

7 • "A NEW FORM OF COMMUNICATION"

Beaumont Newhall, *The History of Photography* (New York, 1982)

In contrast to those who sought to rival the painter with camera and lens, there were hundreds who used photography quite simply and directly as a means of recording the world about them. The ability of the medium to render seemingly infinite detail, to record more than the photographer saw at the time of exposure, and to multiply these images in almost limitless number, made available to the public a wealth of pictorial records exceeding everything known before. Photographers the world over were recording history in the making, the look of faraway and often hitherto unexplored places and the people living there, the familiar "sights" worth seeing and remembering by travelers, and man's most recent architectural and engineering accomplishments.

This contribution of photography, which had won the support of Baudelaire, was also praised by Lady Elizabeth Eastlake in her essay "Photography" in the *London Quarterly Review* for 1857. Her aesthetic could not embrace photography as one of the Fine Arts. She wrote:

"For everything for which Art, so-called, has hitherto been the means but not the end, photography is the allotted agent. . . . She is the sworn witness of everything presented to her view. What are her unerring records in the service of mechanics, engineering, geology, and natural history, but facts of the most sterling and stubborn kind? . . . Facts which are neither the province of art nor of description, but that of a new form of communication between man and man—neither letter, message, nor picture—which now happily fills up the space between them?"¹

The first extensive photographic coverage of war was undertaken by Roger Fenton, an Englishman who came to photography from the legal profession, first as an amateur and then as a professional. His first work was a series of calotypes taken during a visit to Russia with his friend Charles Vignoles, a civil engineer who was building a bridge in that country. Fenton became the principal founder of the Photographic Society of London, and well known for his finely detailed yet massive architectural views and carefully composed still life studies, taken on collodion plates sensitized with his own modification of Archer's formula. Queen Victoria requested him to photograph the royal family and estates. He then

became official photographer to the British Museum and produced hundreds of prints of artifacts and works of art in that collection. The excellence of his work led the printseller Thomas Agnew and Son to commission him to photograph the theater of war in the Crimea.

He took with him a wagon, fitted out as a darkroom, for he was using the wet-collodion process. Five cameras, 700 glass plates, chemicals, rations, harnesses, and tools made up his equipment. At Gibraltar he bought four horses. The "Photographic Van" was unloaded at Balaklava in March 1855. In a month he was at the front with his assistant, Marcus Sparling.

The battlefields of the Crimea were vast, level plains; they appear flat and dull in Fenton's photographs of them, and it is difficult to realize that many of the views were taken at great personal risk, under direct shellfire. At the ravine known as "The Valley of the Shadow of Death," Fenton wrote his family on April 24:

I took the van down nearly as far as I intended to go and then went forward to find out the chosen spot. I had scarcely started when a dash of dust behind the battery before us showed that something was on its way to us. We could not see it, but another flood of earth nearer showed us that it was coming straight, and in a moment we saw it bounding toward us. It was plain that the line of fire was upon the very spot I had chosen, so very reluctantly I put up with another view of the valley 100 yards short of the best point.²

Fenton's view of Balaklava, its harbor choked with ships, its quays with matériel of all sorts, shows the confusion that marked this disorganized war. Most of the 300 negatives he made are portraits of the officers in full dress, and of the men. He was constantly bothered by demands for portraits. "If I refuse to take them," he wrote, "I get no facilities for conveying my van from one locality to another."³ The heat was excessive. "When my van door is closed before the plate is prepared, perspiration is running down my face, and dropping like tears. . . . The developing water is so hot I can hardly bear my hands in it."⁴

He returned to England in July, a sick man suffering from cholera. Exhibitions were held of the photographs in London and Paris; wood engravings of some of them

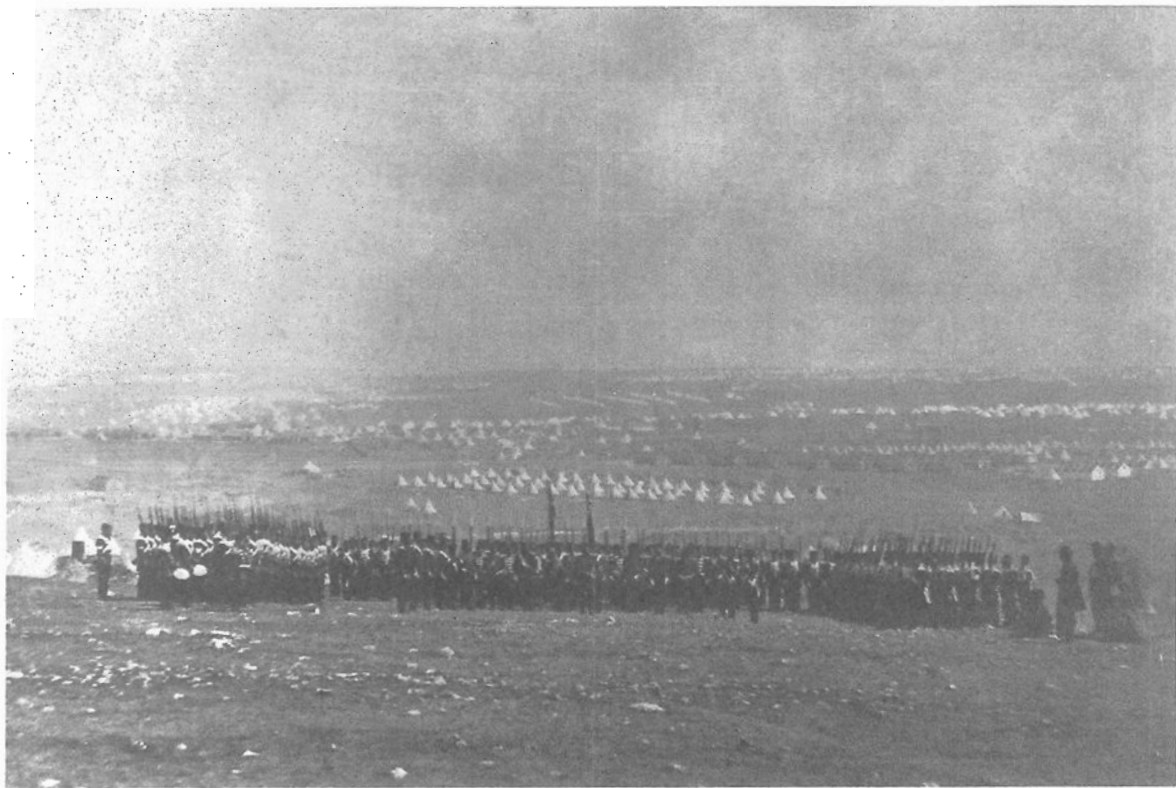


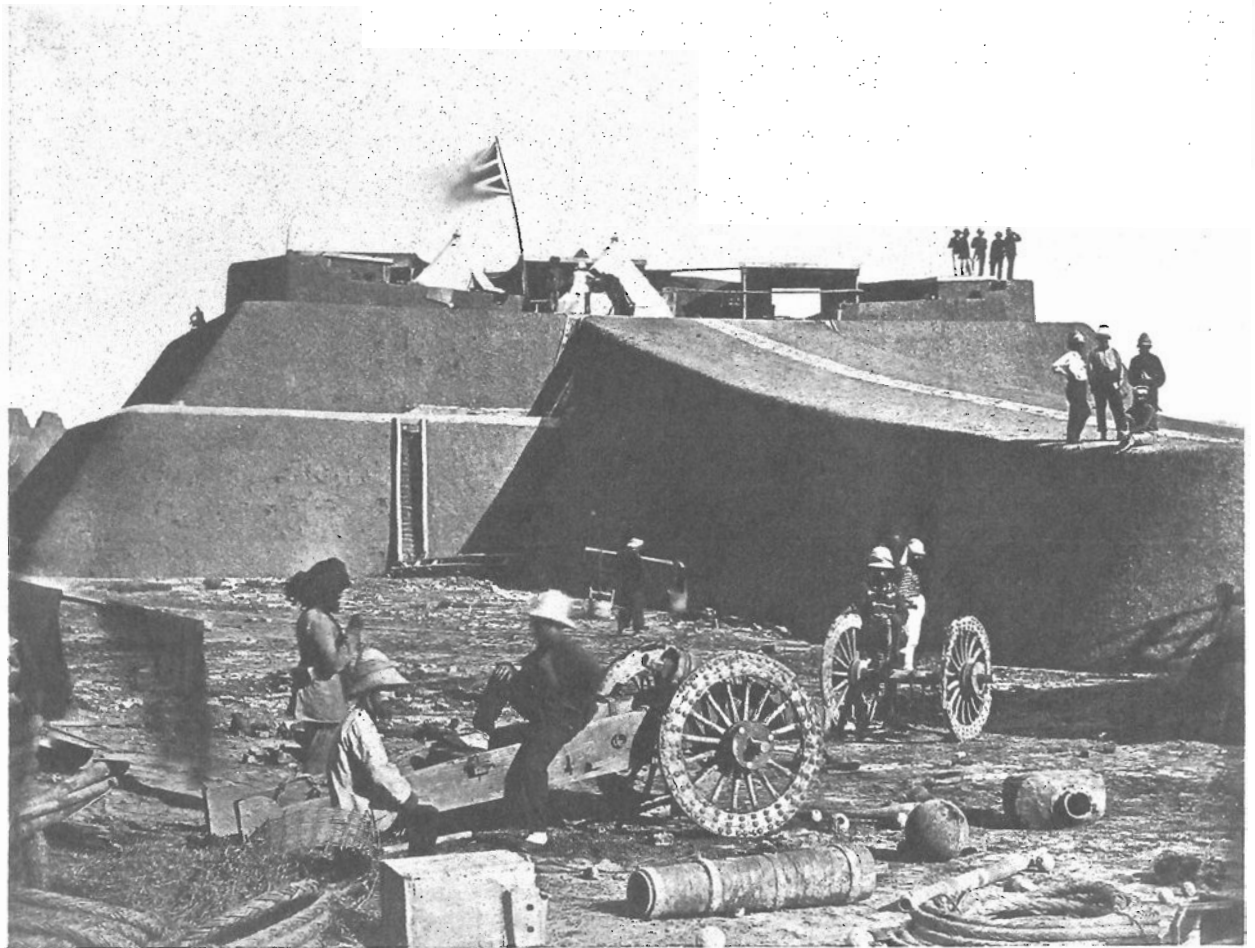
Above: ROGER FENTON. *Roslyn Chapel, Scotland.* ca. 1856. Albumen print. The Museum of Modern Art, New York.

