Muybridge, Eadweard, 1830-1904

Definition: Muybridge, Eadweard from *The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide*

English-born US photographer. He made a series of animal locomotion photographs in the USA in the 1870s and proved that, when a horse trots, there are times when all its feet are off the ground. He also explored motion in birds and humans.

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Eadweard Muybridge of Kingston upon Thames

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Summary Article: MUYBRIDGE, EADWEARD JAMES (1830-1904)
From *Encyclopedia of Nineteenth-Century Photography*

Born Edward James Muggeridge, also known as Muggridge, Maygridge, Muygridge, Eduardo Santiago Muybridge. He was a photographer, inventor, and lecturer. One of the most influential and colourful photographers of the nineteenth century, Muybridge's achievements span three distinct categories: landscape photography, motion photography, and early cinema. The motion photographs, in particular, are among the most easily recognized photographs of the nineteenth century, comprised of grids of instantaneous photographs of humans and animals performing various behaviours and taken in rapid succession.

Although he was born in, and retired to, the London suburb of Kingston, his entire photographic career was spent in the United States. Muybridge was one of four sons born to Susannah and John Muggeridge, Kingston merchants recorded as selling coal and later grain. After attending Queen Elizabeth's Free Grammar School, Eadweard moved to London, apparently to receive vocational training. He may have been apprenticed in the city, but records from this period are scant, and his tendency to exaggerate biographical details renders information about his early training suspect. Around 1851-52 he settled in New York City, where he was an agent of the London Printing and Publishing Company, arranging the importation of unbound books from London for their binding and sale in the United States. He also worked for Johnson, Fry and Company, an American publishing company with offices in Boston, New York and Philadelphia. His work seems to have involved a considerable amount of travel. In his personal scrapbook, now in the collections of the Kingston Museum and Heritage Service, visits to numerous American cities are mentioned, including New Orleans and other shipping ports in the United States. Around 1855 Muybridge set out on his own, establishing a booksellers at 113 Montgomery Street in San Francisco. He also remained an agent for London Printing and Publishing. His interest in books persisted throughout his career, and many of Muybridge's photographic projects were conceived as bound volumes.

Around 1858 Muybridge's brother George joined him in the San Francisco book business, followed by his youngest brother Thomas. George is thought to have died of tuberculosis shortly thereafter. In 1860, Eadweard decided to return to New York and London, presumably on business. His decision to take a stagecoach rather than an ocean liner proved fateful. On July 2, 1860, his Overland Stage coach...
crashed in Northeast Texas, and Muybridge suffered a severe head injury. He was knocked unconscious and was said to have lost his senses of taste, smell, and hearing for several months. After two months convalescing in New York, he continued to London where he was under the care of Sir William Gull, Queen Victoria’s private physician. In total he spent about a year recovering from the accident. Several scholars have attributed changes in Muybridge’s personality to this injury, theorizing that he suffered brain damage. The veracity of this claim may never be proved, but his unorthodox and mercurial personality in his adult working life is undisputed.

Like much of his early life, Muybridge’s whereabouts from 1861 to 1867 are mysterious. His return to the United States was almost certainly interrupted by the Civil War. However, by 1867 Muybridge was back in San Francisco where he quickly established himself as a successful landscape photographer. It is unclear whether he learned to photograph in England or the United States. An amateur photographer named Arthur Brown has been nominated as a possible teacher in England. In the United States, Muybridge befriended the Daguerreotypist Silas T. Selleck (active 1850s-70s), who is thought to have worked for Mathew Brady before moving to San Francisco. If Selleck provided photographic training, there is little evidence of this. Claims that Samuel Morse taught Muybridge appear to be spurious.

In late 1867 or early 1868, Muybridge and Selleck opened a studio in San Francisco specializing in photographs of California and the Pacific Coast. Landscape dominated his practice for about six years. He began with views of San Francisco, and then photographed the Yosemite Valley. By 1868 he had moved to Vancouver and Alaska; later he would photograph Pacific coast lighthouses, the Farallon Islands, geysers and railroad lines. He developed an astonishing virtuosity with the camera, producing mammoth plate albumen prints scarcely rivalled in their beauty. Soon his works challenged his principal rival in California landscape, Carleton Watkins (1829-1916). Many of Muybridge’s images were published under the name “Helios,” a reference to the sunlight used to expose them. He also dubbed his operation “the Flying Studio.”

