In the summer of 1878 in a small town just south of San Francisco, the photographer Eadweard Muybridge produced the first series of instantaneous photographs ever made of a horse’s movement through space and time. With an ingenious arrangement—a battery of a dozen cameras lined up at evenly spaced intervals, spring shutters on each camera, and trip wires connecting the shutters to the ground of a racetrack—he was able to capture a champion trotter moving across a gridded and numbered background (see figure 1). Ever the showman, he invited journalists to witness and marvel at the event and also to ensure that there was no sleight of hand in the proceedings. Muybridge had been working on and off at the project since 1872 under the patronage of Leland Stanford, the immensely wealthy railroad magnate, real estate developer, politician, and horse breeder. Stanford hypothesized that his horse engaged in “unsupported transit,” by which he meant that all four hooves left the ground entirely for a split second over the course of each stride, and called upon Muybridge to prove the case with his camera. What began as a modest experiment to fulfill a wealthy patron’s curiosity—it’s possible that the photographer proved Stanford’s hunch soon after he began the project—eventually transformed into something much more: a sophisticated and unprecedented decades-long inquiry into the visualization of
animal locomotion, what today is familiarly called early photography’s “motion studies.” Muybridge understood the importance of his work; so, too, did those who witnessed it. “There is a feeling of awe in the mind of the beholder,” one of the invited journalists wrote upon seeing the trotter in flight, “he sees the miniature of the flying horse so perfect that it startles him.” A radically new kind of experience of seeing, analyzing, and representing motion in the world, no longer tied to casual human vision and its commonsensical judgments, was being unleashed by the serial cameras. But the implications went further. With these pictures, not just movement but time and space, as they were previously visualized and calculated, were “annihilated.” Muybridge’s contemporaries used the word deliberately, insisting on the violence to inherited forms of knowledge they were observing being obliterated.

From that summer onward, Muybridge gave up almost every other part of his studio practice—the many landscape projects on Yosemite and other regions of the American West, and the majestic cityscapes and panoramas of San Francisco that had initially brought him fame—and devoted the rest of his long life to the pursuit of making and publishing motion photography. He continued to refine his techniques, catching ever more minute intervals of time and quirky movements through space, and found innovative ways to display and publicize his work. He also expanded his subjects. Horses became bison, camels, cats, cows, deer, dogs, elephants, goats, lions, monkeys, ostriches, pigs, racoons, women and men (both clothed and unclothed): an entire Noah’s ark of creatures. The movements, too, became more eccentric, and whereas Stanford’s trotter galloping at a consistent speed across a racetrack could be photographed in one manner, other animals, whose movements were more erratic, arrhythmic, or unpredictable, required other solutions. At the University of Pennsylvania, where Muybridge continued his experiments, birds took thrashing flight, mules suddenly kicked, fencers rattled sabers, women leaped over stools, men threw balls, baseball players...
swung bats, track athletes pole-vaulted and hurdled. Ladies kissed, curt-sied, swung parasols, took baths, stood up, lay down, ran away, hopped, skipped, and danced. Boys leapfrogged, somersaulted, and sprinted. Men wrestled, boxed, clambered up stairs, swung hammers and heaved pick-axes, see-sawed into handstands. One even shared swigs of a bottle with a donkey. In all, Muybridge made more than twenty thousand pictures. He published his findings as cabinet cards, lantern slides, cyanotypes, and col-lotypes; and most famously, he collected and organized his pictures in four separate volumes: *Attitudes of Animals in Motion* (1881), *Animal Locomotion* (1887), *Animals in Motion* (1899), and *The Human Figure in Motion* (1901). Dover Books reprinted *Animal Locomotion* as a three-volume set in 1979; versions have been in print ever since.

These photographs and books, along with the many cognate projects undertaken by those photographers Muybridge influenced, ensured that motion studies became part of a culture’s commonplace understanding of movement itself—how it happens, can be visualized, interrogated, repre-sented, and displayed. Combined with today’s film and video, in which motion studies have become “motion pictures,” it’s not so farfetched to say that we regularly see and experience the world in the ways Muybridge first presented to us. Indeed, there’s a case to be made that we spend our daily lives in his universe. So what kind of universe did he reveal?

This book takes up the challenge of answering this question and is devoted to re-examining the defining feature of Muybridge’s practice, his motion studies. It is co-written by Tim Cresswell, a cultural geographer, and John Ott, an art historian, who approach Muybridge’s project from different disciplinary perspectives. They agree, however, in shifting the fundamental terms normally used to describe the photographer’s work, preferring to see “motion” as part of a much more encompassing concept, “mobility.” On the one hand, “motion” has usually been understood as an action or process of movement, a changing of place or position in space. It addresses the
mechanics of that change, of objects or bodies progressing through space and across time, all of which, as Muybridge demonstrated, can be measured and quantified. On the other hand, “mobility” refers to a much larger set of cultural and social understandings, in which motion is not only measured but also interpreted, experienced, and construed as part of a wider network of meanings. Consider, for example, the familiar phrase “upward mobility,” meant to describe movement in a social register, and carrying an enormous load of cultural and political implications. As Tim Cresswell defines it in his essay, mobility is movement plus meaning plus power.