Opposite top: ROGER FENTON. *The 57th Regiment.* 1855. Salted paper print. Gernsheim Collection, Humanities Research Center, University of Texas, Austin.

Opposite bottom: ROGER FENTON. "*The Valley of the Shadow of Death.*" 1855. Salted paper print. Gernsheim Collection, Humanities Research Center, University of Texas, Austin.

Roger Fenton's Crimean War photographs were exhibited at the Gallery of the Water Colour Society in London in 1855. The editor of *The Photographic Journal* wrote that it was "The most remarkable and in certain respects the most interesting exhibition of photographs ever opened." He was particularly impressed by *The Valley of the Shadow of Death*, "with its terrible suggestions, not merely those awakened in the memory, but actually brought materially before the eyes, by the photographic reproduction of the cannon-balls lying strewed like the moraines of a melted glacier through the bottom of the valley."—*The Photographic Journal*, vol. 2 (1855), p. 221.





FELICE BEATO. *Headquarters Staff, Pehtang Fort*. 1860. Albumen print. The Museum of Modern Art, New York.

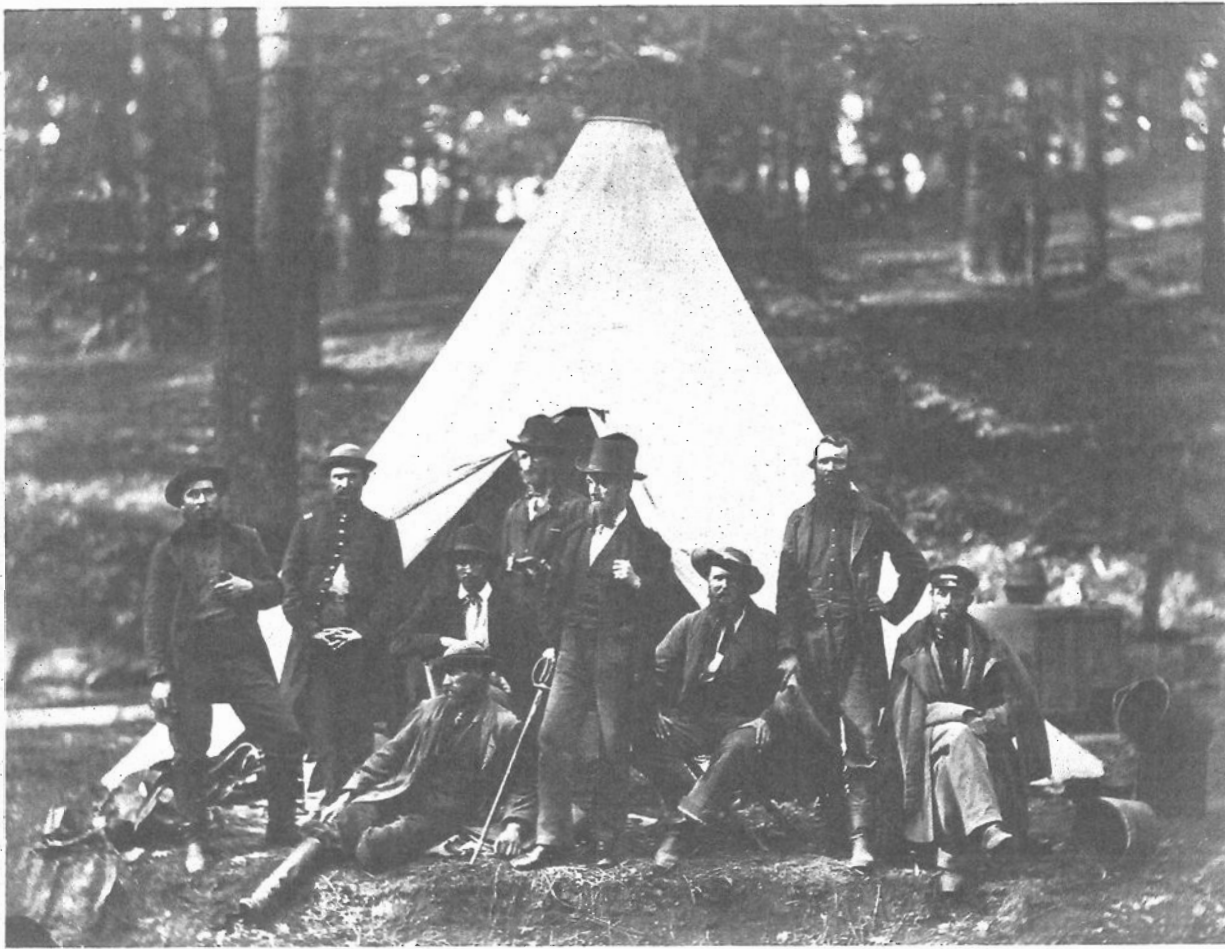
were printed in the *Illustrated London News*; prints pasted on paper mounts with engraved titles, were sold by Agnew. The *London Times* wrote: "The photographer who follows in the wake of modern armies must be content with conditions of repose and with the still life which remains when the fighting is over."⁵ To a public used to the conventional fantasies of romantic battle painters, these photographs seemed dull, yet they recognized in them the virtue of the camera as a faithful witness. "Whatever he represents from the field must be real," the *London Times* admitted, "and the private soldier has just as good a likeness as the general."

The fall of Sebastopol was photographed by James Robertson, then chief engraver to the Imperial Mint in Constantinople; in 1857 he was official photographer to the British military force sent to India to quell the Bengal-Sepoy Mutiny. He worked there with Felice Beato; their photographs of the aftermath of the siege of Lucknow in 1858 are records of the shattered ruins of architectural splendor; amidst them are sun-bleached skeletons of the fallen defenders. Beato went on to Japan

and China. His photographs of the capture of Tientsin by British and French troops in August 1860, at the end of the Opium Wars, are even more terrifying, for Beato shows corpses strewn about just hours after they fell in the bitter fighting.

When the Civil War broke out in America in 1861, the photographic fraternity took the news lightly. "A battle scene is a fine subject for an artist,—painter, historian or photographer," declared the editor of the *American Journal of Photography*. "We hope to see a photograph of the next battle. . . . There will be little danger in the active duties for the photographer must be beyond the smell of gunpowder or his chemicals will not work."⁶

How greatly the dangers and difficulties of combat photography had been underestimated war soon found out by Brady, the former daguerreotypist. He already had shown his interest in history in the publication of *The Gallery of Illustrious Americans*. This sense of photographic documentation impelled him to undertake the recording of the Civil War; his close friendship with influential government leaders enabled him to secure the



ALEXANDER GARDNER. *Scouts and Guides to the Army of the Potomac*. 1862. Albumen print. Plate 28 of *Gardner's Photographic Sketch Book of the War* (Washington, D.C.: 1866). The Museum of Modern Art, New York.

necessary authorization to enter combat zones; and he had skilled cameramen in his employ.

With his cameramen he hurried to the front, where his photographic buggy became a familiar sight to the soldiers, who called it the "What-is-it?" wagon, and spoke of Brady as "that grand picture maker." It required no little zeal and intrepidity to remain crouched for minutes on end in the darkness of that fragile darkroom, going through the delicate manipulations of preparing and processing the glass plates while the din of battle shook the ground. Unarmed, knowing that the wagon itself was a suspicious-looking target, the photographers were exposed to the hazards of war. They risked their lives to save their plates. Brady was almost killed at Bull Run. Lost for three days, he finally turned up in Washington, haggard and hungry, still in his long linen duster, from which protruded a sword given him by a Zouave. He purchased new equipment, rounded up his cameramen, and rushed back to the battlefields. The *New York World* wrote:

Mr. Brady's "Scenes and Incidents" . . . are inestimable

chroniclers of this tempestuous epoch, exquisite in beauty, truthful as the records of heaven. . . . Their projector has gone to his work with a conscientious largeness becoming the acknowledged leader of his profession in America. . . . "Brady's Photographic Corps," heartily welcomed in each of our armies, has been a feature as distinct and omnipresent as the corps of balloon, telegraph, and signal operators. They have threaded the weary stadia of every march; have hung on the skirts of every battle-scene; have caught the compassion of the hospital, the romance of the bivouac, the pomp and panoply of the field review—aye, even the cloud of conflict, the flash of the battery, the afterwreck and anguish of the hard-won field.⁷

Brady's men photographed every phase of the war that their technique could encompass: battlefields, ruins, officers, men, artillery, corpses, ships, railroads. There were over seven thousand negatives when peace was declared; the majority of them are now preserved in the National Archives of the United States and in the Library of Congress.

Brady appears to have been the first to undertake the photographic documentation of the Civil War, for the



Photographer unknown. *Powder Monkey, "U.S. New Hampshire," off Charlestown, S.C. ca. 1865.* Gelatin-silver print from the original negative in The Library of Congress, Washington, D.C.

editor of *Humphrey's Journal of Photography* remarked in the issue of September 15, 1861, that Brady was planning to return to the front and was amazed that others had not followed his example. Soon cameramen by the score went to the battlefields. The Army of the Potomac alone issued passes to over three hundred of them.⁸ Chief among Brady's cameramen were Alexander Gardner, in charge of the Washington Gallery since 1858, Timothy H. O'Sullivan, and George N. Barnard.