By 1872 Muybridge had become affiliated with the studio of Bradley and Rulofson in San Francisco, where he was recognized as the outdoor photography specialist. When Leland Stanford, former Governor of California, United States Senator, and President of the Central Pacific Railroad, approached the studio with a commission to photograph galloping horses, Muybridge was assigned the case. Whether Stanford already knew Muybridge, possibly as a result of his railroad photographs or other contacts, is unknown. As a horse breeder and avid reader of equine literature, Stanford wished to obtain photographs of a horse’s gait in order to ascertain whether it has all four hooves from the ground at any point in its stride. This necessitated an unprecedented degree of instantaneity as it required exposures faster than the naked eye could see. Initially, Muybridge set about the project using wet-plate collodion materials, which are inherently slow and awkward to use. The motivation for Stanford’s commission has been the subject of much speculation, but was almost certainly prompted by a friendly disagreement with a rival. The oft-repeated claim that Muybridge was retained to settle a substantial wager does not appear to be true.

There are conflicting accounts about the date and location of Muybridge’s first horse in motion experiments. The subject of the photographs is said to have been Stanford’s fast horse Occident. Some reports place the first attempts to photograph him in May of 1872 at the Union Park Race Course in Sacramento, but if such experiments occurred they do not appear to have been successful. Subsequent attempts may have occurred in Sacramento the following year, but a young assistant, Sherman Blake, recalled them being conducted at the Old Bay District Track in San Francisco, which

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Stanford helped construct. Most probably they were begun unsuccessfully in Sacramento during one of Muybridge's trips to Yosemite (Muybridge photographed there in 1867 and 1872), and moved to San Francisco to be nearer to his base of operations. In any case, photographs from this period have not been preserved. Both Muybridge and Stanford said they were too fuzzy and indistinct to merit publication, but were adequate to judge the position of the horse's hooves. The only visual record of these earliest experiments exists in the form of drawings, possibly copied from lantern slide projections, currently in the collections of the Iris and B. Gerald Cantor Center for Visual Arts at Stanford University, and a Currier & Ives lithograph of Occident trotting published in 1873.

In 1873 Muybridge created a series of photographs documenting the Modoc Indian War. Muybridge was sympathetic to the Native American fighters, who were resisting violent forced resettlement and took refuge in the rocky chasms outside the Lava Beds, near the Oregon border. He produced some thirty-one stereo views of the campaign, which were published by Bradley & Rulofson. Muybridge claimed to have photographed both sides of the conflict, but scholars have identified his photograph of 'A Modoc Brave' as a member of a rival tribe, and his other photographs of Modocs seem to have been made exclusively from prisoners.

In 1874 Muybridge's career was interrupted by an infamous series of events culminating in the murder of his wife's lover. In 1872, at age forty-three, Muybridge had married a twenty-one year old divorcé named Flora Stone. The next year Flora began an affair with a dandyish socialite named Major Harry Larkyns. Muybridge warned them apart, and when Flora became pregnant in 1873, he had no reason to suspect the child was not his own. The truth was revealed when Muybridge found a photograph of the child, whom he and his wife had named Floredo, with an annotation on the back reading “Little Harry.” Muybridge had never seen the picture before, which had evidently been sent to Flora by Larkyns. With the parentage of the child deeply in doubt, Muybridge flew into a rage and determined to avenge himself. He travelled roughly eighty miles to the city of Calistoga in northern Napa County, where Larkyns was staying. He traced him to a house on the grounds of the Yellow Jacket Mine, and called him to the door. Witnesses record him as saying, “Good evening, Major. My name is Muybridge. Here is the answer to the message you sent my wife.” He then shot Larkyns once near the heart. Larkyns died instantly. Muybridge was arrested and tried, but acquitted on grounds that the killing was a justified defense of his family.

