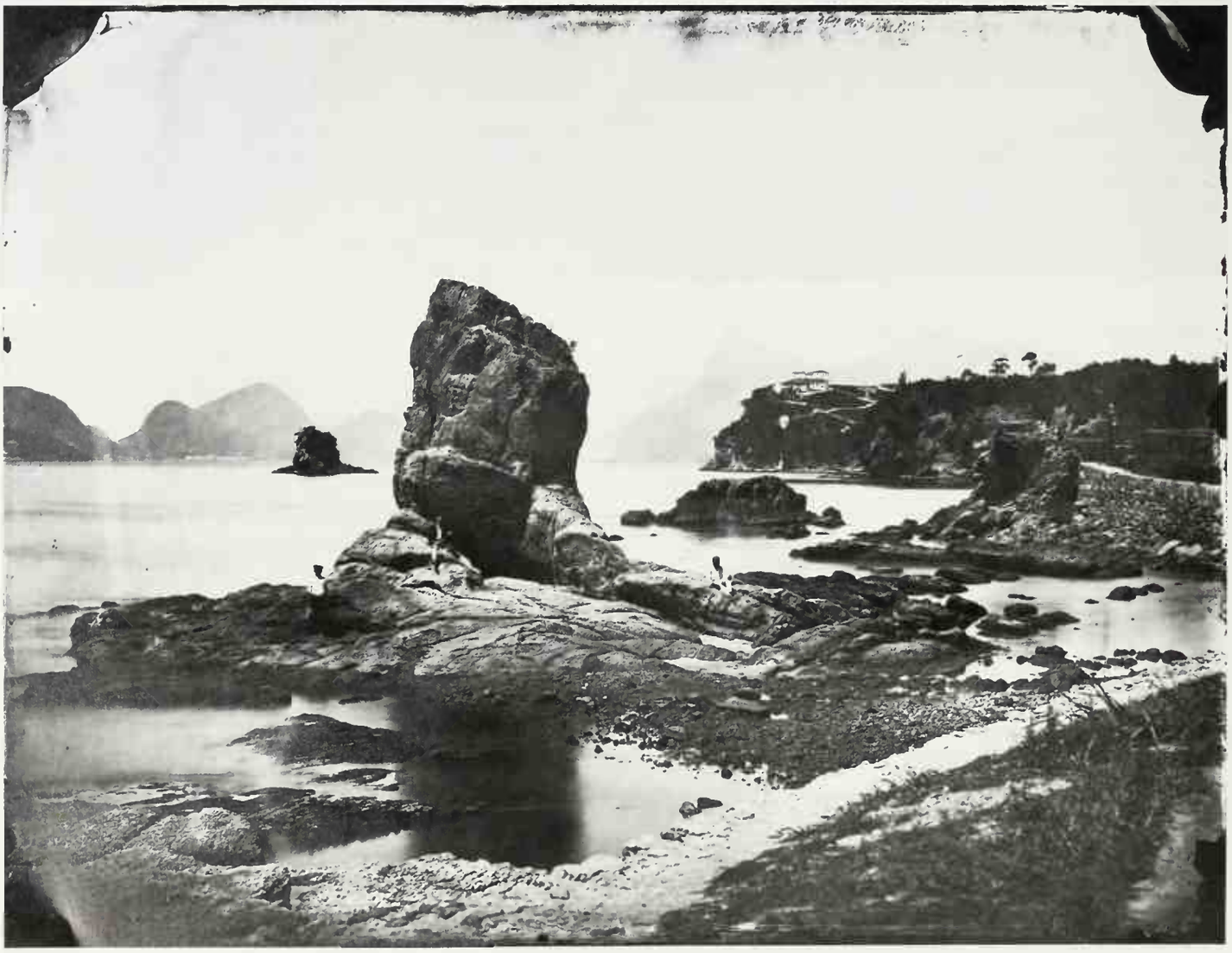
## *Landscape in the Americas*

On the opposite side of the Pacific, Mexico was seen by some sectors of the French government as a possible area of colonialist expansion and therefore came under the scrutiny of the camera lens. Désiré Charnay, a former teacher with an itch for adventure and a belief in France's destiny in the Americas, explored and photographed in the ancient ruined cities of Chichén-Itzá, Uxmal, and Palenque between 1858 and 1861 (and was again in Mexico from 1880 to 1882). The first in this part of the world to successfully use the camera as a research tool in archeological exploration, Charney published the views in an expensive two-volume edition of photographs with text by himself and French architect Viollet-le-Duc, and he made images available for translation into wood engraving to accompany articles in the popular press.[30] Despite the fantasy of ideas put forth by the authors concerning the origins of the ancient cities of the new world, the photographs themselves, in particular those of the ornately carved facades of the structures at Chichén-Itzá *(pl. no. 141)*, reveal a mysterious power that most certainly served to promote popular and scientific interest in the cultures that had created these edifices. Though Charney later worked on expeditions to Madagascar, Java, and Australia, this first group of images appears to be the most completely realized.

Urban topographical views—harbors, public buildings, and town squares—comprise a large portion of the photographic landscape documentation made in South America after mid-century. Supported in some cases by the avid interest of the ruling family, as in Brazil under Emperor Dom Pedro II—himself an amateur camera enthusiast—and in other countries by the scientifically minded European-oriented middle class, professional view-makers turned out images that sought to present topography and urban development in a favorable if not especially exalted light. The most renowned South American photographer of the time, Marc Ferrez, a Brazilian who opened his own studio in Rio de Janeiro after spending part of his youth in Paris, advertised the firm as specializing in Brazilian views. Introducing figures to establish scale in his 1870 *Rocks at Itapuco (pl. no. 142)*, Ferrez's image balances geological descriptiveness with sensitivity to light to create a serene yet visually arresting image.

North American attitudes about scenery reflected the unique situation of a nation without classical history or fabled ruins that shared a near religious exaltation of virgin nature. Many Americans were convinced that the extensive rivers and forests were signs of the munificent hand of God in favoring the new nation with plenty; others recognized the economic value of westward expansion and found photography to be the ideal tool to enshrine ideas of "manifest destiny." Painters of the Hudson River School and photographers of the American West recorded landscape as though it were a fresh and unique creation, but while the optimism of many East Coast artists had vanished in the aftermath of the Civil War, photographers (and painters) facing untrammeled western scenery continued to express buoyant reverence for nature's promise.

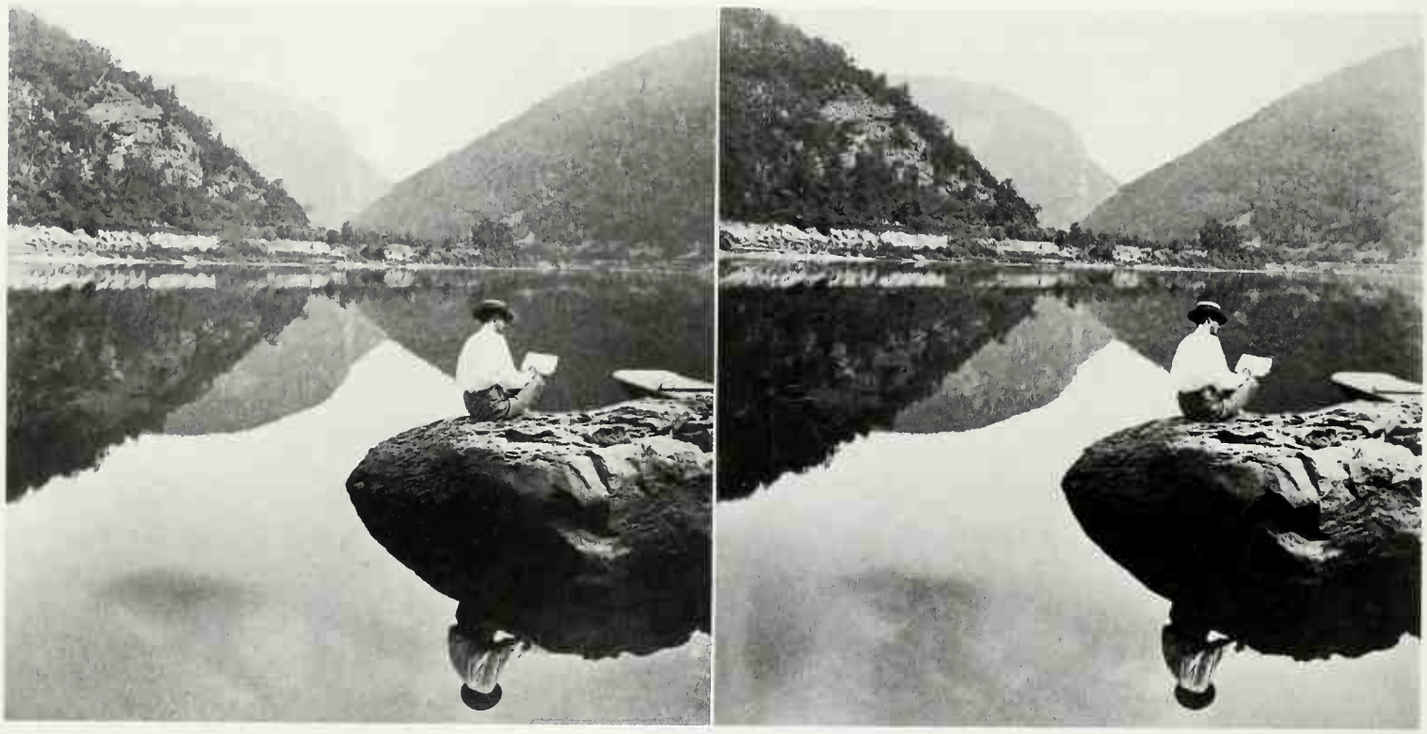
In a literal sense, a photographic "Hudson River School" did not exist. Eastern landscapists working in the Hudson Valley and the Adirondack and White mountains regions, among them James Wallace Black, the Bierstadt and Kilburn brothers, John Soule, and Seneca Ray Stoddard, were concerned largely, though not exclusively, with a commerce in stereograph views, a format in which it was difficult to express feelings of sublimity. On occasion, a sense of the transcendent found its way into images such as Black's mountain scene *(pl. no. 143)*; Stoddard's *Hudson River Landscape (pl. no. 144)*, in which the horizontal format, luminous river, and small figure suggest the insignificance of man in relation to nature, is another such example. Although American view photographers were urged to avoid "mere mechanism" by familiarizing themselves with works by painters such as Claude, Turner, and Ruisdael, as well as by contemporary American landscape painters, artistic landscapes in the European style were of concern only to a small group working out of Philadelphia in the early 1860s. These photographers responded to a plea by a newly established journal, *Philadelphia Photographer*, to



142. MARC FERREZ. *Rocks at Itapuco*, 1870. Albumen print. Collection H. L. Hoffenberg, New York.

143. James Wallace Black. *In the White Mountain Notch*, 1854. Albumen print. Art Museum, Princeton University, Princeton, N.J.; Robert O. Dougan Collection.

144. Seneca Ray Stoddard. *Hudson River Landscape*, n.d. Albumen print. Chapman Historical Museum of the Glens Falls-Queensbury Association, Glens Falls, N.Y.



145. JOHN MORAN. *Scenery in the Region of the Delaware Water Gap*, c. 1864. Albumen stereograph. Library Company of Philadelphia.

146. VICTOR PRÉVOST. *Reed and Sturges Warehouse*, c. 1855. Calotype. New-York Historical Society, New York.

create a native landscape school to do "really first class work," that is, to imbue landscape with a distinctive aura. *Scenery in the Region of the Delaware Water Gap (pl. no. 145)* by John Moran, who had been trained as a painter along with his more famous brother Thomas, is representative of the work by the Philadelphia naturalists, whose photographic activities were strongly colored by a conscious regard for artistic values. Farther west, the Chicago-based, Canadian-born Alexander Hesler had switched to making collodion negatives of the natural wonders of the upper Mississippi Valley with similar objectives in mind. Nevertheless, despite the promotion of native landscape expression in art and photography periodicals, this genre flowered only after photographers became involved in the western explorations.

At the same time, it is apparent from early camera documentation of buildings and the cityscape that most photographers made little effort to do more than produce a prosaic record of architectural structures. Images of buildings by George Robinson Fardon in San Francisco; James McClees, Frederick Debourg Richards, and even John Moran, working in Philadelphia; and the anonymous recorders of architecture in Boston and New York, are largely unnuanced depictions of cornices, lintels, and brick and stone work. With the exception of the photographs by Victor Prévost—a calotypist from France whose views of Central Park and New York buildings, made around 1855, are informed by a fine sense of composition and lighting and, in the *Reed and Sturges Warehouse (pl. no. 146),* by a respect for the solid power of the masonry—camera pictures of cities often appear to be a record of urban expansion, a kind of adjunct to boosterism.

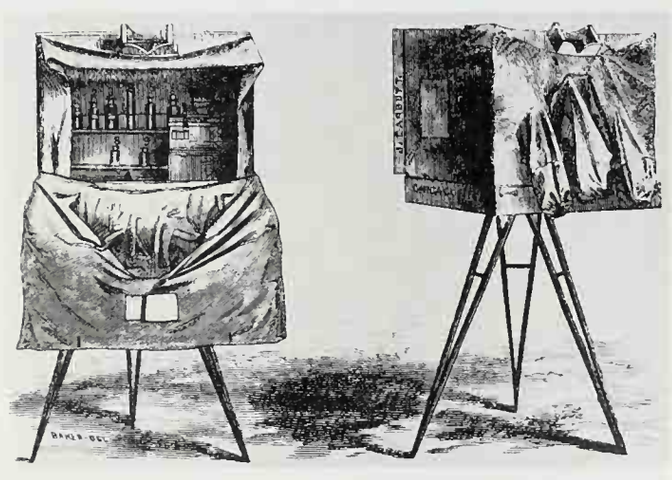
## *Western Views*

Photographs of western scenery were conceived as documentation also, but they project a surpassing spirit, a sense of buoyant wonder at the grandeur of the wilderness. These images embody the romanticism of mid-century painting and literature—the belief that nature in general and mountains in particular are tangible evidence of the role that the Supreme Deity played in the Creation. Though necessarily different in scale and subject from paintings that depict the discovery and exploration of the North American continent, these photographs reflect the same confidence in the promise of territorial expansion that had moved painters of the 1840s and '50s.

Photography became a significant tool during the 1860s, when railroad companies and government bodies recognized that it could be useful as part of the efforts by survey teams to document unknown terrain in the Far West. Scientists, mapmakers, illustrators, and photographers were hired to record examples of topography, collect specimens of botanical and geological interest, and make portraits of Native Americans as aids in determining areas for future mineral exploitation and civilian settlements. In addition to being paid for their time, and/or supplied with equipment, individual photographers made their own arrangements with expedition leaders regarding the sale of images. Views were issued in several sizes and formats, from the stereograph to the mammoth print—about 20 by 24 inches—which necessitated a specially constructed camera. For the first time, landscape documentation emerged as a viable livelihood for a small group of American photographers.

Whether working in the river valleys of New York, New England, and Pennsylvania, or the mountains of the West, American wet-plate photographers transported all their materials and processing equipment without the large numbers of porters who attended those working in Europe and the Orient, although assistance was available from the packers included on survey teams. Besides the cameras (at times three in number), photographers carried glass plates in various sizes, assorted lenses, and chemicals in special vans and by pack animals. Tents and developing boxes, among them a model patented by the photographer John Carbutt in 1865 *(pl. no. 147),* enabled individuals to venture where vehicles could not be taken. Constant unpacking and repacking, the lack of pure water, the tendency of dust to adhere to the sticky collodion—problems about which all survey photographers complained—make the serene clarity of many of these images especially striking.