Gardner broke with Brady in 1863, and founded his own photographic corps, taking with him O'Sullivan and other photographers. The split was caused by Brady's unwillingness to credit his cameramen and his refusal to allow them to keep negatives taken on their own time. In 1865-66 Gardner published the two-volume *Photographic Sketch Book of the War*, containing 100 original prints, each accompanied by a page of text.⁹ They contain some of the finest photographs of the Civil War. The names of the makers of the negatives and prints are meticulously recorded.¹⁰

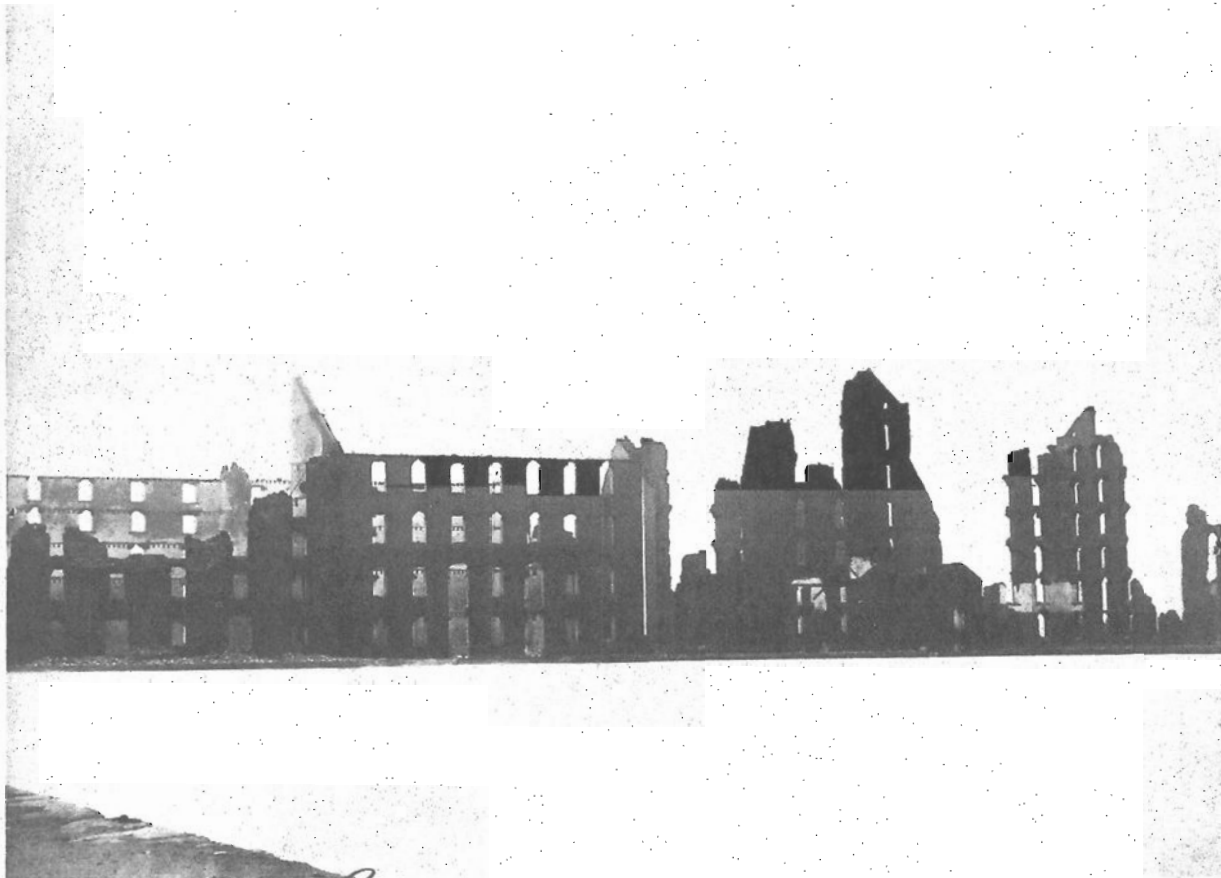
George N. Barnard, who worked for a while in Brady's Washington Gallery and photographed for him the landmarks of the Battle of Bull Run after the Union armies

recaptured that area of hostilities, was the official photographer for General W. T. Sherman in his campaign from Tennessee through Georgia and South Carolina. He published a collection of these photographs in 1866; they show battlegrounds, hastily thrown up fortifications, immense railroad bridges built by the Engineer Corps, and destruction in Atlanta.¹¹ There is a strange mixture in Barnard's photographs of the immediacy of the scenes of devastation and the romanticism of the landscapes, most of which were taken long after the cessation of hostilities.

Among the powerful pictures of the Civil War are the stiff and gruesome corpses strewn upon the battlefield, awaiting hasty burial during the short truces that followed each battle. An editorial in *The New York Times* for October 20, 1862, brings home to us the impact of these tragic documents:

BRADY'S PHOTOGRAPHS PICTURES OF THE DEAD AT ANTIETAM

... Mr. Brady has done something to bring home to us the terrible reality and earnestness of war. If he has not brought bodies and laid them in our door-yards and along the streets, he has done something very like it. At the door of his gallery hangs a little placard, "The Dead



Photographer unknown. *Ruins of the Gallego Flour Mills, Richmond, Virginia. 1865.* Albumen print. The Museum of Modern Art, New York.





ALEXANDER GARDNER. *View Near Fort Harker, Kansas, 216 Miles West of Missouri River, 1867.* Albumen print. Collection Arnold H. Crane, Chicago.

at Antietam." Crowds of people are constantly going up the stairs, follow them, and you find them bending over photographic views of that fearful battlefield, taken immediately after the action. . . .

These pictures have a terrible distinctness. By the aid of the magnifying-glass, the very features of the slain may be distinguished. We would scarce choose to be in the gallery, when one of the women bending over them should recognize a husband, son, or a brother in the still, lifeless lines of bodies, that lie ready for the gaping trenches. . . .

Corpses abound in battle paintings since the Renaissance. For the most part these dead are civilian figures; they are accessories, stage settings. But O'Sullivan's rifleman, lying in death, is a portrait. This man lived; this is the spot where he fell; this is how he looked at the very moment when he expired. Therein lies the great psychological difference between photography and the other arts; this is the quality that photography can transmit more strongly than can any other picture making. As Oliver Wendell Holmes put it:

The very things which an artist would leave out, or render imperfectly, the photograph takes infinite care with, and so renders its illusions perfect. What is the picture of a drum without the marks on its head where the beating of the sticks has darkened the parchment?¹²

The camera records what is focused upon the ground glass. If we had been there, we would have seen it so. We could have touched it, counted the pebbles, noted the wrinkles, no more, no less. However, we have been shown again and again that this is pure illusion. Subjects can be misrepresented, distorted, faked. We now know it, and even delight in it occasionally, but the knowledge still cannot shake our implicit faith in the truth of a photographic record.

The fundamental belief in the authenticity of photographs explains why photographs of people no longer living and of vanished architecture are so melancholy. Neither words nor the most detailed painting can evoke a moment of vanished time as powerfully and as completely as a good photograph.

In the unsettled days that followed the cessation of hostilities in America, many Civil War photographers followed the building of the transcontinental railroad and joined the semi-military survey parties of the army engineers. Combat photography had not only toughened them for the rigors of frontier travel, but it had also trained them to handle the troublesome wet-collodion technique under unfavorable conditions.

Alexander Gardner photographed the construction of the Eastern Division of the Union Pacific Railroad across Kansas from the Missouri River to its junction with the main line at Hays City. He then proceeded, apparently with a surveying party, on a southwestern course

across Colorado, New Mexico, and Arizona to the Sierra Nevada—"1700 miles west of the Missouri," as he noted in the caption of a photograph of Tejon Pass in California. An album of albumen prints titled *Across the Continent on the Kansas Pacific Railroad* was published in 1868, the year when the railroad changed its name. The photographs not only document the construction of the railroad, but vividly present cross-country travel by wagon train.

Captain Andrew Joseph Russell was present at the historic moment on May 10, 1869, when the tracks of the Union Pacific Railroad met those of the Central Pacific at Promontory, Utah, and the last spike was driven. The Mormon photographer Charles R. Savage and Alfred A. Hart of Sacramento, were also on hand. Their photographs of "The Meeting of the Rails" were widely reproduced in such picture-magazines as *Harper's Weekly* and *The Police Gazette*.