Released from jail Muybridge travelled to Central America, where he spent the next year photographing the landscapes of Guatemala and Panama, and particularly the workings of coffee plantations. The brooding, atmospheric quality of these photographs gives some indication of his turbulent mental state at the time. After his return, in January of 1877 Muybridge produced two dramatic panoramas of San Francisco from the hill at California Street: a “small” panorama of twenty-two panels each approximately 7 x 8 inches, and a “large” panorama of thirteen panels, each approximately 21 x 16 inches. When fully extended the large panorama is 17'4” long. The panoramas represent Muybridge's last concerted effort at landscape photography before fully immersing himself in the motion photography for which he became world famous.

After a hiatus of some four years, Muybridge resumed his project photographing horses for Stanford in 1877. This time, the photographs were made at Stanford's farm in Palo Alto, which would later become the campus of Stanford University. An ambitious scheme was devised not just to photograph a single moment in a horse's stride, but also to make a succession of photographs at regular intervals, each isolating a particular moment in an animal's stride. State-of-the-art lenses were ordered from Dallmeyer.
in London, and cameras were commissioned from Scoville in New York. Muybridge also claimed to have developed a speedier chemistry, which enabled more rapid exposures. To maximize available light and further shorten exposure, Muybridge built a track with an angled whitewashed wall on one side to reflect light, and scattered the ground with lime. Working with Stanford's engineers (who included telegraph designers), Muybridge and his team rigged the cameras with automatic shutters—at first these were purely mechanical but later they were electrically fired. Two basic systems were employed. For free-running horses, thin threads were drawn across the track which the horses would break as they ran, each successive thread activating a shutter. For horses pulling sulkies, the threads were buried underneath the track and pressure activated by the weight of the carriage’s wheels.

The new system was fully operational in 1878. Its sophistication outstripped anything attempted previously, and is hardly foreshadowed in his earlier motion experiments. Not only did it enable Muybridge to photograph animals moving at speeds never before photographed, it also resulted in distinctive sequences of imagery delineating the transitions from one posture to another. Muybridge published them in grids, initially of twelve frames. To launch the new venture Muybridge held a press conference on June 15, 1878, in Palo Alto. Newspaper and magazine representatives in attendance, and photographs were made using the new system. Two horses were photographed, Abe Edgington (trotting) and Sallie Gardner (running). The Abe Edgington photographs were published as the first in a set of six cabinet cards titled The Horse in Motion; the Abe Edgington image became known as Abe Edgington trotting at a 2:24 Gait. Abe Edgington was the subject of three sequences in the set. The others depicted Mahomet, Sallie Gardner, and Occident.

Reproduced and disseminated throughout the world, Muybridge’s Horse in Motion grids were the most sensational photographs of their day. Contemporaneous accounts describe crowds gathering outside shop windows in which they were displayed, and Muybridge received correspondence from admirers internationally. On his mounts, Muybridge changed his title to “Landscape and Animal Photographer.” The rapturous attention given the photographs prompted Muybridge to continue his experiments through 1879. However, the publicity garnered by the photographs created tensions between Muybridge and Stanford over who should receive credit for them which led to the dissolution of their partnership.