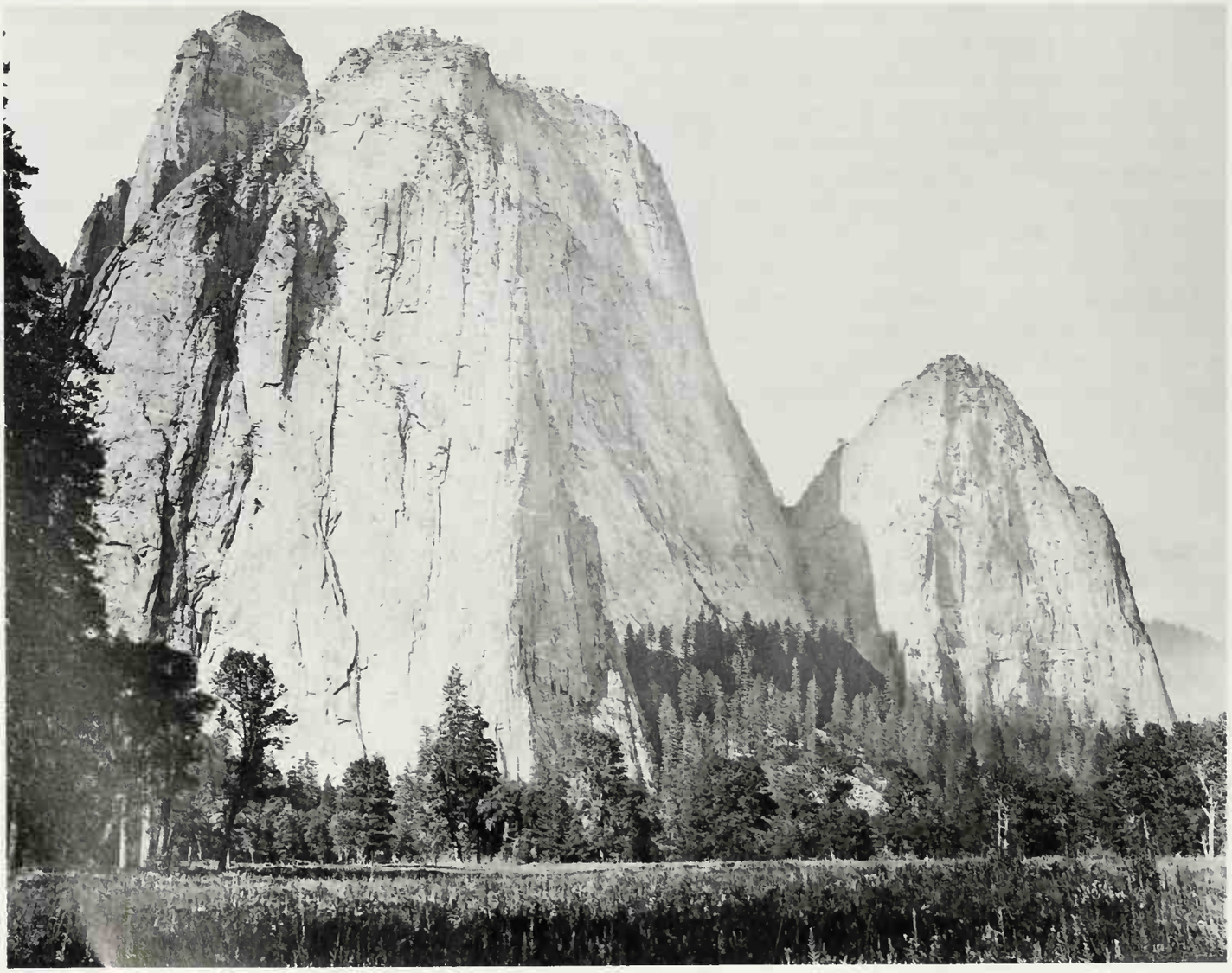
Following efforts by Solomon Nunes Carvalho to make topographical daguerreotypes on Colonel John C. Frémont's explorations west of the Mississippi, the



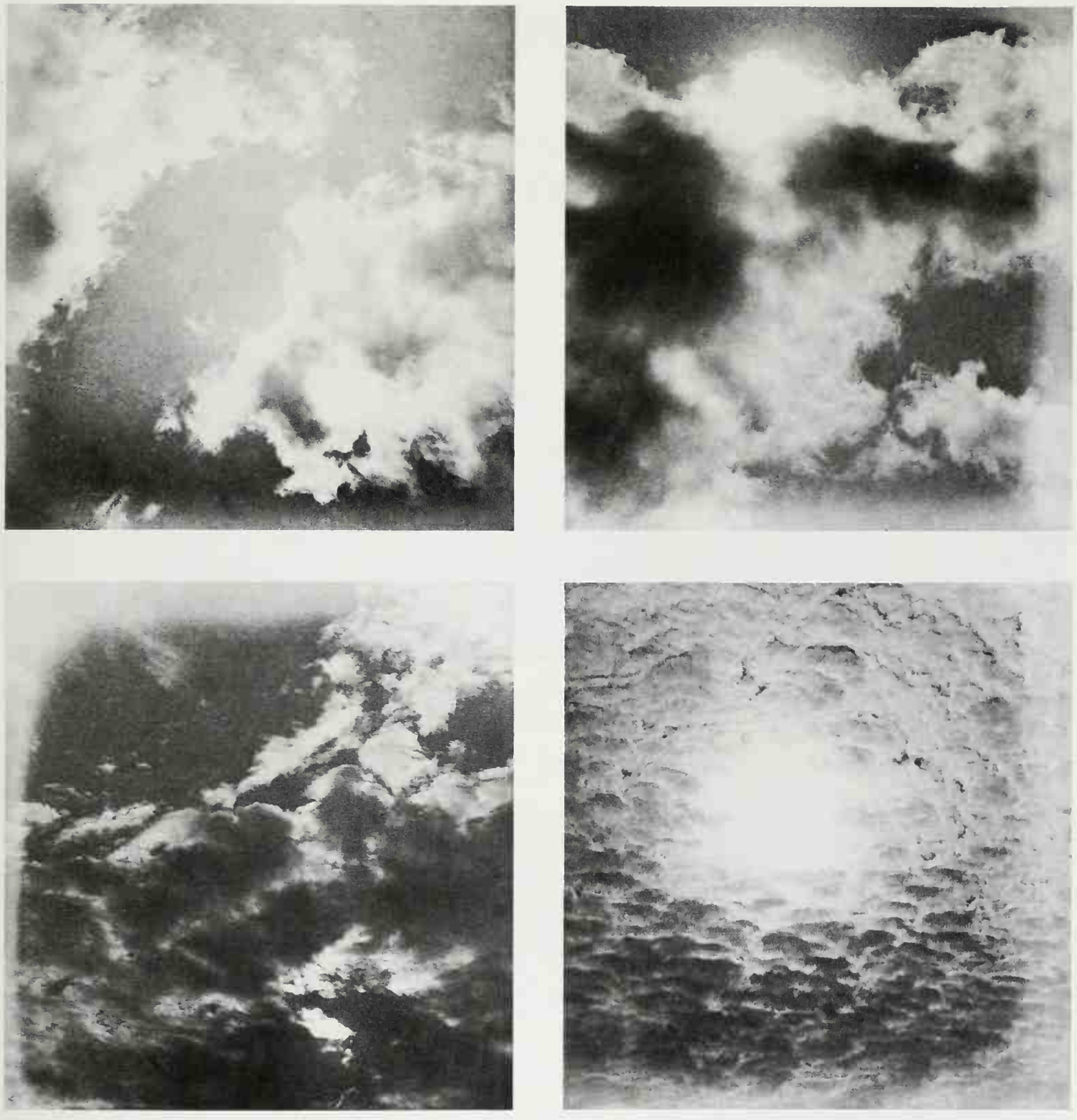
147. *Carbutt's Portable Developing Box.* Wood engraving from *The Philadelphia Photographer,* January, 1865. Private Collection.

American painter Albert Bierstadt, accompanying an expedition to the Rocky Mountains in 1859, was among the first to attempt to publicize the grandeur of western scenery. His wet-plate stereographs are visually weak, but they (and articles written on the subject for *The Crayon*, a periodical devoted to the support of a native landscape art) exemplify the interest in the West by scientists and writers as well as artists. California, especially, became the focus of early documentation, including that by Charles L. Weed and Carleton E. Watkins, who began to photograph the scenery around Yosemite Valley in the early 1860s. Both had worked in the San Jose gallery of daguerreotypist Robert Vance, who stocked a large inventory of scenic views taken in Chile and Peru as well as in the West. By 1868, Watkins—who had made his first views of Yosemite five years earlier and had worked on the Whitney Survey of the region in 1866, when he shot *Cathedral Rock (pl. no. 148)*—had become internationally recognized in photographic circles for establishing the mountain landscape as a symbol of transcendent idealism. Impelled perhaps by the controversies then current among naturalists, including expedition leader Clarence King, regarding the relationship of religion to geology and evolution, Watkins's images of rocks seem to emphasize their animate qualities.

Eadweard Muybridge, Watkins's closest competitor, produced views of Yosemite in 1868 and 1872 that likewise enshrine the wilderness landscape as emblematic of the American dream of unsullied nature. Muybridge sought to imprint his own style on the subject by the selection of unusual viewpoints and the disposition of figures in the landscape. Sensitive to the requirements of artistic landscape style, he at times printed-in the clouds from separate negatives to satisfy critics who found the contrast between foreground and sky too great, but he also devised a more



148. Carleton E. Watkins. *Cathedral Rock, 2,600 Feet, Yosemite, No. 21*, published by I. Taber, c. 1866. Albumen print. Metropolitan Museum of Art, New York; Elisha Whittelsey Collection, Elisha Whittelsey Fund, 1922.



149. Eadweard Muybridge. *A Study of Clouds*, c. 1869. Albumen stereographs. Bancroft Library, University of California, Berkeley, Cal.

authentically photographic method—the sky shade—a shutterlike device that blocked the amount of blue light reaching the plate. As has been noted, cloud studies, similar to this group by Muybridge *(pl. no. 149)*, were made by photographers everywhere during this period, in part to redress the problem of an empty upper portion of the image and in part because of the photographers' fascination with the ever-changing formations observable in the atmosphere. Muybridge, whose deep interest in ephemeral atmospheric effects was perhaps inspired by association with Bierstadt in 1872, also made a number of remarkable pictures in 1875 of smoke and mist-filled latent volcanoes in Guatemala *(pl. no. 150)*.

Timothy O'Sullivan, a former Civil War photographer

150. EADWEARD MUYBRIDGE. *Volcano Quetzeltenango, Guatemala*, 1875. Albumen print. Department of Special Collections, Stanford University Library, Palo Alto, Cal.

who became part of Clarence King's 40th Parallel Survey in 1867 *(see Profile)*, was exceptionally fitted by nature and experience on the battlefield for the organizational and expressive demands of expedition photography. O'Sullivan photographed the volcanic formations of desolate areas, among them Pyramid Lake (pl. no. *151)*, with an accuracy—the rocks were photographed in varying light conditions—that reflected King's absorption with geological theory. His images surpass scientific documentation, however, and create an unworldly sense of the primeval, of an untamed landscape of extraordinary beauty. Furthermore, by his choice of vantage point he was able to evoke the vastness and silence of this remote area in intrinsically photographic terms without resorting to the conventions of landscape painting. The work of William Bell, O'Sullivan's replacement on the Wheeler Survey of 1871–72, reveals a sensitivity to the dramatic qualities inherent in inanimate substances; his *Hieroglyphic Pass, Opposite Parowan (pl. no. 152)* is also unusual in its absence of atmosphere or sense of scale.

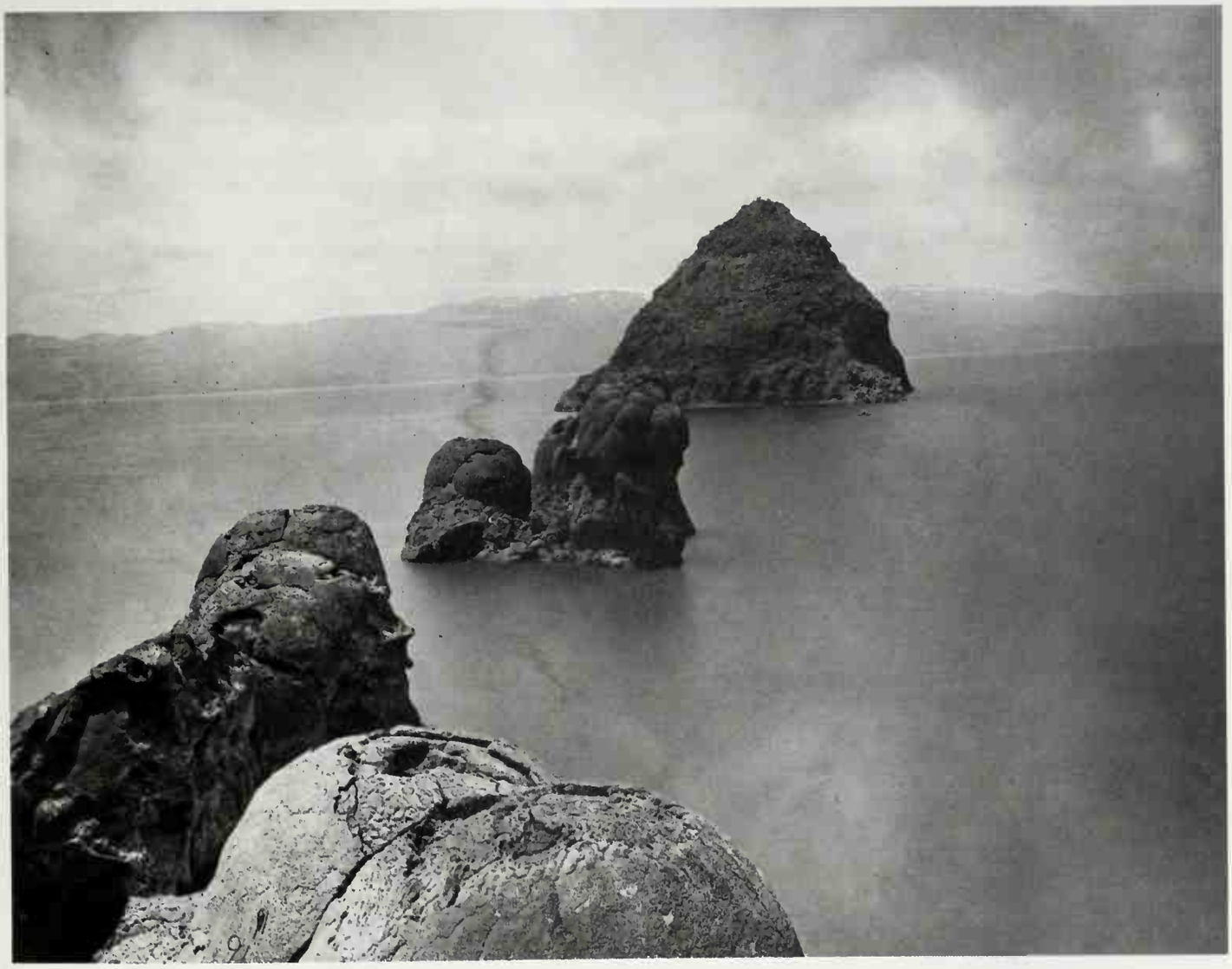
In 1871, an expedition down the Colorado River, headed by John Wesley Powell, included E. O. Beaman, an eastern landscape photographer, whose image of a magnificent and lonely mountain pass, *The Heart of Lodore, Green River (pl. no. 154)*, is given scale and a touch of humanity by the inclusion of a small seated figure. John K. Hillers learned photographic techniques from Beaman, whom he eventually replaced; his view of *Marble Canyon, Shinumo Altar (pl. no. 153)*, a place that he characterized as "the gloomiest I have ever been in—not a bird in it,"[31] displays imaginative as well as technical skill. A similar capacity to both document and infuse life into obdurate substances can be seen in *Hanging Rock, Foot of Echo Canyon, Utah (pl. no. 168)*, taken by Andrew Joseph Russell, a former painter and Civil War photographer, while he was documenting the construction of the Union Pacific Railroad.

William Henry Jackson, employed for eight years on the western survey headed by geologist Ferdinand V. Hayden, was in a privileged position to evolve from journeyman photographer to camera artist of stature. That survey *(pl. no. 155)*, begun in 1870 in the Uintas Mountains and expanded in the following years to embrace the Grand Canyon and the Yellowstone River, included artists Sanford R. Gifford and Thomas Moran, whose landscape paintings helped shape Hayden's and Jackson's pictorial expectations. The close relationship that developed between Jackson and Moran enabled the photographer to

refine his vision, even to the point of setting up his camera in positions scouted by Moran, who is seen in Jackson's view of *Hot Springs on the Gardiner River, Upper Basin (pl. no. 156)*.