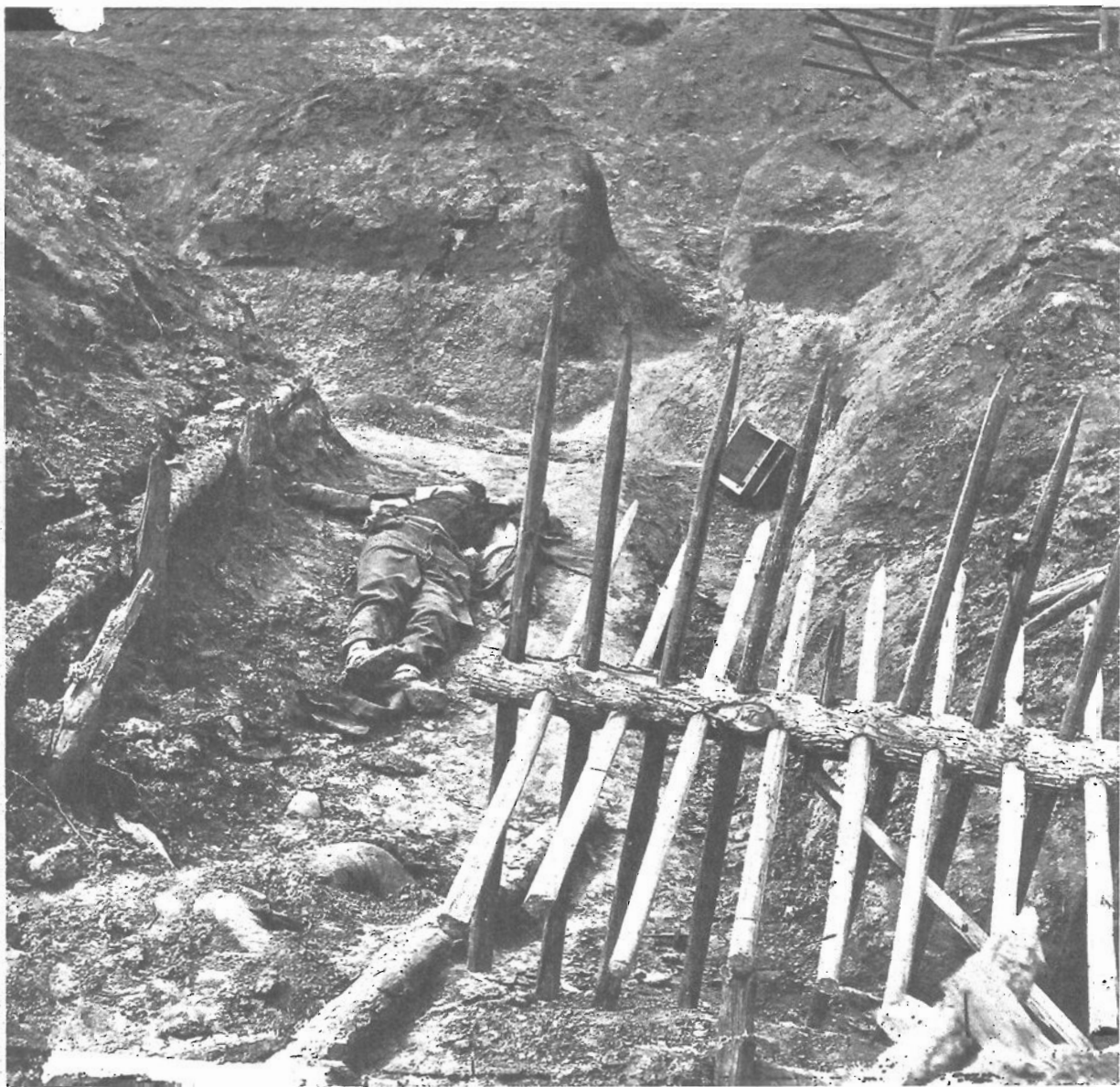
Photographers accompanied the government expeditions sent out to explore the territories. In *A Canyon Voyage*, Frederick S. Deilenbaugh described the photographic outfit as the terror of Major John Wesley Powell's exploration of the Grand Canyon in 1871:

The camera in its strong box was a heavy load to carry up the rocks, but it was nothing to the chemical and plate-holder box, which in turn was featherweight compared to the imitation hand organ which served for a darkroom. This dark box was the special sorrow of the expedition, as it had to be dragged up the heights from 500 to 3000 feet.¹³

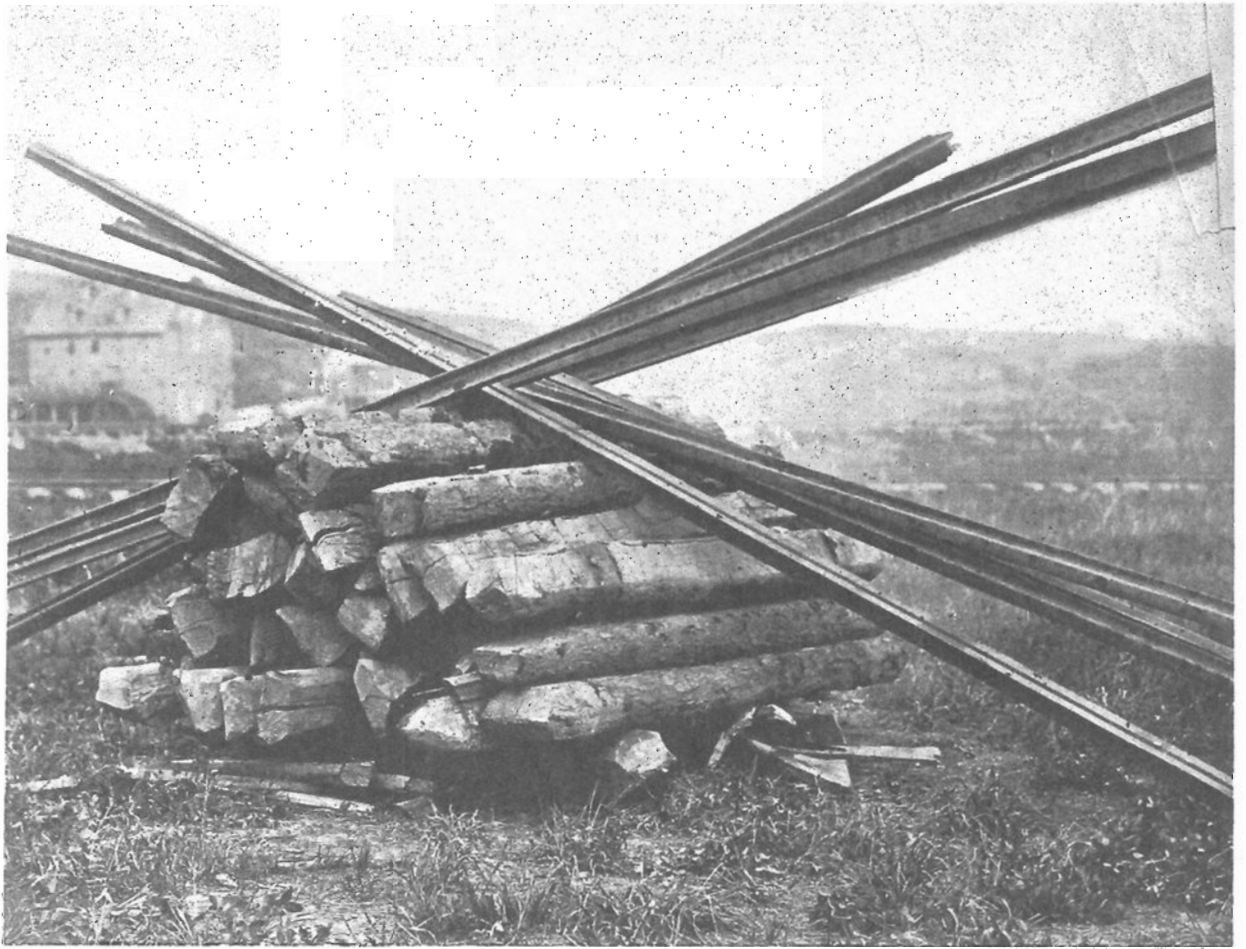
Men would travel miles over back-breaking terrain and come back empty handed. Two of the photographers who had made a side trip to the Kanab Canyon did not get a single negative. "The silver bath had got out of order, and the horse bearing the camera fell off a cliff and landed on top of the camera, which had been tied on the outside of the pack, with a result that need not be described."¹⁴

The photographers were, successively, E. O. Beaman of New York City, who quit after eleven months in a dispute; James Fennemore of Salt Lake City, who became ill; and John K. Hillers, the party's oarsman, who had been trained in the field by both professionals. Hillers served as Powell's cameraman on the expeditions of 1873-79, and then was appointed Chief Photographer of the newly-formed United States Geological Survey.

Timothy H. O'Sullivan, one of the most daring of the war photographers, joined Clarence King's Geological Exploration of the Fortieth Parallel in 1867.¹⁵ Seventeen civilians and twenty cavalry troops left San Francisco for the Great Salt Lake via the Sierra Nevada. Two mules and a packer were assigned to O'Sullivan. At Virginia City,



Photographer unknown. *Dead Confederate Soldiers in Trench Beyond Cheveaux-de-frise, Petersburg, Virginia. 1865.* Gelatin-silver print from the original negative in The Library of Congress, Washington, D.C.



GEORGE N. BARNARD. "Sherman's Hairpins." 1864. Albumen print. The Museum of Modern Art, New York.

Brady wrote: "On the March to the Sea Sherman's Army burned the bridges and destroyed the rail road as they went . . . The rails are first torn up, then, the wooden ties are pried out and piled in heaps and burned; the iron rails are laid across the burning ties and soon get hot enough in the middle so that the weight of the ends bend the rails. Of course when they get cold they are simply good as 'old Iron.'"—Brady's *Lecture Book*, lantern slide No. 109, quoted in Roy Meredith, *Mr. Lincoln's Camera Man* (New York: 1946).

Nevada, he photographed hundreds of feet underground in the Comstock Lode mines by magnesium flare—dangerous and unpredictable anywhere, almost suicidal in mines where inflammable gas might be lurking. A later side trip took him into the desert sixty miles south of Carson Sink where, with the luxury of a darkroom in an ambulance drawn by four mules, he photographed the five-hundred-foot-high shifting sand dunes.

In 1870 O'Sullivan was in Panama, photographing for Commander Thomas Oliver Selfridge's Darien Expedition. The following year, when he joined 1st Lt. George Montague Wheeler in the Engineer Corps' Geological & Geographical Surveys & Explorations West of the 100th Meridian, O'Sullivan was probably the most experienced expeditionary photographer in the country. He was to find high adventure and magnificent material for his camera in the Southwest. The expedition's first sortie was an ascent of the Colorado River. In camp thirty-five miles below the present site of Boulder Dam, O'Sullivan made one of his finest views. In the foreground his boat, *Picture*, is drawn up to the bank, with the omnipresent black dark tent inside it. The waters of the Colorado appear deceptively smooth, due to the length of exposure; behind rise the dark and menacing profiles of Black Canyon. As the party passed through the area now submerged by Lake Mead the going became increasingly tough: ". . . The boat party entered the jaws of the Grand Canyon, not knowing what was before them," Wheeler wrote. "Up to this time the rapids, though often very swift, had not been accompanied by heavy falls, and the estimate for the time to reach the mouth of the Diamond Creek [the rendezvous with the ground party] was based on our experience up to that time, which supposed due allowance for increasing difficulties."¹⁶ Wheeler's papers were lost in an upset; at Camp 28, Starvation Camp, rations were so low that Wheeler guarded them personally, complaining to his diary that there was not enough to make even a decent pillow. After a month's trip the exhausted travelers reached Diamond Creek.