Muybridge and Stanford published competing compendiums of Muybridge's photographs. Muybridge widened the scope of his project to include other animals, including deer, dogs, cats, oxen and even humans performing various tasks. He assembled 203 of these in a handmade album he called The Attitudes of Animals in Motion. A Series Illustrating the Consecutive Positions Assumed by Animals in Performing Various Movements Executed at Palo Alto, California, in 1878 and 1879; it was published in 1881. The plates in this album exist in both albumen and printing-out paper versions. Stanford asked his friend the physician J.D.B. Stillman to write about the pictures, which resulted in the book The Horse in Motion as Shown by Instantaneous Photography with a Study on Animal Mechanics in 1882. In Stanford's book the original photographs were copied as lithographs, and Muybridge was not listed on the title page. He was mentioned merely as a skillful photographer. The publication of the book prompted Muybridge to sue Stanford, ending any hopes of continuing the project in Palo Alto. Stanford prevailed in court, mainly on the grounds that Muybridge could not lay claim to authorship as his work depended heavily on an electrical trigger mechanism designed by Stanford's engineer, John D. Isaacs.
Starting in the 1880s Muybridge spread his reputation by lecturing about his photographs in the United States and Europe. His presentations involved lantern slides made from his motion photographs, alternated with slides of historical representations (paintings, sculptures etc.) of animal motion. Muybridge pointed out inaccuracies in historical representations and the superiority of his technique. An important innovation he employed in his presentations was the zoopraxiscope, a projection device he invented in 1879 to show short animated loops of motion photographs. Because his photographs had been made in sequence, Muybridge reasoned that when shown in rapid succession they could easily be animated. This was a well-established principle of optical toys such as the phenakistiscope, but had not been perfected using photography. The zoopraxiscope combined a projecting lantern, rotating glass discs on which reproductions of Muybridge photographs were painted, and a counter-rotating slotted metal disk which spun at the same speed, acting as a kind of shutter. Contrary to popular belief, actual photographs were not used in the zoopraxiscope. Because it relied on a spinning disk with a counter-rotating aperture, the zoopraxiscope projected images that looked unnaturally short and squat. To compensate for this, skilled copyists were employed to paint the images on the disks in an elongated, stretched form so that when they were projected they returned to normal proportions. Nevertheless the illusion of animated photographs was convincing and inspired numerous other attempts to animate photography using a projector. For this reason Muybridge is often credited as one of the inventors of the motion picture.

Having severed all ties with Stanford, Muybridge approached numerous potential patrons to sponsor his continued investigations. The University of Pennsylvania finally agreed, giving him equipment and laboratory space on campus. From 1884 to 1886 Muybridge produced 781 motion studies under the partial supervision of Thomas Eakins, which he published in 1887 under the title *Animal Locomotion*. It became Muybridge's best-known work. The plates in *Animal Locomotion* were printed using the collotype photomechanical technique, although a nearly complete set of cyanotype proofs for the project is currently held at the Smithsonian Institution, National Museum of American History. Whereas in California Muybridge used trip wires to activate his shutters, in Pennsylvania he used a timer mechanism. This permitted him to photograph behaviours in which the subject does not proceed straight ahead at a constant rate. His equipment was markedly better than it had been in California. Equipped with thirty cameras which could be directed simultaneously at different angles, he was also able to take advantage of gelatine dry-plate chemistry, which was both faster and more convenient than the wet-plate materials used earlier. Although *Animal Locomotion* contains further photographs of horses and other animals borrowed from the Philadelphia Zoo, the primary focus was on humans. Men and women, nude or partially clad, are shown engaged in activities ranging from the banal to the highly esoteric: walking, running, and jumping are interspersed with dancing, smoking, and women pouring water over each others' heads. Of special interest are images made of people with physiological disorders, including an amputee, a pathologically obese woman, and a girl with multiple sclerosis. These photographs presage the diagnostic role photography would assume in scientific investigations, particularly under the influence of Etienne-Jules Marey and his colleagues in France. The volume was also highly influential among artists: subscribers to *Animal Locomotion* included the painters Lawrence Alma-Tadema, Ernest Meissonier, John Everett Millais, William Bouguereau, August Rodin, and James Abbott McNeill Whistler.

After *Animal Locomotion* Muybridge retired from photography and focused instead on lecturing and writing about his work. In 1893 he staged a zoopraxiscope theatre show at the World's Columbian
Exposition in Chicago. It closed early due to tepid interest.

See also: Instantaneous Photography; Brady, Mathew B.; Morse, Samuel Finley Breese; Watkins, Carleton Eugene; Wet Collodion Negative; Dallmeyer, John Henry & Thomas Ross; Eakins, Thomas; Collotype; Cyanotype; and Marey, Etienne Jules.

Further Reading

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