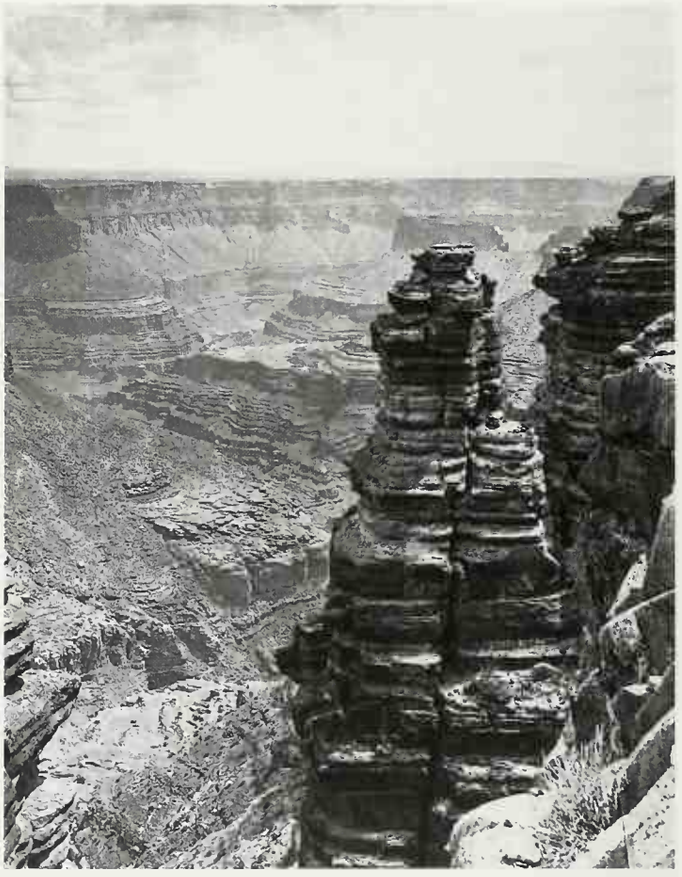
Unlike the fate of the photographs made for France's *Missions héliographiques*, American survey images were seen by a large public. In addition to satisfying the voracious appetite of publishers for marketable landscape stereographs, they also were presented in albums and as lantern slides to members of Congress and other influential people to drum up support for funding civilian scientific expeditions and creating national parklands. For example, besides the sketches that Moran made available to *Scribner's Magazine (pl. no. 157)* in support of Hayden's campaign for a Yellowstone National Park, Jackson printed up albums of *Yellowstone Scenic Wonders* to convince the United States Congress of the distinctive grandeur of the scenery.[32] In later years, Jackson established a successful commercial enterprise in western images, but it is his work of the mid-'70s, inspired by the land itself and by the artistic example of Moran, that is most compelling.

At about the same time that western survey photography was getting under way, photographers were also included on expeditions to Greenland, organized by Isaac Hayes, and to Labrador, sponsored by the painter William Bradford. John L. Dunmore and George Critcherson, of Black's Boston studio, worked with the painter to photograph icebergs and glacial seas, providing plates for Bradford's publication *The Arctic Regions* as well as material for his intensely colored Romantic seascapes. Besides recording the forms of icebergs, the incisive reflections and sharp contours of *Sailing Ships in an Ice Field (pl. no. 158)*, for example, suggest the sparkling sharpness of the polar climate. Photography of the polar regions continued into what has been called the heroic period of Polar exploration, with expeditions led by Amundsen, Mawson, Peary, and



151. TIMOTHY O'SULLIVAN. *Tufa Domes, Pyramid Lake*, 1867. Albumen print. National Archives, Washington, D.C.

152. WILLIAM BELL. *Utah Series No. 10, Hieroglyphic Pass, Opposite Parowan, Utah*, 1872. Albumen print. Art, Prints and Photograph Division, New York Public Library, Astor, Lenox, and Tilden Foundations.



153. JOHN K. HILLERS. *Marble Canyon, Shinumo Altar*, 1872. Albumen print. National Archives, Washington, D.C.

154. E. O. BEAMAN. *The Heart of Lodore, Green River*, 1871. Albumen print. National Archives, Washington, D.C.

155. William Henry Jackson. *Members of the Hayden Survey*, 1870. Albumen print. National Archives, Washington, D.C.

Scott in the early years of the 20th century, and it is not surprising that some of these later images, among them *An Iceberg in Midsummer, Antarctica (pl. no. 159)* by British photographer Herbert Ponting, made between 1910 and 1913 while accompanying Scott to Antarctica, should recall the freshness of vision that characterized the first views of the western wilderness.

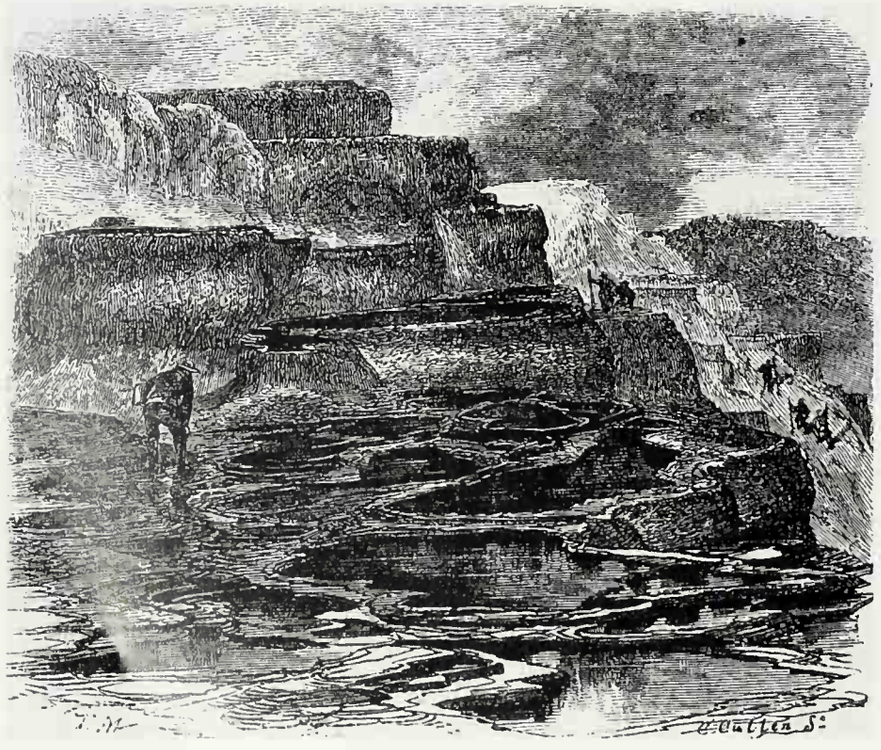
Influenced by westward movements in the United States and by the discovery of gold in British Columbia, the Province of Canada funded an expedition in 1858 to what is now Manitoba; although images made by staff photographer Humphrey Lloyd Hime, a partner in a Toronto engineering firm, were concerned mainly with inhabitants of the region, the few rather poor landscapes indicate the nature of the problems of expedition photography at this early date. Hime noted that to make adequate topographical pictures he required better equipment, pure water, and, most important, more time for taking and processing than expedition leaders were willing to spend.[33] Other Canadian surveys made in connection with railroad routes or border disputes also employed photographers, most of whom produced documents that are more interesting as sociological information than as evocations of the landscape.

Among the few Canadians to imbue scenic images with a sense of atmosphere were Alexander Henderson and William Notman, the best-known commercial photographer in Canada. Henderson, a latecomer to photography and a well-to-do amateur, may have been influenced by English landscape photography with which he was familiar through his membership in the Stereoscope Exchange Club. But *Spring Flood on the St. Lawrence (pl. no. 160)* of 1865 also seems close in spirit to the idyllic outlook of the American Hudson River artists.

Surveys had provided an effective structure for the documentation of the West, but during the 1880s their functions, including photography, were taken over by the newly established United States Geological Survey and the Bureau of Ethnology. While areas of the West continued to attract individual photographers, most of the images made in frontier studios or in the field during the last quarter of the century consisted of documentation of new settlers or of native tribespeople and their customs, with landscape a by-product of these concerns. Furthermore, as the nation moved into high gear industrially, the natural landscape no longer was seen as a symbol of transcendent national purpose.

Scenic views made during the 1880s, after the gelatin dry plate had begun to supplant collodion, embodied varied attitudes toward nature. Many landscapists on both sides of the Atlantic were influenced by the ideas of Naturalism, an attitude that celebrated the ordinary and un-

156. William Henry Jackson. *Hot Springs on the Gardiner River, Upper Basin (Thomas Moran Standing)*, 1871. One-half of an albumen stereograph. International Museum of Photography at George Eastman House, Rochester, N.Y.

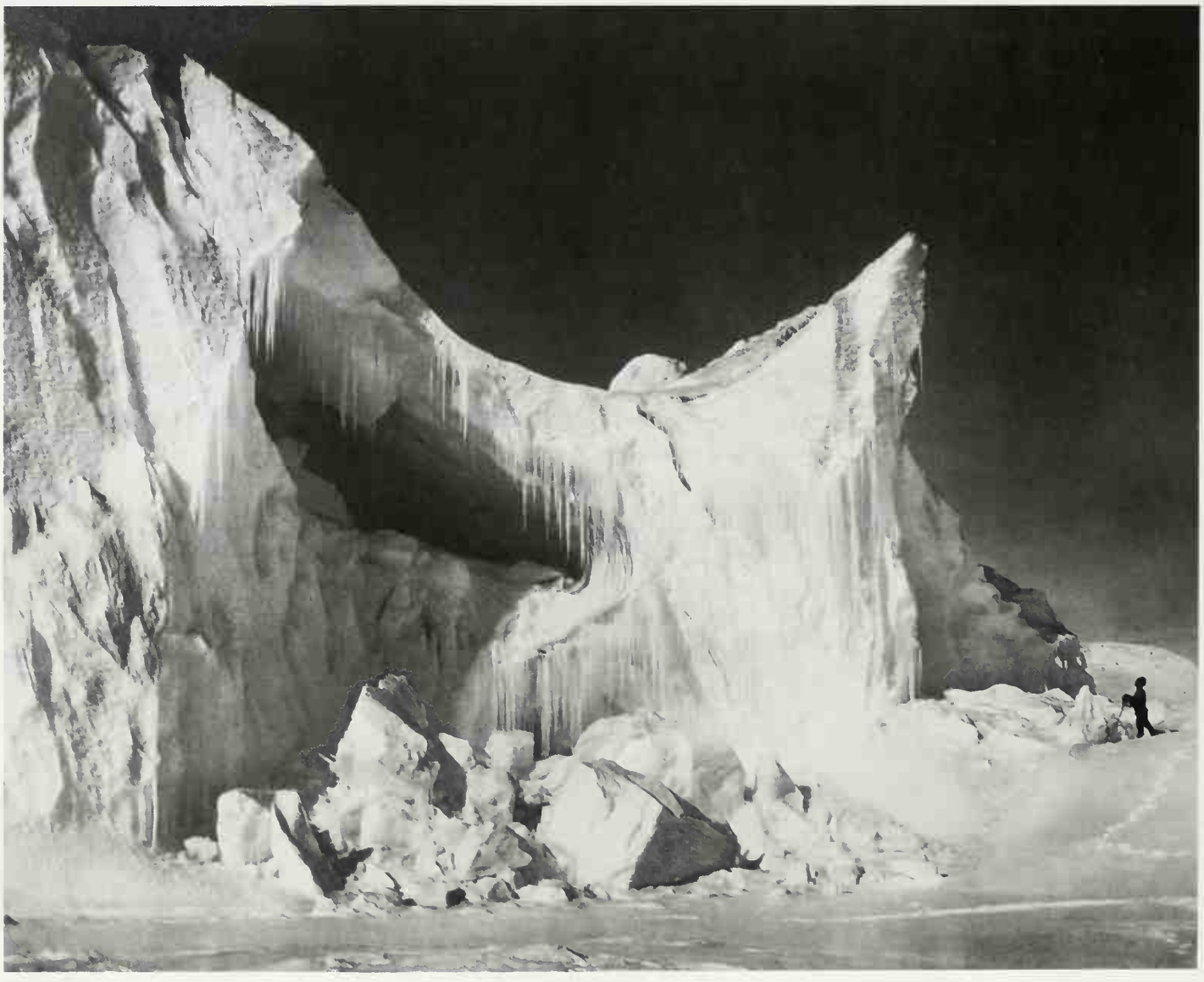


157. Thomas Moran. *Bathing Pools, Diana's Baths*, 1872. Engraving. Library of Congress, Washington, D.C.

158. JOHN L. DUNMORE and GEORGE CRITCHERSON. *Sailing Ships in an Ice Field*, 1869. Albumen print. International Museum of Photography at George Eastman House, Rochester, N.Y.

spectacular both in landscape and social activity *(see Chapter 5)*. Some Americans, among them George Barker, continued their romance with the magnificence of native scenery, but a different sensibility is apparent in images such as Barker's *Moonlight on the St. Johns River (pl. no. 161)*—one suggestive of the end of an era rather than the onset of a period of promise. Barker was nationally renowned for views of Niagara Falls, in which rock and water spray are invested with spectacular drama rather than with the noble clarity that had characterized earlier images. Another landscapist of the period, Henry Hamilton Bennett, proprietor of a commercial studio in Kilbourn, Wisconsin, domesticated the wilderness photograph in his views of picnicking and boating parties on the Wisconsin Dells *(pl. no. 162)*, an area that formerly had been famed for its wilderness of glorious valleys and lofty perpendicular rocks.

The flowering of landscape and scenic views during the eras of the calotype and collodion was partly the result of the general urge in all industrialized societies to measure, describe, and picture the physical substances of all things on earth and in the heavens. It was partly a reaction to urbanization—an attempt to preserve nature's beauty. The compelling power of many of these images also flows in a measure from the difficulty of the enterprise. Whether in the Alps, Himalayas, or Rockies, on the Colorado, Nile, or Yangtze, the photographer had to be profoundly committed to the quest for scenic images before embarking on an arduous journey, with the result that many images embody



159. HERBERT PONTING. *An Iceberg in Midsummer, Antarctica*, 1910–13. Carbon print. Original Fine Arts Society Edition print from the Antarctic Divisions Historical Print Collection, University of Melbourne, Parkville, Australia.

160. Alexander Henderson. *Spring Flood on the St. Lawrence*, 1865. Albumen print. National Gallery of Canada, Ottawa, Ralph Greenhill Collection.

this passion and resolve. After 1880, the ease and convenience first of the gelatin dry plate, and then of the roll-film camera, made landscape photographers out of all who could afford film and camera, and led to an inundation of banal scenic images that often were, in Bourne's words, "little bits, pasted in a scrapbook."[34]

## *Profile: Gustave Le Gray*

Gustave Le Gray combined the imaginative curiosity and skill of both artist and scientist. While still a student in the studio of the academic salon painter Paul Delaroche, he became aware of photography but did not involve himself in the new medium until the end of the 1840s. His inability to survive as a painter in the overcrowded art field of Second Empire France kindled an enthusiasm for working with the paper negative. A strong interest in the chemistry of paint, applied now to the problems of the calotype, led him to perfect in 1849 the dry waxed-paper process that came to be utilized, at least briefly, by most of the major figures in mid-19th-century French photography. Although Le Gray also had worked out a collodion process at the same time, he was uninterested in glass at first and did not publish either discovery until 1851, when they appeared in his publication *Nouveau Traité théorique et pratique de photographie sur papier et sur verre (New Treatise on the Theory and Practice of Photography on Paper and Glass)*, by which time Archer already had made the first public disclosure of a collodion method.

The instructor of many artists and intellectuals eager to learn photography, including Du Camp, Fenton, Le Secq, Marville, and Nègre, Le Gray was held in uniformly high esteem by his contemporaries for his ability to use light suggestively. He was invited to participate in important photographic projects, among them the *Missions héliographiques*, where he photographed by himself as well as with O. Mestral, and in 1856 he was asked to provide a reportage on the newly established Imperial Army camp at Châlons *(pl. no. 199)*. Enshrouded in mist and surrounded by silent, empty terrain, the groups of soldiers in these images suggest an unworldly convocation, a vision that accorded with the emperor's almost religious regard for this military encampment. On his own, Le Gray made artistic calotype photographs in the Barbizon tradition at Fontainbleau forest in 1849 and five years later, in collodion, of the movement of clouds and sea at Sète (Cette) *(pl. no. 116)*, and

161. GEORGE BARKER. *Moonlight on the St. Johns River*, 1886. Albumen print. Library of Congress, Washington, D.C.

162. HENRY HAMILTON BENNETT. *Sugar Bowl with Rowboat, Wisconsin Dells*, c. 1889. Albumen print. © H.H. Bennett Studio, Wisconsin Dells, Wis.

at Dieppe where he recorded Napoleon III's naval fleet. These images, exhibited repeatedly, were highly acclaimed, inviting a first prize at the 1855 *Exposition Universelle*.