Some of O'Sullivan's finest photographs were made on the Survey's 1873 exploration of the area now known as the Canyon de Chelly National Monument in Arizona. The awe-inspiring scale of the Canyon is wonderfully sensed. One view was taken by brilliant, raking sunlight, which picks out every stratum of the Canyon wall. Two tiny figures pose on the famous White House ruins "in a niche 50 feet from the present Cañon bed," as the caption reads. Two other explorers stand among the lower ruins; one holds the rope by which the cliff was scaled.

William Henry Jackson joined the geologist Francis Vandiveer Hayden's Geological and Geographic Survey

of the Territories in 1870. As a boy in Vermont he had been employed as "colorist" in photographic galleries. Restless for the West, he bullwhacked from Missouri across the Continent and then, in 1867, settled in Omaha, Nebraska, where he opened a studio with his brother. Omaha was a bustling railroad town, and portrait business was brisk, but Jackson found indoor work irksome, and left routine portrait sittings to his brother while he went out into the country, photographing Indians and the landscape. In 1869 he went out with his camera along the line of the newly completed transcontinental railroad, beginning at Promontory, where the lines met, and worked his way southeast to the vicinity of Salt Lake City. He took with him 300 glass plates, cameras, processing equipment, and two tents—one for his darkroom and one to sleep in. He covered some 120 miles in three months. These landscapes so impressed Hayden when he saw them that he invited Jackson to join the survey party. On the 1871 survey Jackson made many photographs of the Rocky Mountains, particularly the Yellowstone area, which, with its geysers and hot springs and grand scenery hardly seemed believable to those who had not made the arduous trip into the wilderness. At the end of his career Jackson recollected in his autobiography, *Time Exposure*, that his photographs "helped to do a fine piece of work: without a dissenting vote, Congress established the Yellowstone as a national park, to be forever set aside for the people. And on March 1, 1872, with the signature of President Grant, the bill became a law."¹⁷

Like most photographers, Jackson took several cameras into the field, partly as insurance against accidents and partly to make a variety of negative sizes. Although enlarging was possible, contact printing was much preferred, particularly when quantities of prints were needed for distribution. The very expanse of western scenery demanded photographs large in size. In 1875 Jackson astounded the photographic world by packing a camera for 20 x 24-inch plates up the Rocky Mountains. He recorded twelve of these huge negatives in the official government catalog: "These are the largest plates ever used in field photography in this country. They convey an impression of the real grandeur and the magnitude of mountain scenery that the smaller views cannot possibly impart."

The editor of *The Philadelphia Photographer* praised these mammoth views:

An examination of these pictures fills us with admiration and amazement. Admiration for this magnificent scenery of our own country, which is scarcely excelled by that of any other, and for the wonderfully successful work of this mammoth size, each picture of which is a study in its composition, its lighting and general grandeur of effect produced by its breadth and perspective. Amaze-

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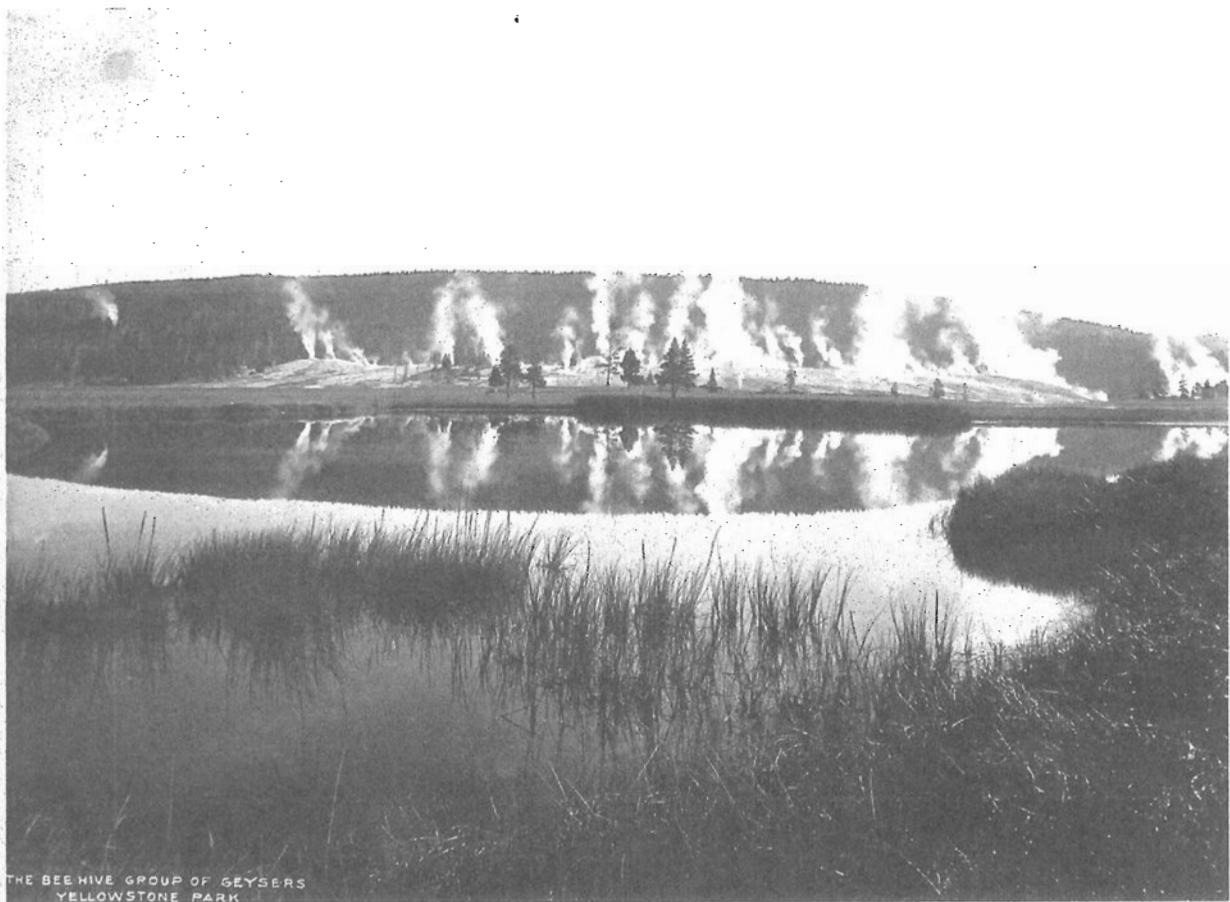
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GEYSERS ON THE YELLOWSTONE RESERVATION. DRAWN BY H. JENING. SEE PAGE 428

Geysers on the Yellowstone Reservation. Drawn from photographs by William Henry Jackson. From the Illustrated Christian Weekly, November 30, 1872.



THE BEE HIVE GROUP OF GEYSERS
YELLOWSTONE PARK

WILLIAM HENRY JACKSON. *The Beehive Group of Geysers, Yellowstone Park, 1872.* Albumen print. Denver Public Library, Western History Department, Denver.



WILLIAM HENRY JACKSON. *The Photographer's Assistants*. ca. 1885. Albumen print. University Art Museum, University of New Mexico, Albuquerque.

ment that such work could be executed in the wild regions of the Rocky Mountains, from almost inaccessible positions, whence everything had to be carried on pack-mules, and much of the work done under circumstances of the greatest disadvantage. Most photographers consider the manipulation of 20 x 24 plates formidable enough under the most favorable conditions . . . but Mr. Jackson has proved himself a master, not only of the principles of art which govern such work, but of every circumstance or condition which may in any way affect his success in producing the grandest results photography is capable of.¹⁸

Jackson, despite his proud boast, was not alone in the use of large plates. The spectacular landscape of Yosemite Valley in Northern California had already been extensively photographed by Carleton E. Watkins and Eadweard Muybridge with cameras of almost equal size.

Photographic expeditions were undertaken all over the world. Désiré Charnay, a French archaeologist, photographed the pre-Columbian ruins of Mexico and Yucatán in 1857, and native life on the island of Madagascar six years later. Samuel Bourne climbed the Himalayas with a train of thirty coolies bearing the baggage and photographic equipment to an altitude of 15,000 feet in 1863. The brothers Louis Auguste and Auguste Rosalie Bisson went from Paris to Switzerland with Napoleon III and the Empress Eugénie and produced a dazzling series of photographs of the Alps in 1860. Francis Frith¹⁹ went from London to Egypt and the Holy Land year after year; in 1858 he made a series of 16 x 20-inch plates in the desert under the most trying conditions. Francis Bedford was selected by Queen Victoria to accompany the Prince of Wales in his tour of the Middle East in 1862. William Stillman photographed the Acropolis in Athens in detail. Thousands of negatives of the goldfields of Australia were made by Henry Beaufoy Merlin and his successor Charles Bayliss.

Nor was the Far East overlooked by cameramen. The

English traveler John Thomson, Fellow of the Royal Geographical Society, spent several years photographing in Cambodia, Malaya, and China. He was concerned not only with the scenery and the monuments of ancient civilizations, but with the manners and customs of the inhabitants: his four-volume *Illustrations of China and Its People* (London, 1873) is a remarkable ethnographic survey—a pioneering photographic documentation.²⁰

On his return to England Thomson photographed in a similar spirit the London poor. Thirty-six of his photographs were published in *Street Life in London* (1877), with a detailed sociological text by Adolphe Smith. The reproductions were by the woodburytype process (Chapter 14), which gave them a fidelity matching that of the original photographs: they are charged with a sense of authenticity that gives them great impact.