In view of these successes, Le Gray's withdrawal from the photographic scene after 1858 may seem difficult to understand, but his situation reveals some of the problems confronting photographers in France in the 19th century. Lacking independent means, Le Gray was able to support himself by commercial photography—portraiture, technical illustration, reproductions of artwork—and indulge his high standards through the generosity of a patron, the Comte de Briges. However, as the medium itself became more competitive and commercial, and the count's patronage ended, Le Gray found himself more interested in problems of light and pictorial organization than in making salable views that "were got up in a style that renders them a fit ornament for any drawing room."[35] What his friend Nadar characterized as poor business sense was more probably Le Gray's reluctance to accept prevailing marketplace standards; in any event, he left family and associates and traveled to Italy, Malta, and finally Egypt, where he finished his career as professor of design in a polytechnic institute.

The acclaim accorded Le Gray was for the exceptional quality of his salt and albumen prints as well as for his innovative vision. His technical mastery of gold-chloride toning, which permitted the revelation of details buried in the deepest shadows, derived from a conception of printing as an integral aspect of an entire process by which the photographer transforms nature into art.

## *Profile: Timothy O'Sullivan*

Timothy O'Sullivan came to landscape photography after four years of experience photographing behind the lines and on the battlefields of the Civil War. A former assistant in Mathew Brady's New York studio, in 1861 he had joined the group known as "Brady's Photographic Corps," working with Alexander Gardner. Because Brady refused to credit the work of individual photographers, Gardner, taking O'Sullivan along, established his own Washington firm to publish war views. War images taken by O'Sullivan are wide-ranging in subject and direct in their message, including among them the weariness of inaction and continual waiting, and the horror of fields of the dead *(pl. no. 209)*.

After the war, O'Sullivan, faced with the dullness of commercial studio work, discovered an optimum use for his energies and experience as a photographer on the survey teams that were being organized under civilian or military leadership to document wilderness areas west of the Mississippi. Departing from Nevada City with 9 x 12 inch and stereograph cameras, 125 glass plates, darkroom equipment, and chemicals, for more than two years he explored the strange and inhospitable regions along the 40th Parallel with a group headed by the eminent geologist Clarence King. Following a brief period with the Darien Survey to the Isthmus of Panama, where both the humid atmosphere and the densely foliated terrain made photography difficult, he found another position on a western survey. As Weston Naef has pointed out,[36] photography on the Geological Surveys West of the 100th Meridian, as the expedition commanded by Lieutenant George M. Wheeler of the Army Corps of Engineers was called, "was not so much a scientific tool as it was a means of publicizing the Survey's accomplishments in the hopes of persuading Congress to fund military rather than civilian expeditions in the future."

O'Sullivan's purpose in joining this team was more likely personal than political in that he was allowed by Wheeler to be his own master, in charge of portions of the expedition, and thus did not have to take orders from geologists. Involved in the dramatic if not scientifically defensible exploit of attempting to ascend the Colorado River through the Grand Canyon, Wheeler noted O'Sullivan's professionalism in producing negatives in the face of all obstacles, including a near drowning. Following another brief period with King, O'Sullivan joined a Wheeler-led survey to the Southwest where he documented not only geological formations but members of the pueblo and rock-dwelling tribes in the region of the Canyon de Chelle *(pl. no. 163)*. After 1875, O'Sullivan's problematical health and the winding down of survey photography put an end to further involvement with the western landscape. Following a brief period in 1879 as photographer in the newly established United States Geological Survey, of which King was first director, and a position with the Treasury Department in Washington, O'Sullivan was forced by his tubercular condition to resign; he died a year later in Staten Island at age forty-two.

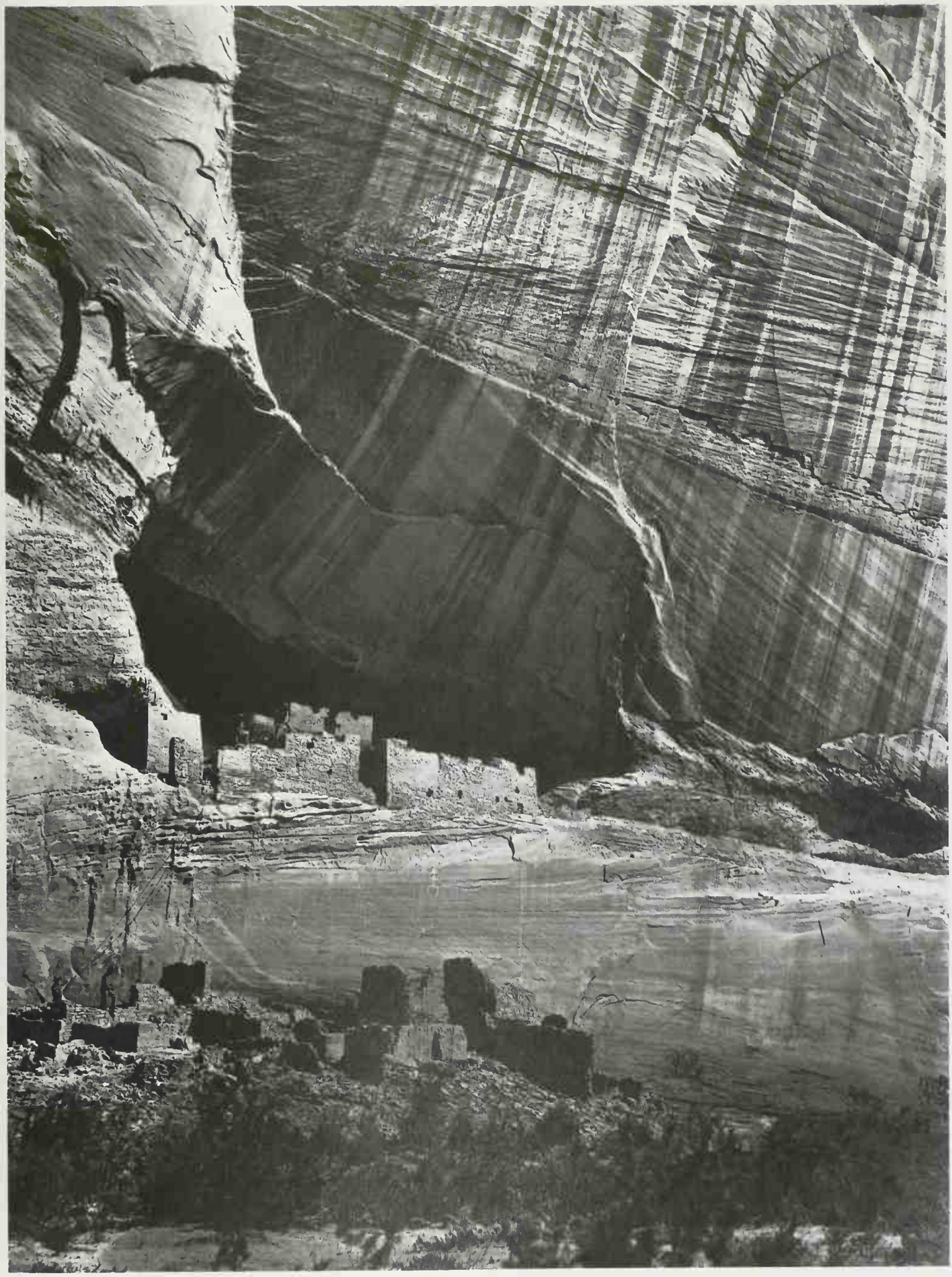
O'Sullivan approached western landscape with the documentarian's respect for the integrity of visible evidence and the camera artist's understanding of how to isolate and frame decisive forms and structures in nature. Beyond this, he had the capacity to invest inert matter with a sense of mysterious silence and timelessness; these qualities may be even more arresting to the modern eye than they were to his contemporaries, who regarded his images as accurate records rather than evocative statements.

# *The Western Landscape— Natural and Fabricated*

This selection of early views of the American West suggests the dual role that the photograph played after the Civil War in the exploration and development of this relatively unknown part of the continent. Taken between the years 1867 and 1878, these pictures are the work of five among the numerous photographers who either accompanied geological survey teams, were employed by railroad companies, or were professionals with established studios in West Coast cities. Beyond their roles as documenters, all were inspired by the spectacular scale and breadth of the pristine wilderness landscape, by its strange rock formations, its steamy geysers, and its sparkling waterfalls. Using the cumbersome wet-plate process, they sought out the vantage points that might make it possible to recreate for Easterners a sense of the immensity and primordial silence of the region.

A number of the same photographers were called upon to document the building of rail lines, bridges, water sluices, and urban centers. Eadweard Muybridge produced a panorama of the young and growing metropolis of San Francisco, from which four of the thirteen mammoth (18 x 24 inch) plates are reproduced, showing cable cars, churches, and public and commercial buildings as well as dwellings laid out in a well-defined street system. As the frontier moved westward and industrialization began to change the character of the landscape, Americans increasingly turned to the photograph as a means of both celebrating technology and of expressing reverence for the landscape being threatened by its advance.

163. TIMOTHY H. O'SULLIVAN. *Ancient Ruins in the Canyon de Chelle, New Mexico*, 1873. Albumen print. International Museum of Photography at George Eastman House, Rochester, N.Y.



164. Carleton E. Watkins. *Magenta Flume, Nevada Co., California*, c. 1871. Albumen print.
Baltimore Museum of Art; Purchase with exchange funds from the Edward Joseph Gallagher III Memorial Collection; and Partial Gift of George H. Dalsheimer, Baltimore.

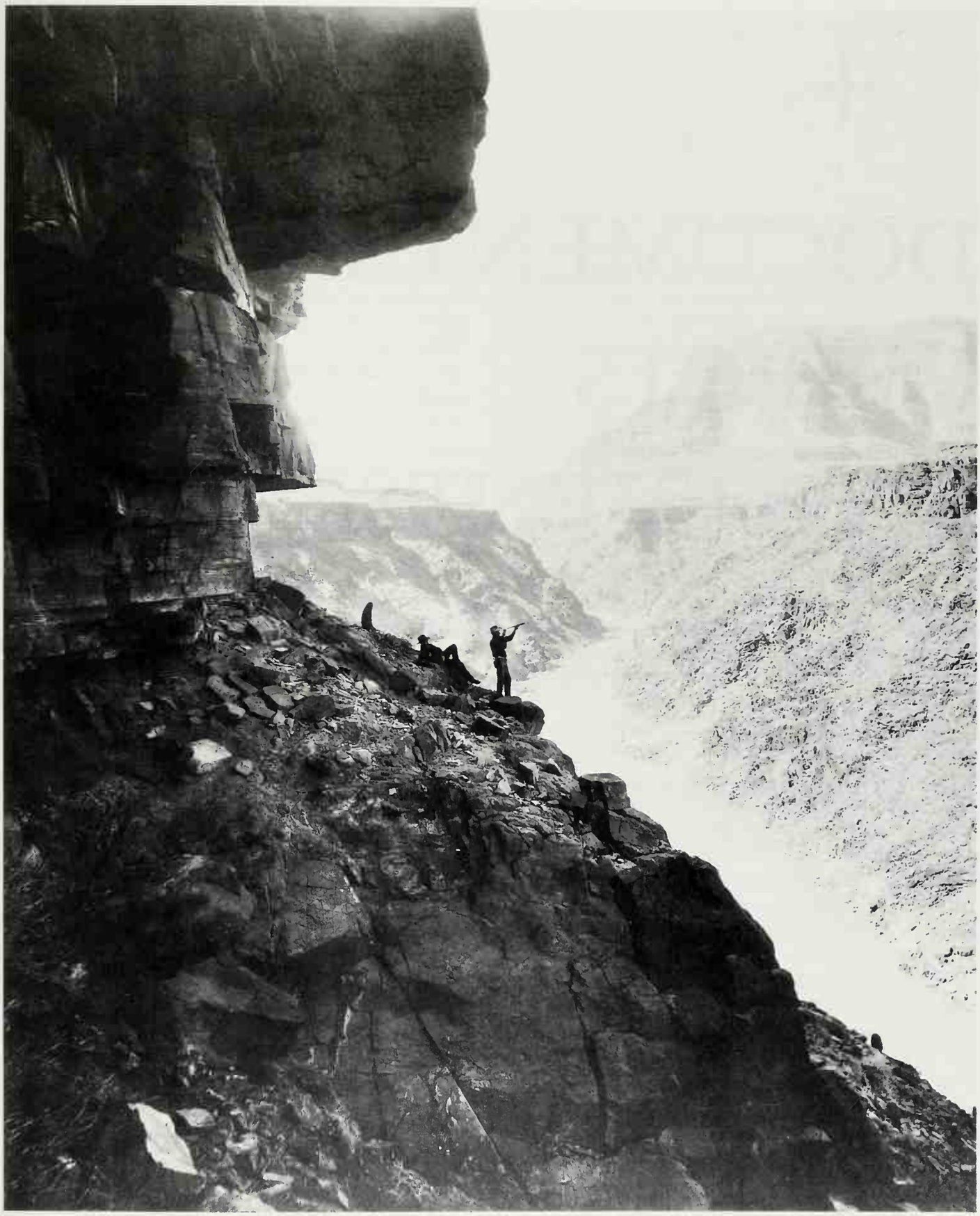
OPEN FOR FOLDOUT:

165. Eadweard Muybridge. *Panorama of San Francisco from California Street Hill*, 1878.
Panorama in 13 plates (four plates reprinted here). Albumen prints. Bancroft Library, University of California, Berkeley.

166. CARLETON E. WATKINS. *Multnomah Fall Cascade, Columbia River*, 1867.
Albumen print. Gilman Paper Company, New York.

167. Frank J. Haynes. *Geyser, Yellowstone, Wyoming,* c. 1885. Albumen print. Daniel Wolf, Inc., New York.

168. Andrew J. Russell. *Hanging Rock, Foot of Echo Canyon, Utah,* 1867–68. Albumen print. Western Americana Collection, Beinecke Rare Book and Manuscript Library, Yale University, New Haven, Conn.



169. William Henry Jackson. *Grand Canyon of the Colorado,* 1870s–80s.
Albumen print. Private collection.

# 4.

# DOCUMENTATION: OBJECTS AND EVENTS

## *1839–1890*

*Let him who wishes to know what war is look at this series of illustrations.*

*—Oliver Wendell Holmes, 1863*[1]

NEARLY ALL CAMERA IMAGES that deal with what exists in the world may be considered documents in some sense, but the term *documentation* has come to refer to pictures taken with an intent to inform rather than to inspire or to express personal feelings (though, of course, such images may answer these needs, too). The materialistic outlook of the industrialized peoples of the 19th century, their emphasis on the study of natural forces and social relationships, and their quest for empire promoted the photographic document as a relatively unproblematical means of expanding knowledge of the visible world. Depictions of topography and architecture (addressed in the previous chapter); of the physical transformation of city and countryside; of wars, uprisings, revolutions, and natural disasters; of sociological and medical conditions and oddities—all were considered by intellectuals, scientists, artists, and the general public to be eminently suitable themes for camera images.

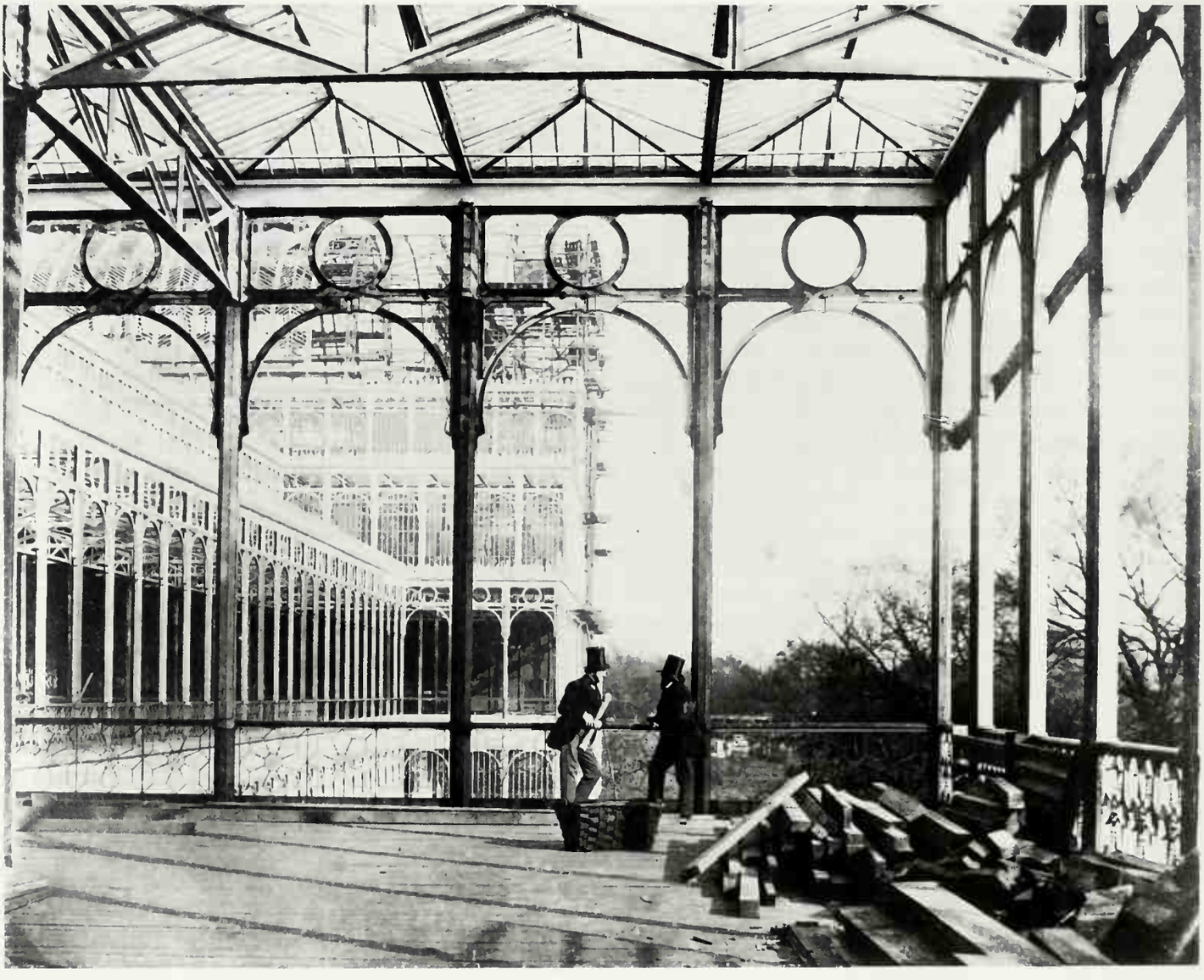
The photograph was regarded as an exemplary record because it was thought to provide an objective—that is, unaltered—view of solid fact and achievement. This faith in the capacity of light to inscribe truth on a sensitized plate, which lay behind the acceptance of camera documentation, was given its most persuasive verbal argument by the American Oliver Wendell Holmes, whose contributions to the popularization of stereography have been mentioned earlier. Suggesting that the "perfect photograph is absolutely inexhaustible,"[2] because in theory everything that exists in nature will be present in the camera image (in itself a dubious statement), Holmes also felt that incidental truths, missed by participants in the actual event, would be captured by the photograph and, in fact, might turn out to be of greater significance. As "form divorced from matter" but mirroring truth, documentary photographs were believed to be such accurate catalogs of fact that they were surrogates of reality. Specific temporal meanings might be obscure, contextual relationships unexplained, but these images, which by a miracle of technology had found their way into stereoscopes and picture albums far removed in time and place from the actual object or event, increasingly became the data to which the public turned for knowledge of complex structures and occurrences. According to the American art historian William M. Ivins, Jr., "The nineteenth century began by believing that what was reasonable was true, and it wound up by believing that what it saw a photograph of, was true."[3]

The need for pictorial documentation had been recognized even before the invention of photography. In the 1830s and '40s, publishers of periodicals in Europe sought to enliven informational texts with graphic illustrations directed to a diversified mass audience. The *Penny Magazine,* an early starter in London, was followed by the *Illustrated London News, L'Illustration* in Paris, *Illustrierte Zeitung* in Leipzig, and, in the United States, *Harper's Weekly* and *Frank Leslie's Illustrated Newspaper.* To make good their promise to present a living and moving panorama of the world's activities and events, these journals began in the 1850s to use the photographic document as a basis for graphic imagery. The need to translate photographs quickly into wood engravings to meet publication deadlines led to the practice of dividing up an illustration into sections and farming out the parts to a number of woodblock engravers, after which the pieces were reassembled into a unified block for printing. In 1857, George N. Barnard invented a process whereby the collodion negative could be printed directly onto the block, bypassing the artist's drawing and incidentally substituting a more realistic facture, which the engraver then endeavored to represent. Until the 1890s, when the printing industry began to use the process halftone plate, documentation based on photographs reached the public in several forms—as original albumen, carbon, or Woodburytype prints (stereograph and other formats), as lantern slides, or transformed by engravers and lithographers into graphic illustrations for the publishing industry.

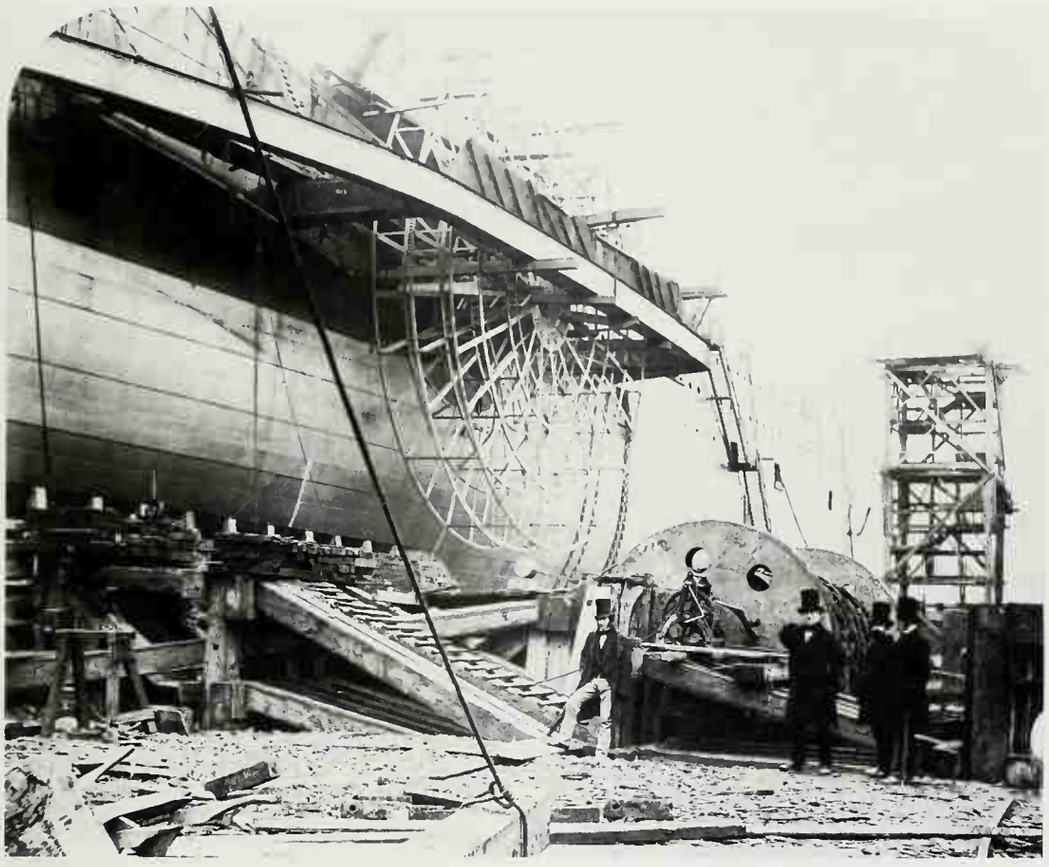
Photographic documentation might be commissioned by the government (primarily in France and the United States), by private companies and individuals, or by publishers. Albumen prints, more sharply defined and easier to produce in large numbers than calotypes, were organized into presentation albums made up for selected individuals and governing bodies, while thousands upon thousands of stereographs reached mass audiences through the sale and distribution activities of companies such as T. & E. Anthony in New York, the Langenheim brothers' American Stereoscopic Company in Philadelphia, the London Stereoscopic and Photographic Company, Gaudin in Paris, and Loescher and Petsch in Germany.

## *Camera Documentation: Industrial Development*

"Objective" documentation by camera coincided with the physical transformation of industrialized countries during the mid-19th century. The role played by photography in the campaign to restore the architectural patrimony of France has been mentioned, but, in addition, images were commissioned to show the demolition and reconstruction of urban areas, the erection of bridges and monuments, and the building of transportation facilities and roads. The industrial expositions and fairs that were mounted every several years in Britain, France, and the United States during this period both symbolized and displayed the physical changes made possible by new technologies and new materials, which were contrasted with the exotic products of underdeveloped nations. The directors of the first important exposition, at the Crystal Palace in London in 1851—the Great Exhibition—were eager to document the event as well as to display camera equipment and pictures, but the insufficiencies of Talbot's calotype process limited the effort to a visual catalog of the exhibits, which was included in *Report by the Juries*.[4] However, shortly after the decision was made to rebuild the Crystal Palace at Sydenham, collodion technique made it possible to document the entire reconstruction. Photographing weekly for about three years—1851 to 1854—the noted painter-photographer Philip Henry Delamotte recorded the rebirth of the glass hall in its new location *(pl. no. 170)* and the installation of the exhibits. In itself, the iron structure of Sir Joseph Paxton's huge pavilion provided interesting shapes and forms, but Delamotte's obvious delight in the building's airy geome-



170. PHILIP HENRY DELAMOTTE. *The Open Colonnade, Garden Front*, c. 1853. Albumen print. Greater London History Library, London.



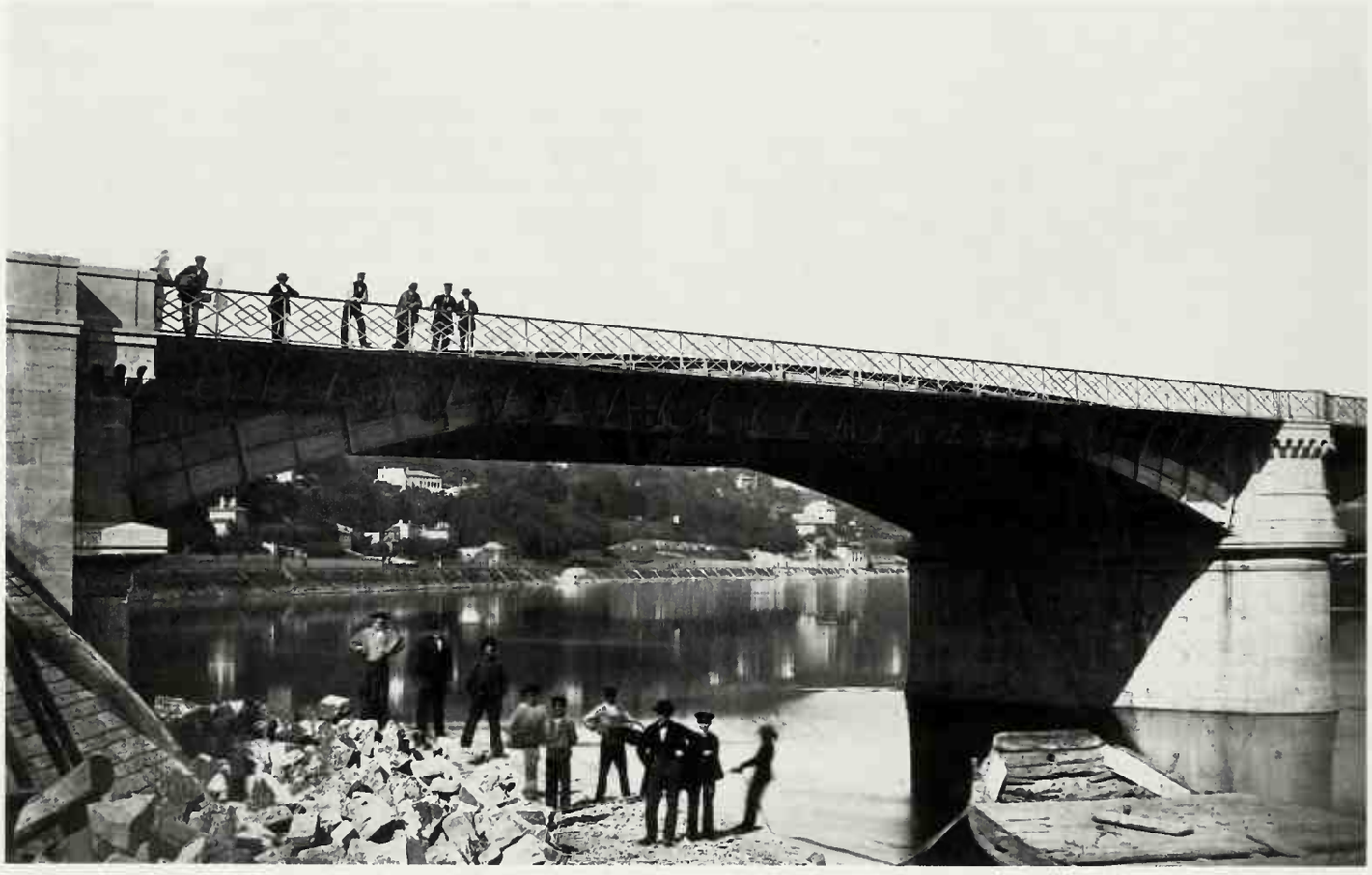
171. ROBERT HOWLETT (?). *The "Great Eastern" Being Built in the Docks at Millwall*, November 30, 1857. Albumen print. J. Paul Getty Museum, Los Angeles.

try contributes to the pleasurable satisfaction these images still afford, and indeed this first record is among the more interesting documentations of the many that were made of the industrial fairs that followed.

From the 1850s on, the mechanical-image maker frequently was called upon to record other feats served up by the age of mechanization. The usefulness of such records was demonstrated by the documentation *(pl. no. 171)* of Isambard Kingdom Brunel's British steamship *Great Eastern*, an enormous coal-driven liner capable of carrying 4,000 passengers. The vivid handling of light, form, and volume seen in views by Robert Howlett and Joseph Cundall of this "leviathan"—made for the *Illustrated Times* of London and the London Stereoscope Company—was praised because it embraced real rather than synthetic situations. Contrasting these works with artistically conceived and reenacted studio compositions that were being turned out at about the same time *(see Chapter 5)*, critics suggested that the true measure of camera art was in the sensitive treatment of actuality.

Soon after mid-century, photographers were called upon to record the building of rail routes in France and the United States, both latecomers in this endeavor compared with Britain. One such commission, initiated by the French rail magnate Baron James de Rothschild, went to Edouard Denis Baldus, who in 1855 and 1859 followed the building of the north–south line from Boulogne to Paris, Lyons, and eventually to the Mediterranean ports. These large-format prints, exemplified by *Pont de la Mulatière (pl. no. 172)*, were made up into "presentation albums," one of which was given to Queen Victoria; they also were exhibited at the major industrial expositions where they were acclaimed for elegant clarity of vision and superb tonal range. Gallic respect for order and precision also characterizes an image of engines in the roundhouse at Nevers *(pl. no. 173)*, taken between 1860 and 1863 by the little-known French photographer A. Collard, whose work for the *Departement de Ponts et Chaussées* (Department of Bridges and Roads) resulted in impressive views that emphasized the geometric rationality of these structures.

Baldus, whose other commissions included the previously mentioned reportage on the Rhone floods and a documentation of the building of the new Louvre Museum was entirely committed to the documentary mode. His images established the paradigm documentary style of the era in that he brought to the need for informative visual material a sure grasp of pictorial organization and a feeling for the subtleties of light, producing works that transcend immediate function to afford pleasure in their formal resolution. When increasing commercialization—the need to mass-produce albumen prints for indiscriminate buyers of stereographs and tourist images—made this approach to



172. EDOUARD DENIS BALDUS. *Pont de la Mulatière*, c. 1855. Albumen print.
International Museum of Photography at George Eastman House, Rochester, N.Y.