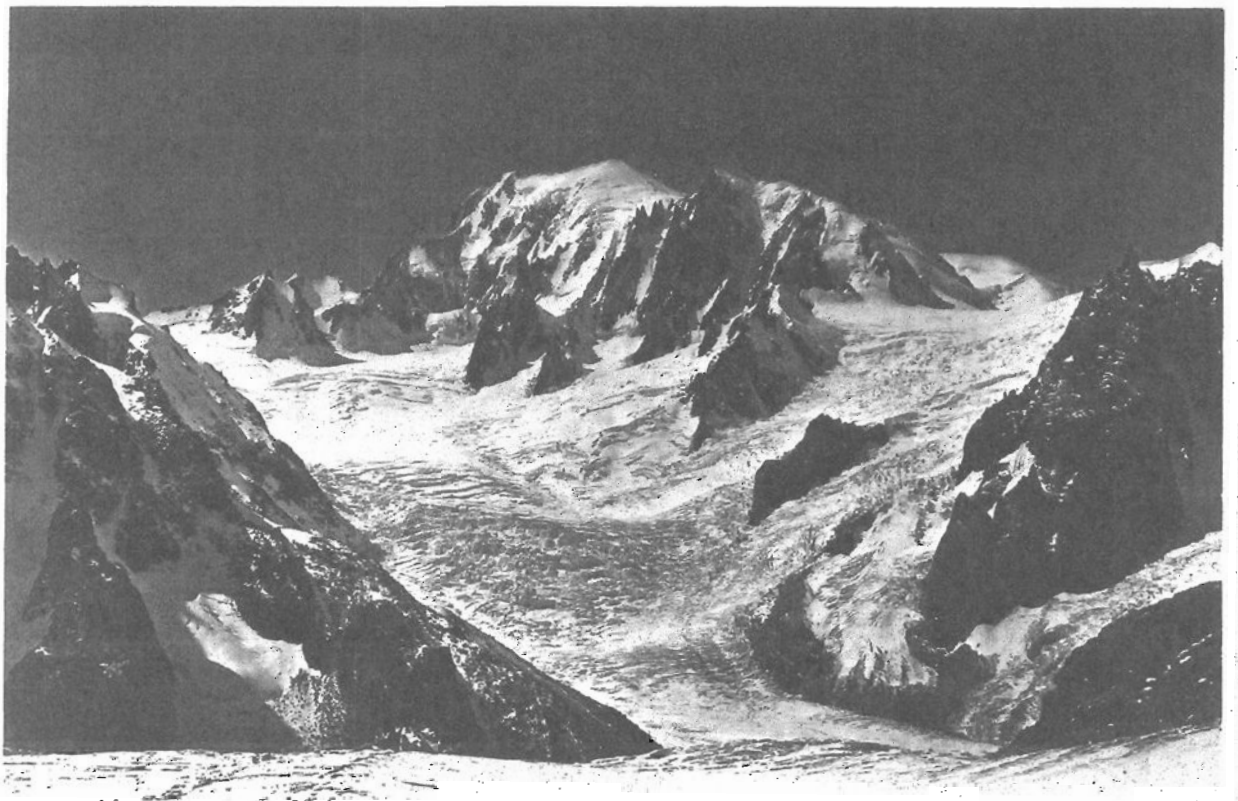
In their preface Thomson and Smith state that they brought to bear "the precision of photography in illustration of our subject. The unquestionable accuracy of this testimony will enable us to present true types of the London Poor and shield us from the accusation of either underrating or exaggerating individual peculiarities of appearance."²¹

As the major cities of Europe grew in size in the second half of the nineteenth century, extensive urban renewal plans were put into effect, which necessitated the extensive demolition of structures long standing and often of historical significance. In Paris, London, and Glasgow photographic surveys were organized to record the architectural heritage that was doomed for destruction. Of these surveys, the most complete was the systematic street-by-street documentation of vast areas in the very heart of old Paris that Baron George Eugène Haussmann, prefect of the Seine, had ordered razed to the ground to allow the construction of public buildings, parks, and the "grands boulevards" that so distinguish modern Paris. Charles Marville, who had used the calotype when recording medieval buildings for the Committee of Historical Monuments a decade earlier, now, in 1864-65, used collodion plates. His photographs are meticulously detailed; he captured the very texture of cobblestoned streets, and weathered walls, signboards of shops and their wares.

Thomas Annan of Glasgow was commissioned in 1868 by the Trustees of the Glasgow City Improvements Act to photograph the picturesque but unsavory and unhealthy narrow passageways between multistoried buildings called "closes" in Old Glasgow that had become slums. The Society for Photographing Old London was formed for a similar purpose; between 1874 and 1886 it issued to its members 120 photographs printed by Henry Dixon from his own negatives and those of Alfred and John Boole



CARLETON E. WATKINS. *El Capitan (3600 feet) from the Foot of the Mariposa Trail, Yosemite, California.* 1867. Albumen print. The Museum of Modern Art, New York.



LOUIS BISSON & AUGUSTE BISSON. *The Alps: View of "The Garden" from Mont Blanc.* 1860. Albumen print, in the album *Le Mont Blanc et ses glaciers* (Paris: 1860). George Eastman House, Rochester, N.Y.



FRANCIS FRITH. *The Pyramids of Dahshur, Egypt*. 1858. Albumen print. George Eastman House, Rochester, N.Y.

Millions of photographs were taken of familiar landscapes, cities, towns, villages, historical landmarks, ancient churches, and new public buildings with no other purpose than their sale to tourists. In the days before the snapshot camera and the printed postcard, travelers collected albumen prints of all the "sights" they wished to remember, and pasted them in albums.

The photographers who specialized in making these views often found the demand so great that they established publishing companies, with camera teams in the field and a large staff manning the printing works at home. In England Francis Frith opened the largest of these picture factories in 1860, on his return from Egypt. At his Reigate factory he had a stock of more than a million prints. Similar publishing companies were established in Scotland by George Washington Wilson and James Valentine. Contact prints on gold-toned albumen paper were made in vast quantities: over a thousand 18 x 24-inch sheets of paper were sensitized in every working day. As many as 1300 printing frames, each with a glass negative and a sheet of sensitized paper of the same size pressed against it, were put on racks and wheeled out on tracks into the sunlight. If it suddenly rained, they could be quickly housed. At Wilson's Printing Works in Aberdeen the racks covered half an acre. The exposures varied with the intensity of the sunlight

and the density of the negative; Wilson's son recollected that the time varied from 15 to 20 minutes to *two days*, and he estimated the average daily production at 3000 prints. Toning, fixing, washing, and drying were done by separate departments. Thus the production could reach a million a year.²²

The concern of Frith, Wilson, Valentine, and a host of other photographers the world over with the literal, straightforward representation of the most characteristic aspects of places and things has been called "topographic." In the 1860s the term "mechanical-photography" was used by Jabez Hughes to differentiate this approach from that of those photographers whose aim was aesthetic and who found photography a means of personal expression, beyond record making for commercial purposes. He explained:

Let it be understood that I do not mean the term *mechanical* to be understood depreciatingly. On the contrary, I mean that everything that is to be depicted exactly as it is, and where all the parts are to be equally sharp and perfect, is to be included under this head. I might have used the term *literal* photography, but think the former better. This branch, for obvious reasons, will always be the most practised; and where the literal unchallenged truth is required, is the only one allowable.²³

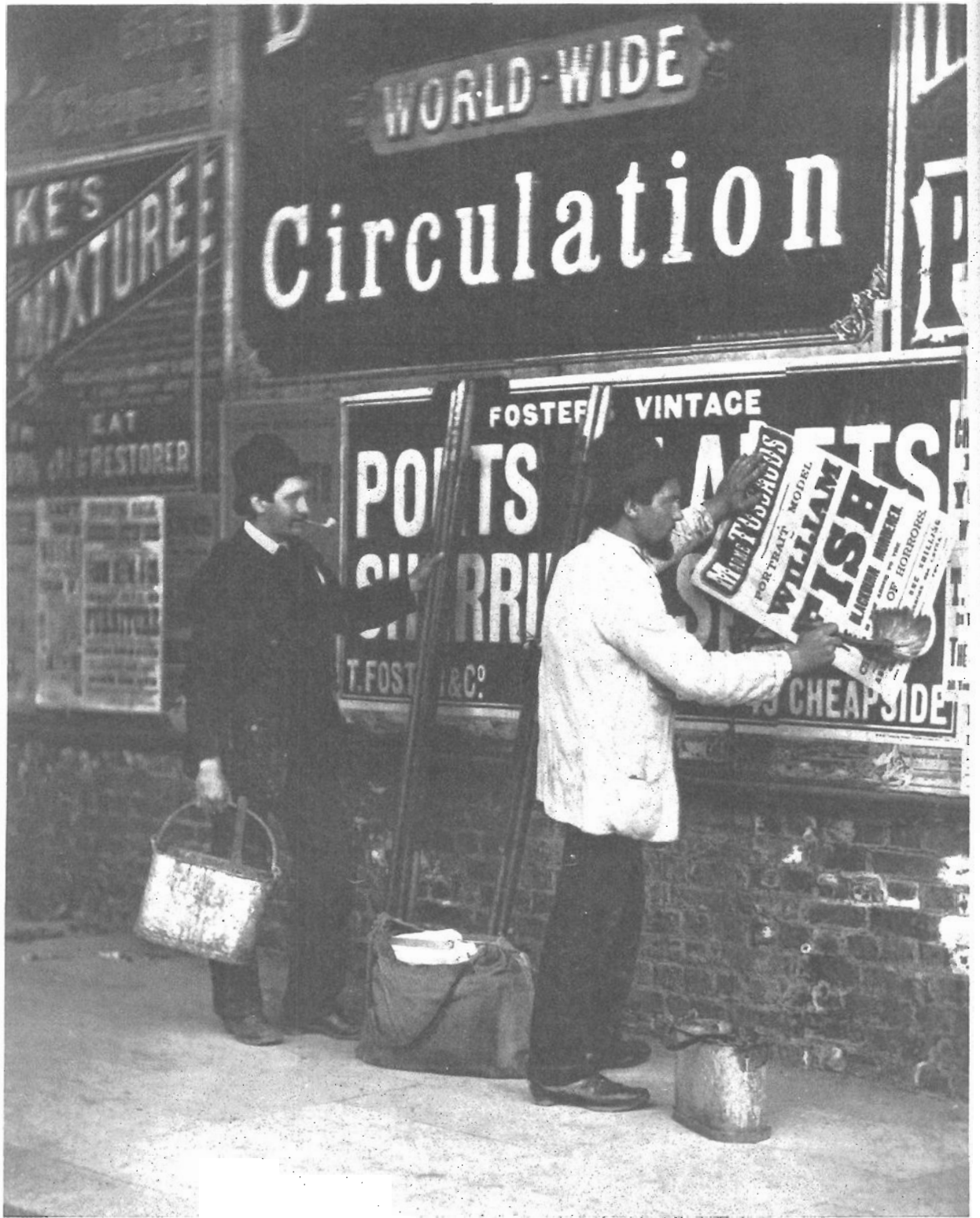
Typical topographical photographs are almost always technically excellent, with brittle-sharp detail, full tonal



15
WILLIAM JAMES STILLMAN. *The Parthenon, Athens*. 1869. Carbon print in the album *The Acropolis of Athens* (London: 1870). The Museum of Modern Art, New York.



JOHN THOMSON. *Physic Street, Canton*, ca. 1868. Carbon print in *Illustrations of China and Its People* (London: 1873). Peabody Museum, Salem, Mass.



JOHN THOMSON. *Street Advertising*. ca. 1877. Woodburytype in *Street Life in London* (London: 1877). The Museum of Modern Art, New York.



CHARLES MARVILLE. *Rue Glatigny, Paris*. 1865. Albumen print. Formerly Collection V. Barthélemy, Paris.



NADAR. *The Arc de Triomphe and the Grand Boulevards, Paris, from a Balloon.* 1868. Gelatin-silver print from the original negative in the Caisse Nationale des Monuments Historiques, Paris.

rendition, and often with skillfully printed-in clouds from separate negatives. The title of each view was printed on each negative so that white lettering impinged on the bottom of the image.

For the most part the photographs of these publishing houses are dull, commonplace records, indistinguishable in style regardless of the photographer who took them, (whose name was seldom credited). But now and then appear remarkable street scenes, lyric views of the countryside, and well-seen architectural interiors. When picture postcards came into vogue, Frith and Valentine published them by the thousand. Indeed, only recently have the firms these photographers founded gone out of business.

A similar commercial production was followed in America by William Henry Jackson. After leaving the United States government surveys he founded the W. H. Jackson Photograph and Publishing Company in Denver in 1883, which was merged with the Detroit Publishing Company in 1897, when Jackson joined the firm and transferred to it his entire stock of negatives. Which of

the thousands of photographs marked W. H. Jackson and Company were taken by Jackson himself is not a matter of record.

Photographs of the engineering accomplishments of the industrial age are frequent, especially in Britain, where Philip Henry Delamotte recorded the reconstruction of the Crystal Palace in Sydenham in 1853-54, Robert Howlett photographed the launching of the *Great Eastern* steamship in 1857, and James Mudd produced a photographic inventory of locomotives built by the Manchester firm of Beyer-Peacock in the same period.

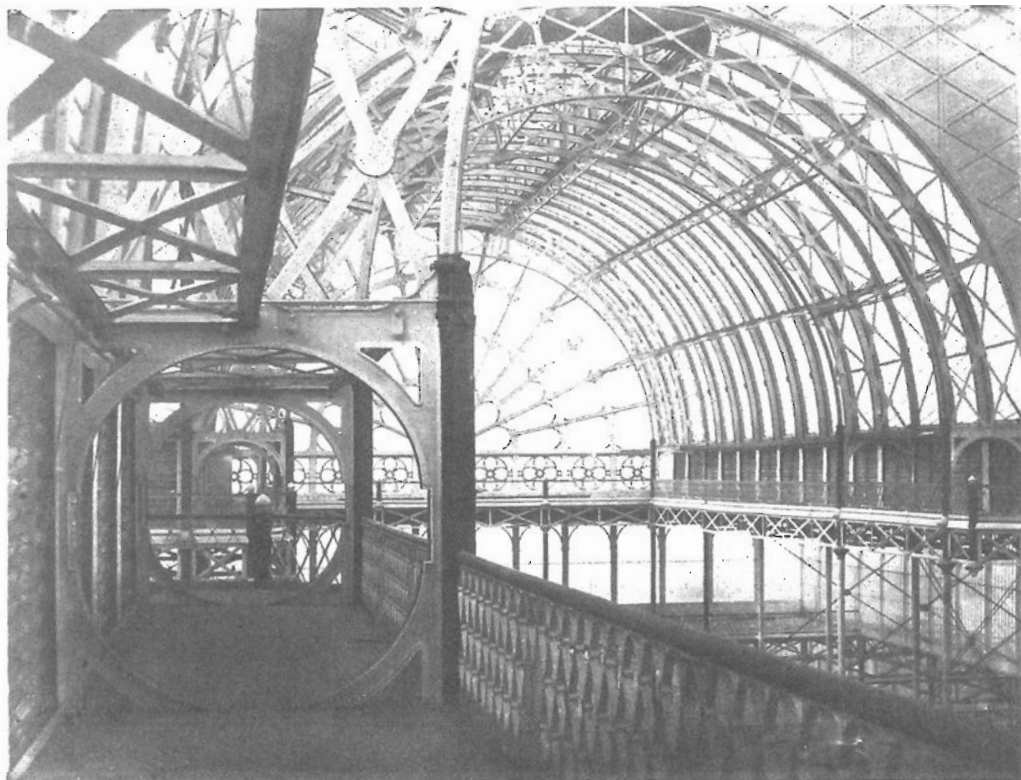
Photographers took the camera into the air to record the earth from above as early as 1858, when Nadar made his first photograph from a balloon over the village of Petit Bicêtre, just outside Paris. It was a collodion positive, made with great difficulty, as the fumes of gas escaping from the balloon contaminated the sensitizing bath. Unfortunately, it no longer exists. James Wallace Black of Boston had better success: he made several views of that city and of Providence, Rhode Island, in 1860; a few years later Nadar took a multilens camera up in a balloon over Paris to make the first successful photographs of that city.

Almost all of the photographers discussed in this chapter took stereographs as well as the larger single negatives. The paired images made with a twin-lens camera produce a startling three-dimensional illusion when viewed through a stereoscope, and reveal that wealth of information that is essential to a record photograph.

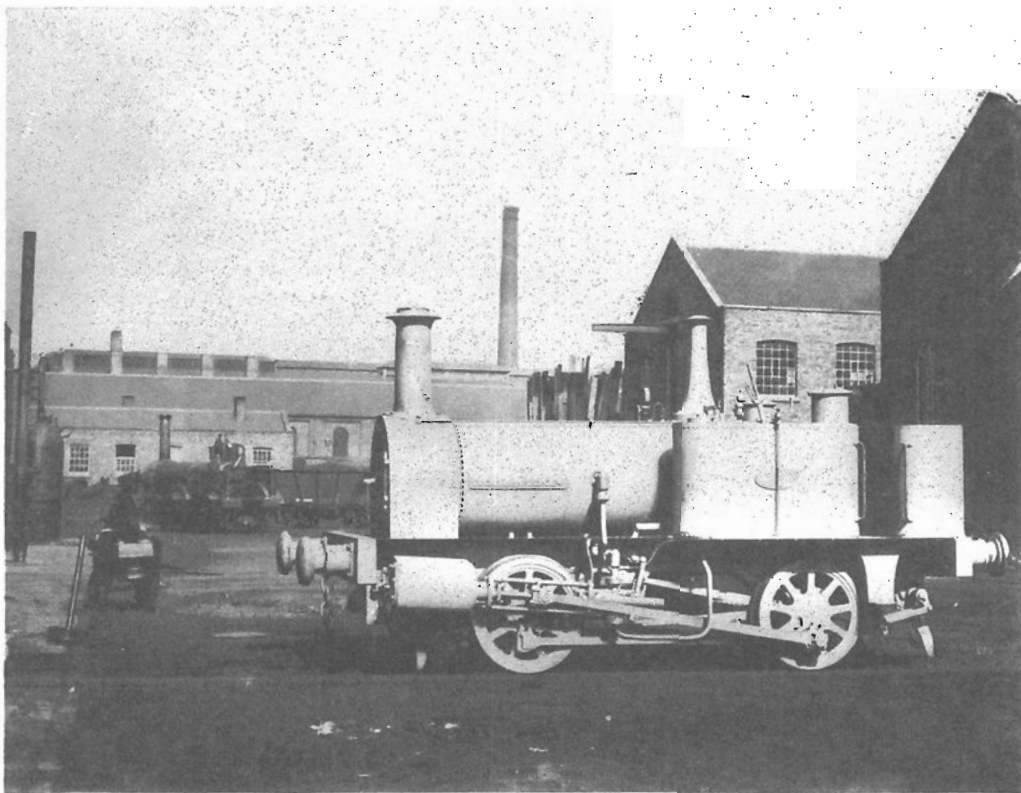
The stereograph creates its dramatic effect because it reproduces binocular vision. Normally we see the world with both of our eyes. The image formed on the retina of each eye is very slightly different, due to its position in space: the fusion of the two in our mind is an important part of our perception of the relative distance of objects from us. Sir Charles Wheatstone, in a classic study published by the Royal Society in London in 1838, clearly described this phenomenon, and he illustrated his report in the Society's *Philosophical Transactions* with outline drawings of solid geometrical forms in the perspective in which they would be seen by each eye. He placed these drawings in an instrument he designed that he called the *stereoscope*.