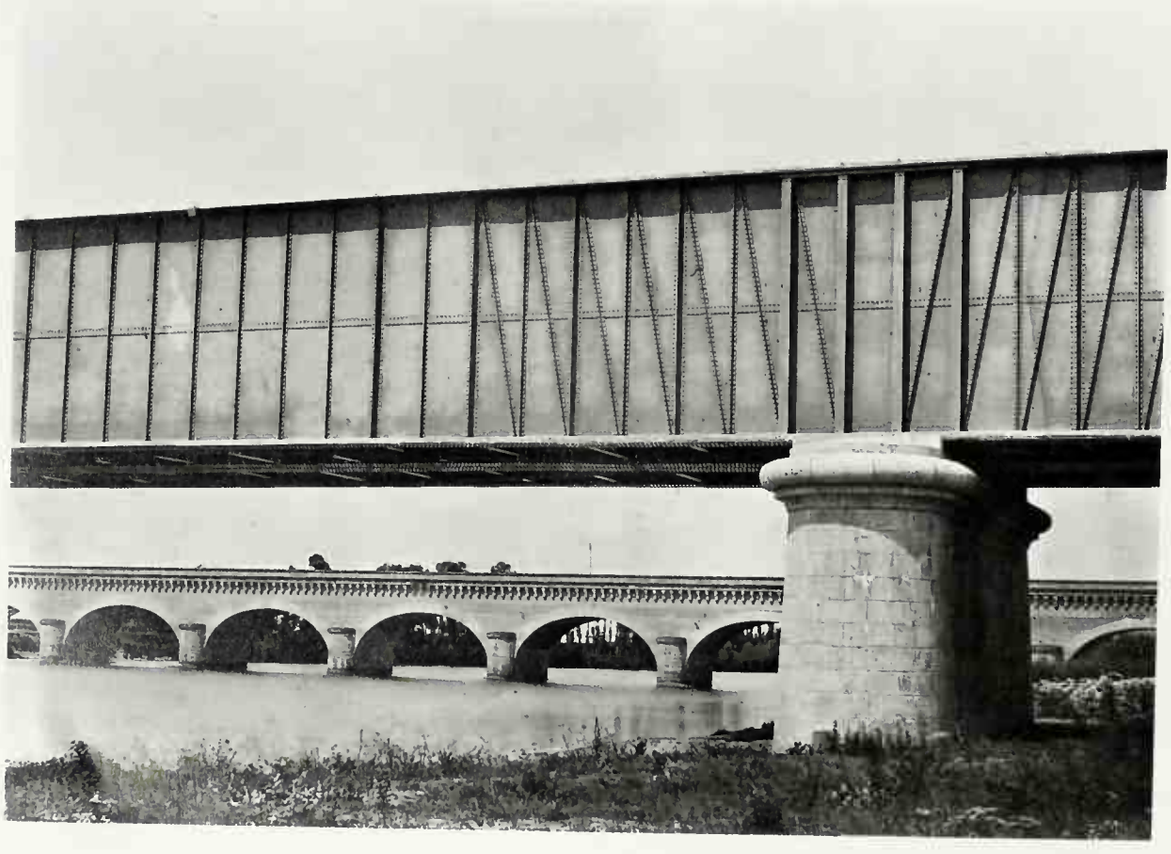
documentation financially untenable, Baldus turned to reprinting his negatives and reproducing his work in gravure rather than alter the high standards he had set for himself. His attitude may be compared with that of William England, a highly competent British photographer who traveled widely to provide his publisher with images for stereoscopes and albums. As John Szarkowski has pointed out,[5] England's view of the Niagara Suspension Bridge *(pl. no. 174)* has something for everyone—scenery, human interest, an engineering marvel, and the contrast between old and new means of transportation. Nevertheless, though well-composed and satisfying as a document, it lacks the inspired tension that put Baldus's work onto another plane of visual experience, perhaps because its aim was simply to provide the kinds of information the public wanted in the clearest fashion.

The character of new engineering materials and construction methods that were altering the appearance of Europe at mid-century seems to have had a special appeal to photographers called upon to document bridges and railway construction. To select only one example, *Two Bridges (pl. no. 175)*, a work by Louis Auguste Bisson whose portrait firm sought to expand with such documentary commissions, explores the geometries of arc and rectangles to enhance the contrast between the traditional stone of the past and the modern metal span. At times, fascination with the design properties of construction materials became so pronounced as to almost obscure the utilitarian purpose of the structure; in an 1884 image of the building of the Forth Bridge in Scotland by an unknown photographer *(pl. no. 176)*, the angled beams take on an animated life of their own, swallowing up the small figures in the foreground.

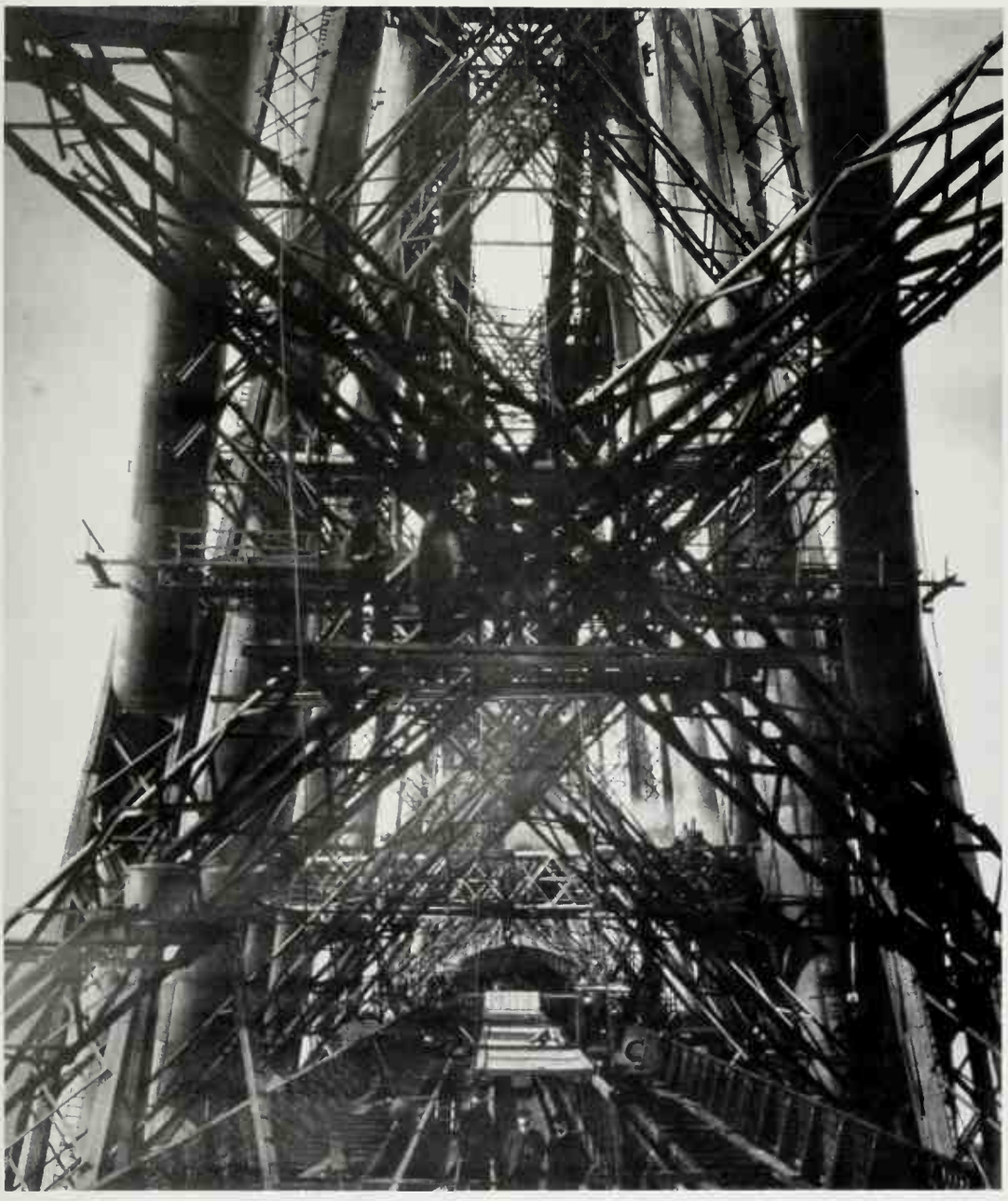
Photographs of industrial activity that included the work force also were made, although often they were less formally conceived. Taken for a variety of purposes—as a record of engineering progress, as material for illustrators —many such records were not deemed important, with the result that in time the names of the makers or the particulars of their careers became lost. Yet these images, too, can exert a spell through a formal structure that converts mundane activity, such as work, into evocative experience. Few images in either Europe or the Americas were concerned with the actual conditions of work, an interest that did not manifest itself photographically until late in the century *(see Chapter 8)*.


173. A. COLLARD. *Roundhouse on the Bourbonnais Railway, Nevers*, 1860–63. Albumen print. International Museum of Photography at George Eastman House, Rochester, N.Y.

174. William England. *Niagara Suspension Bridge*, 1859. Albumen print. Museum of Modern Art, New York.



175. Auguste Rosalie and Louis Auguste Bisson. *Two Bridges*, n.d. Albumen print. Bibliothèque Nationale, Paris.



176. UNKNOWN PHOTOGRAPHER (probably Scottish). *Construction of the Forth Bridge*, c. 1884. Gelatin silver print. Collection Centre Canadien d'Architecture/Canadian Centre for Architecture, Montréal.

The transformation of Paris from a medieval to a modern city, ordered by Prefect of the Seine Baron Haussmann (who took office in 1853), provided an exceptional opportunity for urban camera documentation. Old buildings and neighborhoods scheduled for demolition were photographed in collodion in the 1860s by Charles Marville *(pl. no. 177)*, a former illustrator, whose early work in the waxed-paper process appeared in many of Blanquart-Evrard's publications. These images display a poignant regard for the character and texture of vanishing ways, indicating again that documentary records might be invested with poetic dimension. Working on his own (after recovering from the disappointing events of 1839, in which his own paper process was suppressed), Hippolyte Bayard made decorous views of the streets and buildings of Paris *(pl. no. 24)*. In all major cities, the urban milieu offered photographers a chance to capture the contrast of old and new and also to document aspects of anonymous street life, producing views that after 1859 were much in demand by the buyers of stereographs *(see below)*.

Another aspect of Victorian photographic activity concerned the appropriation of the physical remains of the past. Popular interest in archeology, initiated in the 18th century with the finds at Troy, Pompeii, and Herculaneum, was further stimulated by the acquisition of works unearthed by 19th-century European scholars and diplomats investigating ancient cultures in Egypt, Greece, and the Near East, often while pursuing imperialistic interests.

177. CHARLES MARVILLE. *Tearing Down the Avenue of the Opera*, c. 1865. Albumen print. Musée Carnavalet, Paris.

Fortunately, Europeans did not heed Holmes's quintessentially American view that the artifacts themselves might be dispensed with as long as their images remained; instead, their goal was to disinter and relocate actual objects. Though frequently wrenched from historical context and incorrectly restored, these works confirmed a sense of continuous history for Europeans experiencing the unsettling advance of industrialization. The excavation, transportation, and restoration of this cultural booty produced some visually stimulating camera images. Almost every aspect of industrial Europe's romance with the past, from the pilgrimage to ancient lands *(pl. no. 178)*, to the installation of the object in a modern setting *(pl. no. 179)* was captured by the camera. And while by mid-century European museums already had become the repositories of statuary and decorative objects from all over the ancient world, the growing popular interest in archeology and its finds must be attributed in some measure to the camera.

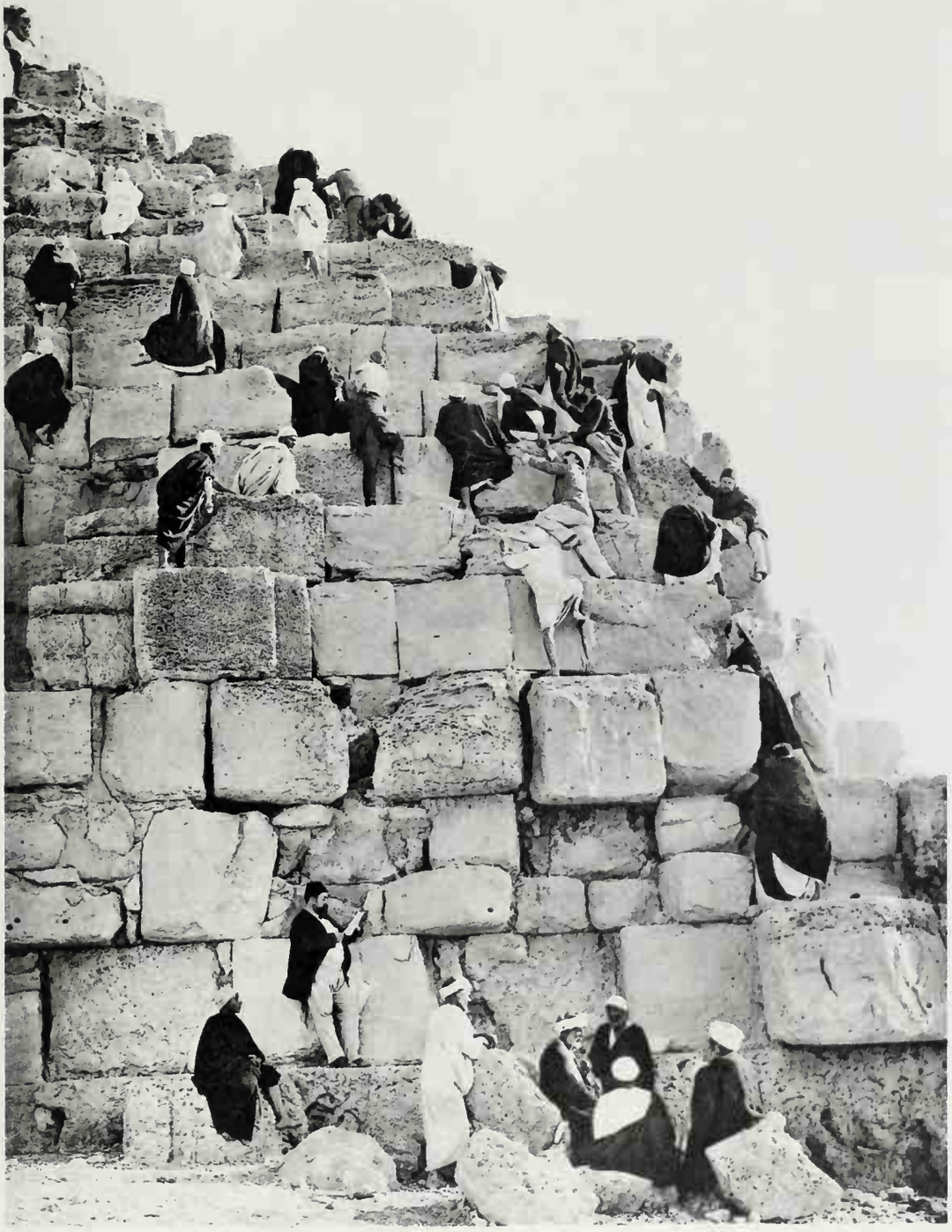
Monumental contemporary works of statuary also provided subjects for photographers intrigued by the contrast in scale afforded by such pieces. The documentation of the production of the Statue of Liberty in France, by Albert Fernique *(pl. no. 180)*, and its installation in the United States was just one of a number of such picturizations of an activity that was going on in other industrial countries, too. One suspects that the amusing contrast between the lively figures of the real workmen and the grandiose inertia of the idealized effigy, seen in this work and also in Aloïs Löcherer's record of the construction and transport of the mammoth statue *Bavaria (pl. no. 181)*, constituted at least part of the appeal of such images.

## *Camera Documentation: United States*

Camera documentation of industrial progress in North America differed significantly from that of Europe, primarily because of America's lack of historical monuments and its attitude to photography in general. Drawn largely from the ranks of graphic artists, mid-century European photographers were influenced by attitudes instilled in

them about art in general, but in the "new world" sound academic training in the arts was limited. With few exceptions, Americans regarded photography as a business and the camera as a tool with which to record information. Neither poets nor reformers, many photographers in the United States were unconcerned with subtleties, endeavoring instead to present material objects in a clear-cut and competent fashion without involvement in the artistic effects of light and shade or unusual compositional angles.