Looking into the mirrors Wheatstone saw "instead of a representation on a plane surface . . . a figure of three dimensions, the exact counterpart of the object from which the drawings were made."²⁴ For purposes of demonstration, he used outline drawings,

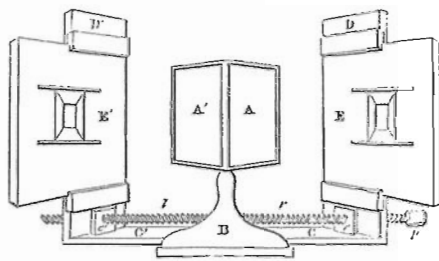
for had either shading or colouring been introduced it might be supposed that the effect was wholly or in part due to these circumstances, whereas by leaving them out of consideration no room is left to doubt that the entire effect of relief is owing to the simultaneous perception



PHILIP HENRY DELAMOTTE. *The Upper Gallery of the Crystal Palace, Sydenham, England. ca. 1853.* Salted paper print. Gernsheim Collection, Humanities Research Center, University of Texas, Austin.

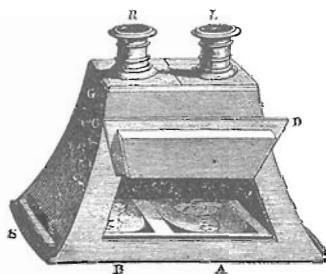


JAMES MUSE. *Industrial Shunting Engine Built by Beyer-Peacock, Manchester, England. 1858.* Gelatin-silver print from original negative in the North Western Museum of Science and Industry, Manchester, England.



The Wheatstone Stereoscope. From *Transactions of the Royal Society of London*, vol. 129 (1838), Plate, XI.

A'A: Mirrors, set at right angles to each other, *E'E*: Drawings of a truncated pyramid. When the viewer looks at mirror *A* with the right eye, drawing *E* is seen; with the left eye, drawing *E'*.



The Brewster Stereoscope. From D. Brewster, *The Stereoscope* (London: 1856).

AB, stereo slide. *S*, slot in which to insert mounted photographs. *RL*, lenses for the right and left eyes. *CD*, door, opened to allow light to fall on photographs.



The Holmes Stereoscope. From *Photographer's Friend* (Philadelphia), April 1872.

of the two monocular projections, one on each retina. But if it be required to obtain the most faithful resemblances of real objects, shadowing and colouring may properly be employed to heighten the effects. Careful attention would enable an artist to draw and paint the two component pictures, so as to present to the mind of the observer, in the resultant perception, perfect identity with the object represented.²⁵

But such exact draftsmanship, however theoretical, was difficult to attain. With timing so precise that it is difficult to dismiss it as coincidental, photography provided the means of fulfilling this prediction. Wheatstone later wrote: "It was at the beginning of 1839, about six months after the appearance of my memoir in the *Philosophical Transactions*, that the photographic art became known. Soon after, at my request, Mr. Talbot, the inventor, and Mr. [Henry] Collen (one of the first cultivators of the art) obligingly prepared for me stereoscopic Talbotypes of full-sized statues, buildings, and even portraits of living persons.²⁶ These first photographic stereographs have not yet been found, but some were exhibited at the Royal Academy of Science in Brussels in 1841.

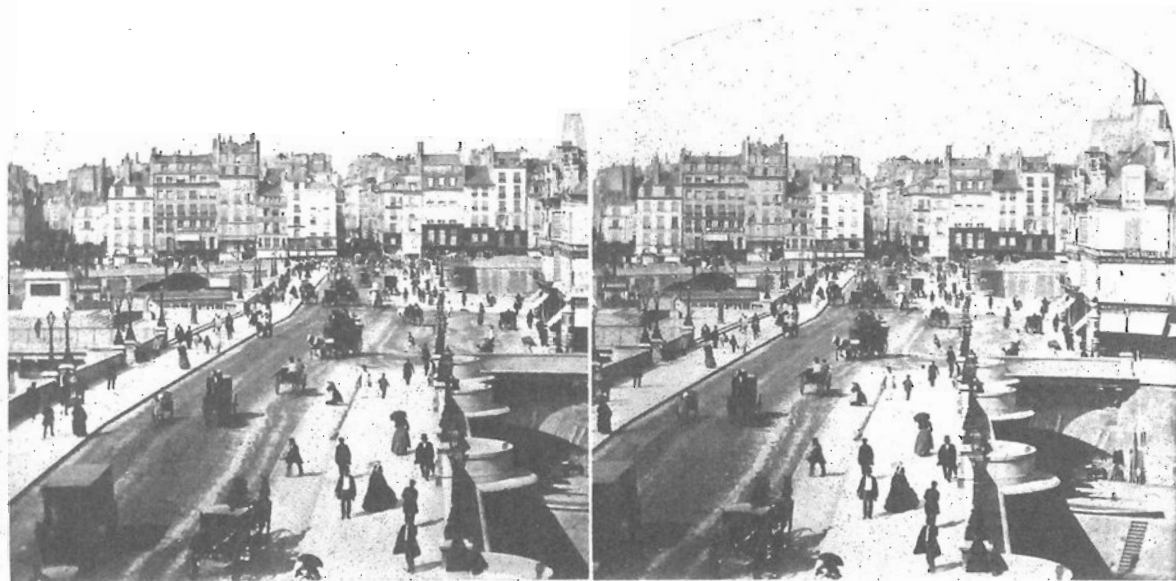
Stereoscopic photography did not become practical until Sir David Brewster invented in 1849 a less cumbersome device for viewing them. Basically his stereoscope was a box in the form of a truncated pyramid.

At the small end he put two lenses, each of about 6 inches focal length. At the other end was a frame, to hold two photographs, each approximately 3 x 3 inches in size and mounted side by side. The bottom of the box was of frosted glass so that transparencies could be viewed by refracted light. Daguerreotypes and paper prints were viewed by light admitted by opening a small door, its inner surface silvered.

The lenses were wedge-shaped, forming prisms that so diverged the line of vision that each picture was seen in full frame, even though they were separated by more than the distance between the eye pieces.

Brewster's stereoscope was mass produced by the Parisian optical and scientific instrument firm of Duboscq & Soleil. They placed one on display at the London Crystal Palace exhibition in 1851, with a set of daguerreotypes taken by Jules Duboscq. The public marveled: Queen Victoria was personally so enthusiastic that Brewster presented to her a specially built viewer; at once stereo photography became immensely popular. Brewster boasted:

It has been estimated that upwards of half a million of these instruments have been sold. . . Photographers are now employed in every part of the globe in taking binocular pictures for the instrument—among the ruins of Pompeii and Herculaneum—on the glaciers and in the valleys of Switzerland—among the public monuments in the Old and the New World—amid the shipping of our commercial harbours—in the museums of ancient and



No. 49.—PONT NEUF, À PARIS.—VUE INSTANTANÉE.—(No. 2.)

Photographer unknown. *The Pont Neuf in Paris*. ca. 1860. Albumen prints from a stereographic negative. Collection Beaumont Newhall, Santa Fe.

modern life—in the sacred precincts of the domestic circle. . . .²⁷

Firms began to specialize in the mass production and world distribution of stereographs. The first of these publishers appears to be The London Stereoscopic Company, founded in 1854 by George Swan Nottage; in the single year 1862 they sold a million views. The collecting of stereographs became a craze, and—until the advent of photographically illustrated magazines at the end of the century—there was, it seemed, a stereoscope in every home. Oliver Wendell Holmes, the American writer and physician, was an ardent collector. He wrote eloquently about the process in *The Atlantic Monthly*,²⁸ and around 1860 he designed a new type of stereoscope. Although based on Brewster's lenticular optics, it was more convenient; it was mass produced by Joseph L. Bates of Boston.

It is remarkable that throughout its history stereography has not appealed to photographers as an artistic medium. Its very virtue, that of creating an astonishing illusion of depth, is felt to be too close to reality. J. Craig Annan, a leader in the pictorial movement, remarked in 1892:

The stereoscopic effect is an endeavor to imitate nature, while the object of an ordinary photograph, or drawing is only to reproduce an impression of nature. The failure of the stereoscope in its greater aim is more marked than the less ambitious but more practical endeavour to reproduce on a flat surface an impression of what we see.²⁹

But if the stereograph did not appeal to those to whom the aesthetic of the conventional graphic arts was the

goal, it was the ideal technique for recording visual information, and its finest practitioners were to be found in the army of amateur and professional photographers who delighted in the very look of the world. It is an image, not a picture.

A unique property of the stereoscopic image is its apparent size. When properly fused, the paired photographs no longer seem three-inch-square prints, but a single image as large as life.

Because of the small negative size, the lenses of stereo cameras could be of relatively short focal length. This made it possible to take stereographs of moving objects.

The focal length of a lens is a fixed characteristic that determines the point at which a sharp image will be formed of an extremely distant object. Imagine the light ray from a distant point as a lever, which is pivoted where it passes through the lens, and which continues until it forms an image. When the point at one end of the lever moves, its image at the other end moves; the shorter the arm of the lever behind the lens (a distance determined by the focal length), the less the image moves. Consequently, by using a short focal length lens the motion of the image of a moving object can be reduced on the plate to a degree so negligible that during the brief time the lens is open no appreciable blur will be produced.

Stereographs of the late 1850s first showed us, in what were called "instantaneous views," phases of action in the stride of animals and humans never before seen. Photographers were learning how to record even the most fleeting motion.