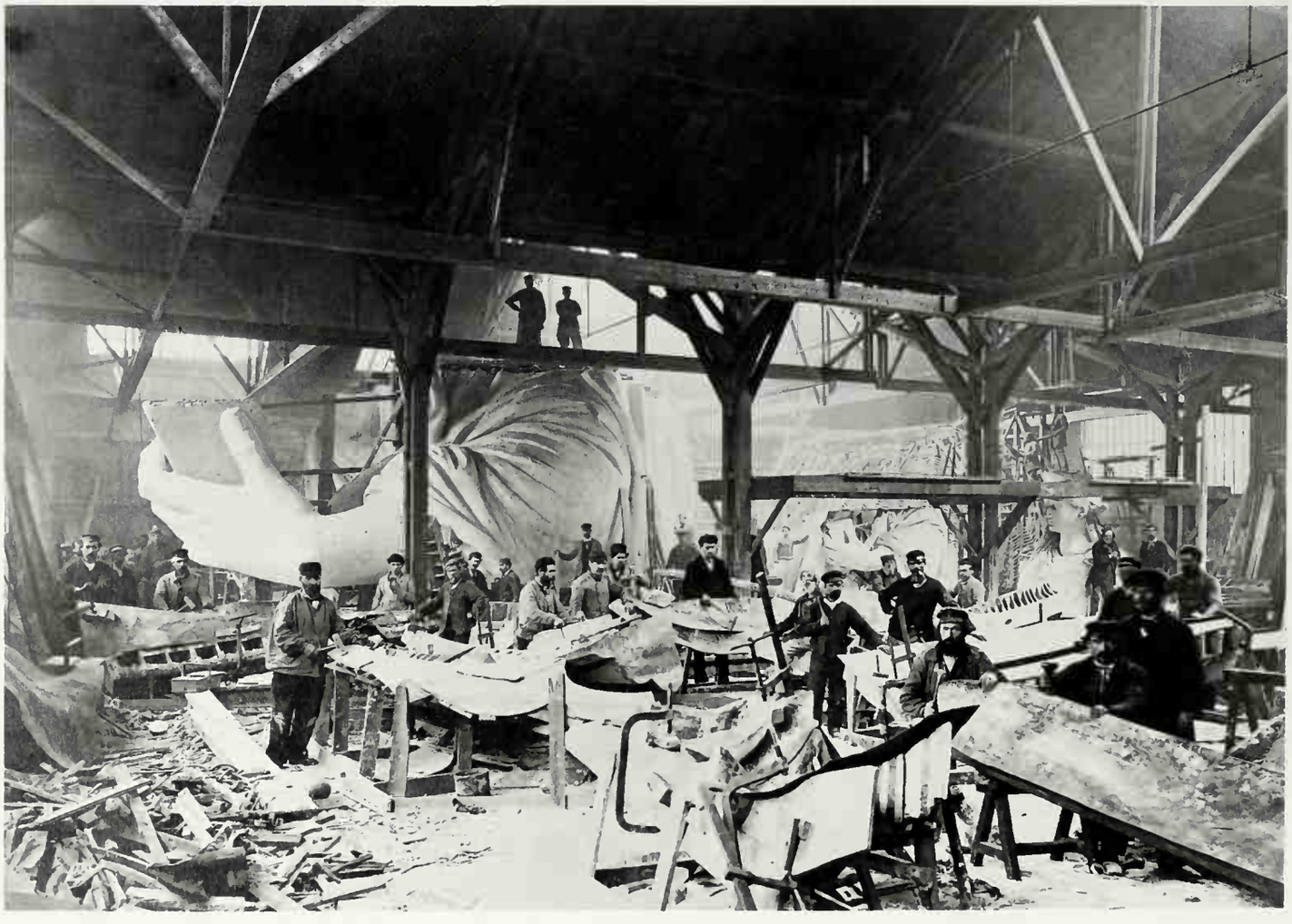
This said, it still is curious that in a country so consumed by interest in mechanical devices, few images that take advantage of the forceful geometry of engineering structures were made. From the daguerreotype era to the end of the century, when Americans photographed bridges, railways, machinery, and buildings—emblems of the growing industrialization of the nation—their major concern was to be informative rather than inspirational. The choice of camera position in *Brooklyn Bridge Under Construction* (by an unknown photographer) *(pl. no. 182)* diminishes the scale and beauty of the pylons in order to direct attention

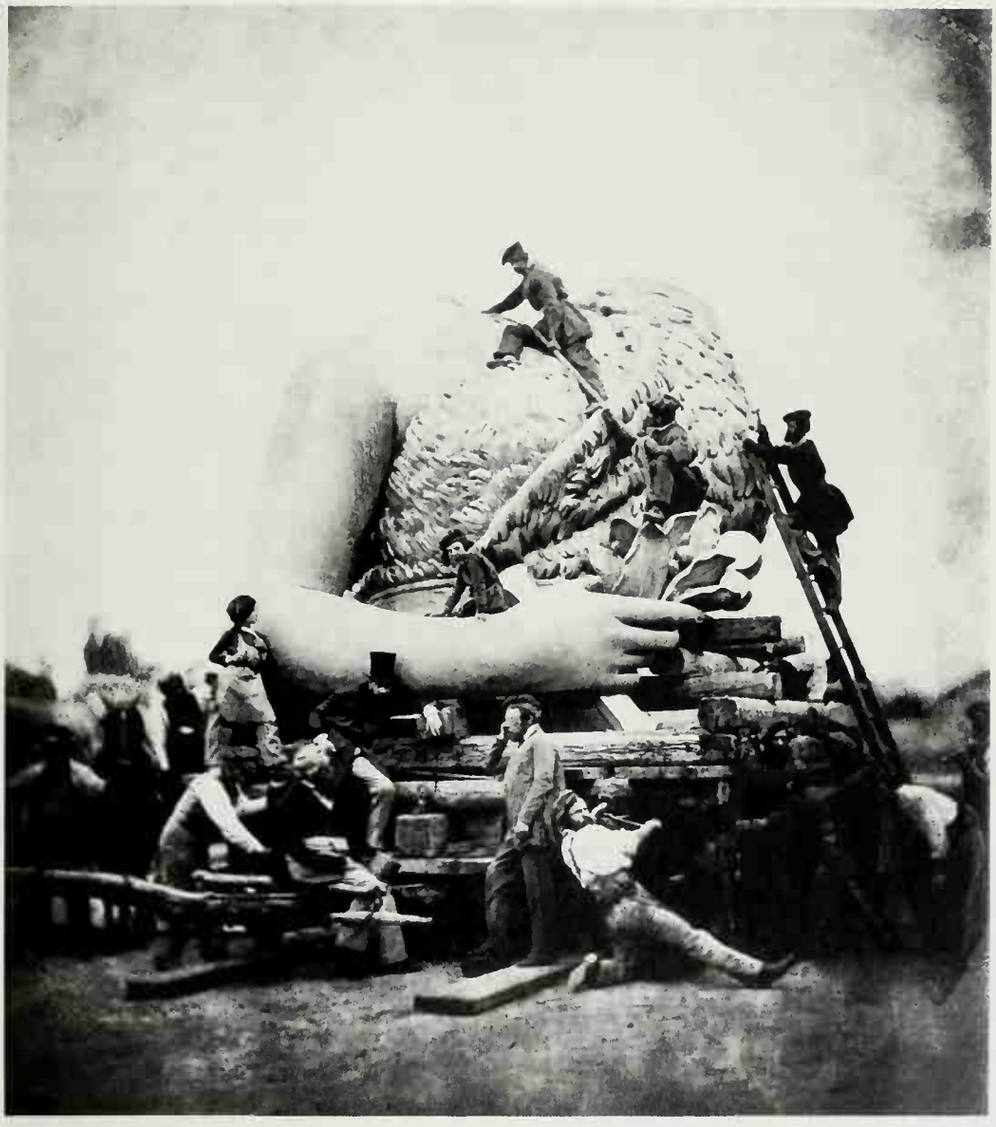


178. Henri Béchard. *Ascending the Great Pyramid*, c. 1878. Phototype from *L'Egypte et la Nubie*, 1888. Charles Edwin Wilbour Library of Egyptology, Brooklyn Museum.

179. Philip Henry Delamotte. *Setting up the Colossi of Rameses the Great*, 1853. Albumen print. Greater London History Library.

180. Albert Fernique (?). *Construction of the Statue of Liberty, Workshop View, Paris*, c. 1880. Albumen print. Rare Books and Manuscripts Division, New York Public Library, Astor, Lenox, and Tilden Foundations.





181. Aloïs Löcherer. *Transport of the Bavaria (Torso)*, 1850. Albumen print. Agfa-Gevaert Foto-Historama, Cologne, Germany.

to the small group of top-hatted figures. Typical of the many views of this project, the image falls short of embodying the daring energy which the bridge itself still symbolizes. In comparison, Canadian William Notman's 1859 photograph of the framework and tubing of the Victoria Bridge *(pl. no. 183)* creates an arresting visual pattern that also is suggestive of the thrust and power of the structure. As F. Jack Hurley points out, 19th-century photographs of American industry concentrate on depicting the individuals responsible for "taming, dominating and bending to their wills . . . the vast virginity of the continent"[6] rather than on the expressive possibilities inherent in structural and mechanical forms.

However, there are exceptions: in the years following the Civil War, photographic documentation of the western rail routes—in particular the construction of track-beds and spans and the laying of rails—resulted in images of decided visual impact. Inspired by the grandeur of the wilderness, the photographers, among them Alexander Gardner, Alfred A. Hart, William Henry Jackson, Andrew Joseph Russell, and Charles R. Savage, recorded not only actual construction but settlements along the way, unusual vegetation, geological formations, and Indian tribal life. The best-known of these images—a work by Russell of the joining of the cross-continental tracks at Promontory Point, Utah Territory, in 1869 *(pl. no. 184)*—is in the mainstream tradition of American documentation, with workers and dignitaries the focus of the celebratory occasion, but in other works, typified by Russell's *The Construction of the Railroad at Citadel Rock (pl. no. 185)*, landscape predominates—the understandable effect of an attitude that regarded the western wilderness with near-religious awe. Many of Russell's images emphasize curving rails and intricately constructed bridge spans, foreshadowing the handling of similar themes by William Rau, official photographer of the Pennsylvania and Lehigh Valley railroads at the end of the century. The clean, formal organization of track-beds and rails in Rau's images *(pl. no. 186)* suggests that indus-

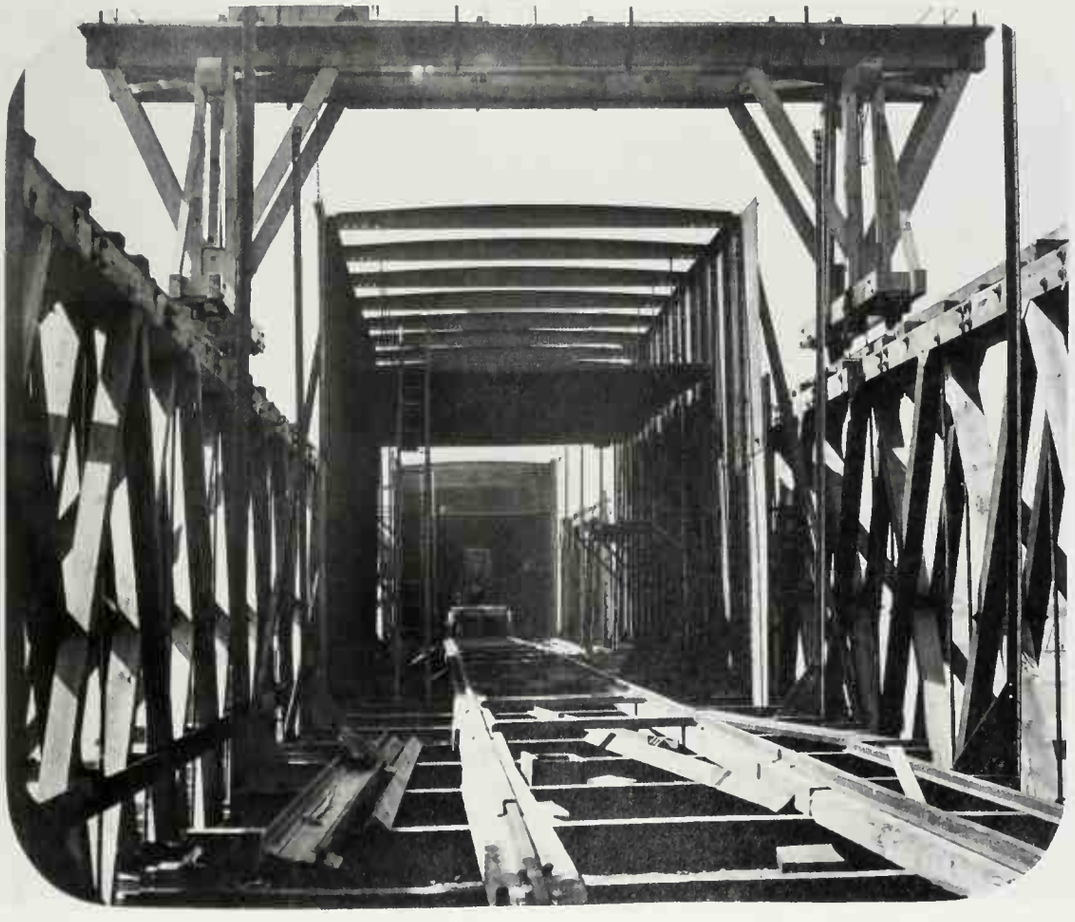

182. UNKNOWN PHOTOGRAPHER. *Brooklyn Bridge under Construction*, c. 1878.
Albumen print. New-York Historical Society, New York.

trial might had emerged without trauma or exertion—a view that was to gain ascendancy in visual expressions of machine culture in the 1920s. As was true of western scenic photographs, railroad images were sold in stereograph and large-format, used to make up presentation albums, shown in photographic exhibitions, and copied by engravers for the illustrated press.

## *Newsworthy Events and Instantaneous Views*

Large-format documentary images required that human figures, when included, remain still during exposure, as can be seen in the posed stance of the workers in the Russell photograph. Recording events that were in a state of flux on this size plate would have resulted in blurring sections of the image, an effect that 19th-century viewers regarded as a sign of imperfection. In fact, during the 1840s and '50s, in order to present occurrences in which there was continuous, if not very rapid, action, it was necessary to restage the scene, as was done for the daguerreotypes by Southworth and Hawes taken in the operating room of Massachusetts General Hospital in 1848 *(pl. no. 187)*. Nonetheless, the inadequacy of the earliest technology had not prevented daguerreotypists from attempting to capture images of fires, floods, and storms—catastrophes over which people have little control but show strong interest in. George N. Barnard was able to make a daguerreotype during an actual conflagration that took place in Oswego, New York, in 1851 *(pl. no. 188)*. Even after glass plates took over, however, on-the-spot news photography was difficult because the photographer had to arrive on the scene armed with chemicals and equipment to sensitize the plates before they could be exposed in the camera. Luck obviously played a great role in mid-19th-century documentation of such events, which frequently were translated into engravings in the illustrated press.

With the perfection during the 1850s of shorter focal-length (4½ to 5 inches) stereographic cameras, accompanied by the publication in 1856 of Sir David Brewster's manual on stereography, photography became capable of freezing certain kinds of action. "Instantaneous" views made in stereograph format began to appear around 1858; among the earliest in America was a series taken of long stretches of lower Broadway, commissioned by the E. and H. T. Anthony Company, of which this street scene *(pl. no. 189)* is a typical example. In Great Britain, William England and George Washington Wilson began to market



183. William Notman. *Victoria Bridge, Framework of Tube and Staging, Looking in*, May, 1859. Albumen print. Notman Photographic Archives, McCord Museum, McGill University, Montréal.

"instantaneous" images of crowded street scenes while Adolphe Braun and Hippolyte Jouvin *(pl. no. 190)* were involved with the same kind of imagery in France. In addition to the stereograph cameras produced in all three countries, small single-lens apparatuses designed to arrest action began to appear *(see A Short Technical History, Part I)*, but despite these refinements, collodion technology still was burdensome, preventing action photography of the sophistication and speed to which modern viewers are accustomed.

## *Documentation: Daily Life and Ethnic Customs*

Curiosity about the everyday lives of the world's peoples predates the invention of photography, but as industrial nations involved themselves in imperialist adventures around the globe, the camera emerged as a most apt tool for satisfying the thirst for sociological information that emerged. Between 1855 and about 1880, collodion/albumen technology made it possible for resolute photographers, both amateur and professional, to follow their countrymen to Africa, the Americas, Asia, and the Near East in order to record, besides scenery, aspects of daily life and ethnic customs. Though under the impression that these documentations were "objective"—that is, truthful records of what exists—those behind the cameras were guided in their selection and treatment of material both by a sense of being emissaries of a "higher civilization,"[7] as John Thomson called it, and by the desire for commercial success. Nevertheless, despite assumptions of superiority, the close observation of indigenous customs altered ethnocen-

184. ANDREW J. RUSSELL. *Meeting of the Rails, Promontory Point, Utah*, 1869.
Albumen print. Union Pacific Historical Museum, Omaha, Neb.

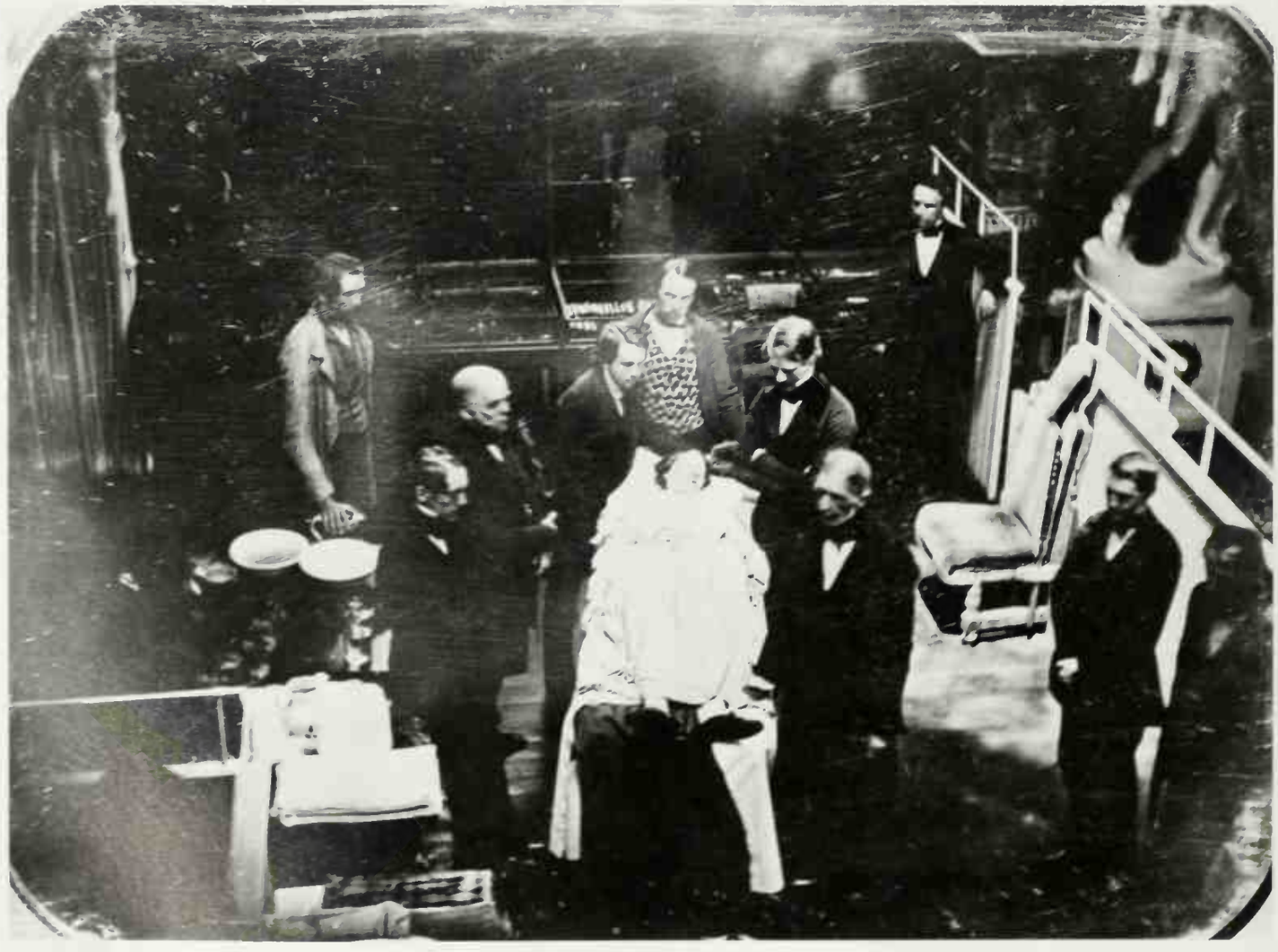
185. ANDREW J. RUSSELL. *The Construction of the Railroad at Citadel Rock, Green River, Wyoming,* 1867–68. Albumen print. Western Americana Collection, Beinecke Rare Book and Manuscript Library, Yale University, New Haven, Conn.

186. WILLIAM RAU. *New Main Line at Duncannon,* 1906. Gelatin silver print. J. Paul Getty Museum, Los Angeles.

tric attitudes and in some cases even evoked admiration for elements of so-called "backward" cultures among photographers.

India under British rule provided the greatest opportunity to satisfy the desire for this kind of imagery on the part of occupying residents and folks back home. Among those portraying native life in the areas where Britons maintained interests in the jute, tea, and teak industries were Félice Beato (a naturalized British subject of Italian birth whose biography has recently emerged), Samuel Bourne (whose catalog listings included "Groups of Native Characters"), and John Burke, who worked in the Punjab and in Kashmir before recording the course of the Second Afghan War. The now little-known William Johnson, a founder of the Bombay Photographic Society, published his views of Indian teachers, vendors, and workers periodically in 1856 in *The Indian Amateur's Photographic Album* and then in a single volume containing 61 photographs. *Group of Cotton Carders (pl. no. 191)* has a mannered quality common to many such staged indoor scenes of the time, whereas the out-of-doors settings that served as the locales for Captain Willoughby Wallace Hooper gave his images of lower-caste Hindu life and famine victims a more natural-looking aspect.

Known or unknown, British photographers sent to oversee or to document colonial activities in other parts of the empire on which "the sun never set" sent home views of the native peoples of South Africa, Australia, and New Zealand, as well as of India. The effects on Western viewers of scores of camera pictures of scantily clad, sometimes tattooed or painted humans of color from unindustrialized parts of the world are difficult to determine. No doubt as a group these images stimulated 19th-century positivists in their quest for anthropological information, but whether they reinforced dominant stereotypes against nonwhites or made viewers more conscious of individual differences



187. ALBERT SANDS SOUTHWORTH and JOSIAH JOHNSON HAWES. *Operating Room, Massachusetts General Hospital, Woman Patient*, 1846–48. Daguerreotype. Massachusetts General Hospital News Office, Boston.

168. George N. Barnard. *Burning Mill, Oswego, New York*, 1851. Daguerreotype. International Museum of Photography at George Eastman House, Rochester, N.Y.

169. Edward Anthony. *New York Street Scene*, 1852. One-half of an albumen stereograph. Collection George R. Rinhart

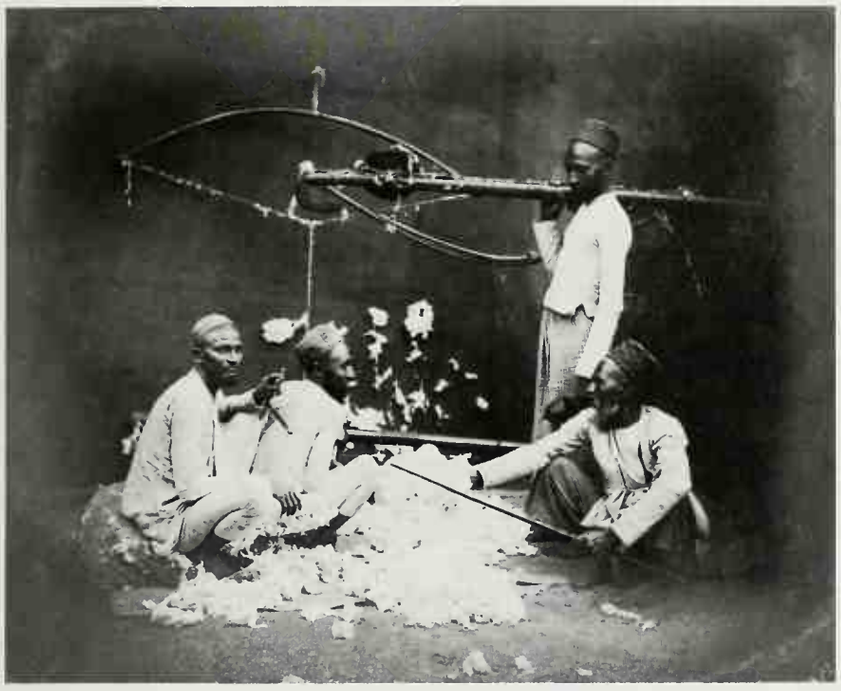
among subjected peoples depended in part on the individual photographer's attitude and approach and in part on the context in which they were seen.

In China, posed studio photographs simulating typical occupations appeared on *cartes-de-visite* made in the port cities during the 1850s, but actual views of street life did not reach the West until John Thomson issued *Illustrations of China and Its People* in 1873–74. The 200 photographs reproduced in heliotype with descriptive texts—the result of nearly five years spent in Hong Kong, Formosa, and on the mainland—include, besides portraits and scenery, images of people engaged in mundane activities, among them *Itinerant Tradesmen, Kiu Kiang Kiangsi (pl. no. 192)*. This image may suggest a staged view, but its sharpness and detail were meant to convince 19th-century viewers of the reality of a scene happened upon by accident.

Views of everyday life in Japan (based on photographs) appeared in the *Illustrated London News* soon after the country was opened to Western exploitation by Commodore Matthew C. Perry; on that occasion, a camera was given to the shogun. The peripatetic Félice Beato arrived in Japan about 1863, and five years later his *Photographic Views of Japan with Historical and Descriptive Notes* appeared; one of its two volumes is devoted to "Native Types." Though similar in intent to Thomson's views of China, many of Beato's portrayals depict aristocrats, military men, laborers, vendors, and geisha *(pl. no. 333)* posed in the studio holding emblems of their rank or trade. Gracefully composed against simple backgrounds and delicately hand-colored by Japanese artists, these works suggest the influence of the decorative *ukiyo-e* woodblock depictions of daily life. Similar amalgams of sociological information and artistic effect designed to attract travelers constitute the work of Baron Reteniz von Stillfried, an Austrian who settled in Yokohama in 1871, bought Beato's studio, and produced, with a partner and Japanese assistants, an album entitled *Views and Costumes of Japan (pl. no. 193)*. The genre was further refined by the Japanese photographer Kusakabe Kimbei, an assistant to von Stillfried who took over the latter's studio around 1885 *(pl. no. 194)*. Following the Meiji Restoration of the late 1860s, which introduced modern industrial ideas to Japan, photography began to spread; by 1877 there were 100 photographers in Tokyo alone, working mainly for the wealthy.

Tribal peoples played similar roles for those intrigued by exotic customs in the western hemisphere. In the United States, railroad, survey, and frontier photographers—including Gardner, Jackson, and John K. Hillers (first official photographer for the Bureau of Ethnology)—documented Indian life in the course of other work. To the north, Humphrey Lloyd Hime included "native races" in his portfolio on the Assiniboine and Saskatchewan expe-

190. Hippolyte Jouvin. *Porte St. Denis, Paris*, c. 1860. Albumen stereograph. Collection Ivan Christ, Paris.



191. WILLIAM JOHNSON. *Group of Cotton Carders* from *The Indian Amateur's Photographic Album*, 1856. Albumen print. India Office Library and Records Department, British Library, London.

192. JOHN THOMSON. *Itinerant Tradesman, Kiu Kiang Kiangsi*, c. 1868. Albumen print. Philadelphia Museum of Art; Purchase of Stieglitz Restricted Fund.

193. Baron Reteniz von Stillfried. *Rain Shower in the Studio*, c. 1875. Albumen print. International Museum of Photography at George Eastman House, Rochester, N.Y.

194. KUSAKABE KIMBEI. *New Year Drill of Japanese Fire Brigade*, c. 1890. Albumen print. International Museum of Photography at George Eastman House, Rochester, N.Y.

195. Adam Clark Vroman. *Hopi Maiden*, c. 1902. Platinum print. Private Collection.

196. EDWARD S. CURTIS. *The Vanishing Race*, c. 1904. Platinum print. San Francisco Museum of Modern Art; extended loan of Van Deren Coke.

197. ROBERT FLAHERTY. *Portrait of Mother and Child, Ungava Peninsula*, 1910–12. Gelatin silver print. Public Archives of Canada, Ottawa.

ditions in 1858. As the open lands and simple life of the West began to attract escapees from densely settled industrialized regions (and nations), straightforward documentation of Indian life became tinged with idealizing intentions. Individuals such as Adam Clark Vroman, a California bookseller who first accompanied a party of ethnologists to the Southwest in 1895, used the camera to emphasize the dignity, industriousness, and charm of the Hopi and Zuni *(pl. no. 195)* as well as to depict their customs and ceremonies. Besides donating images to the Bureau of Ethnology archives, Vroman employed them in slide lectures and publications. Ten or so years later, the photographic logging of archaeological excavations was introduced by the Harvard professor George Reisner.

In the same era, Edward S. Curtis, an ambitious commercial photographer in Seattle, felt moved to record vestiges of the culture of what he perceived as a "vanishing race,"[8] eventually creating a 20-volume survey of the customs, habitations, and dress of the Indians of North America. Supported initially by financial help from the investment banker J. P. Morgan, Curtis saw tribal life through a veil of cultural preconceptions that at times led him to introduce into his documentation traditional costumes and artifacts no longer in general use. Working at a time before standards for ethnological photography had been formulated, Curtis treated this subject matter aesthetically, softening forms and obscuring detail to emphasize his overall concept of the mythic nature of American Indian life. Often haunting in character *(pl. no. 196)*, these images of Native American life could be considered within the framework of Pictorialism rather than of documentation *(see Chapter 7)*. Similarly, *Portrait of Mother and Child, Ungava Peninsula (pl. no. 197)*, one of some 1,500 still photographs by the filmmaker Robert Flaherty (whose wife, Frances, often worked with him), combines sociological information with a heroicizing vision that celebrates the unspoiled essence of Inuit life.

## *Scientific and Medical Documentation*

The second half of the 19th century was also an era of expanding use of photography in connection with scientific documentation. The first daguerreotype microphotographs, by John Benjamin Dancer in the 1840s, reduced a 20-inch document to 1/8 of an inch using a camera with a microscope lens. Other early experiments in both calotype and daguerreotype produced micrographs of bones, teeth, butterfly wings, and seed pods that were harbingers of the contributions anticipated when the camera was harnessed to the microscope. However, the daguerreotype was too unwieldy and the calotype too indistinct to be of great service to science, even though a textbook and atlas based on micro-daguerreotypes taken by Jean Bernard Foucault was issued by Alfred Donné, the chief clinical physician of a Paris hospital, in 1845. With the development of the glass-plate negative, along with the refinement of microscopes, lenses, and shutters, ever-more-minute analyses of unseen and barely seen forms and structures became possible. An important contribution in this advance was *Human Physiology* by Professor John William Draper, whose portrait experiments were discussed in Chapter 2. Published in 1856 with woodcuts based on photographs, it was, according to *Harper's New Monthly Magazine*, the first "attempt . . . on an extensive scale to illustrate a book on exact science with the aid of photography."[9] Not long afterward, the first text on the use of photography in microscopic research was written by a German physiologist, Joseph Gerlach, according to Alison Gernsheim (one of the first writers to investigate the historical uses of the camera in medicine). A *Photographic Atlas of the Nervous System of the Human Frame* was projected for publication in Munich in 1861.[10]

Used at first in England and Germany to provide before-and-after records, camera images soon began to illustrate medical texts on diverse problems, from skin lesions to glandular and skeletal aberrations. In 1858, the London *Photographic Journal* prophesied that every medical school soon would be furnished with a library of photographic illustrations of disease, and by 1861 the medical profession acknowledged that stereographs and the stereoscope had become "important adjuncts to the microscope for representing the appearance of different phases of disease."[11]

In the study of mental instability, photography assumed administrative, diagnostic, and therapeutic functions. Dr. Hugh Welch Diamond's 1852 portraits taken in a mental asylum have been mentioned, but photography already had been used a year earlier as a component of a concept known as "moral treatment"[12]—an intervention that sought to provide confined mental patients with antidotes to boredom and nonconstructive activity by showing them lantern slides. In what may have been the first use of photographic rather than hand-painted slides, the Langenheim brothers collaborated with the chief physician of the Philadelphia Hospital for the Insane in this magic-lantern therapy.

## *The Documentation of Wars and Conflicts*

War coverage did not really become feasible until the collodion era. It was obvious from the first that the slow, one-of-a-kind daguerreotype was ill suited for war coverage, although some portraits of army personnel were made by this method. The laborious procedures of the