The advantages of recasting motion studies as part of mobility are many. Among other things, these essays suggest that Muybridge’s experiments were part of a much larger historical transformation in which certain forms of motion were given significance and accrued value. Cultural geographer and art historian agree that such an emphasis allows us to see Muybridge’s work as belonging to structures of power. They differ, however, in identifying the kinds of structures, the particular values given to motion, and the transformation of its meanings over time. Tim Cresswell proposes seeing Muybridge’s work as an integral part of a “constellation of mobility,” in which the experiments with the camera belonged to the same annihilation of conventional space and time as wrought by the advent of rail and steam power, telecommunications, the mechanization of labor, the disciplining of working bodies, and much more. He looks carefully at features like Muybridge’s grid—and the relationship between horse and grid—and understands them as part of an emergent and radically new paradigm in “cultures of mobility” and information that are still with us. John Ott suggests that Muybridge’s photographs reveal instead a modern world structured around racial difference, and sees the photographer’s project from the point of view of critical race studies. Muybridge’s choice to use unclothed, white bodies as his default subjects already borrowed from much larger social assumptions about the kinds of figures who were at liberty to move and engage in expres-
sive practices. What happens, he asks, when we focus on those socially marginal figures—black boxers and jockeys—who also made up a distinct subject matter before the camera? What forms of social mobility can we identify in them? The two authors also differ in terms of how they understand the study of photographs more broadly. One sees photographs as intervening in knowledge and experience; the other as opportunities to investigate how race and all forms of visual culture, including photography, are not merely adjacent categories but in fact mutually constituted. One understands them as enabling prevailing ideologies, including some frightening prospects for the present; the other, reminding us of photography’s collaborative nature, as subtly undermining them. The essays make for a lively, interdisciplinary exchange.

Although both authors eschew biographical interpretations of Muybridge’s work, perhaps, by way of introduction, we would do well to recognize that the photographer was himself a mobile actor and partook of his era’s many invitations simply to move and become a migrant. Born in 1830 just outside central London, as a young man Muybridge quickly took advantage of the expansive opportunities made possible by commercial steamship travel and Victorian England’s global reach. He resettled in the United States, first in New York around 1850, New Orleans in 1855, and then later that year in San Francisco. He began a professional life as a book and prints dealer and turned to photography only in 1866, when he was thirty-six years old. Wanderlust would never leave him, and despite all the many difficulties early photography’s heavy equipment posed, the camera allowed him to travel and relocate throughout his life: up the Pacific coast to Oregon, Washington, and Alaska; along the Central American corridor from Panama to Costa Rica, Nicaragua, Honduras, El Salvador, Guatemala, and Mexico; back to the east coast in and around Philadelphia; and eventually home to London, where he died in Kingston in 1904. His government and corporate commissions and individual inquisitiveness took him to places where few white
men generally traveled, including the many Native American lands that made up the American west, volcanoes in Guatemala, coffee fincas in the Nicaraguan highlands, mountainous guano heaps in the Farallones. Even when momentarily settled, he changed business addresses frequently, restlessly. In San Francisco, where most professional photographers competed vigorously with each other, struggled to establish a consistent clientele, and tried mightily to keep a steady location, Muybridge moved studios constantly. In 1866, he opened shop at 415 Montgomery Street, the trendiest commercial strip in town, but two years later, he moved further south to 138 Montgomery. A year later he was at 121, two years after that at 12, then 6, then in 1873, around the time of his initial work with Stanford, back north to 429; a year later, to Fourth Street, two years later to Pine Street. He changed photography partners almost as frequently, and home addresses came and went, too: Oakland, San Jose, the fashionable south of Market neighborhood in San Francisco, for a time in Sacramento, then down the peninsula to Palo Alto. On the road during photographic expeditions, he traveled in a covered wagon with “Helios’ Flying Studio” scrawled across its side. Helios, the sun god in Greek mythology, was a common name taken up by enterprising photographers to emphasize their craft as being enabled by daylight and as a medium of illumination in itself. But the “flying studio,” more unique to Muybridge, might be said to properly characterize the swooping and soaring quality of his travels. The man seemed everywhere.

The photographer changed his name nearly as often. Born Edward James Muggeridge, he became in 1856 Edward Muygridge, in 1867 Edward Muybridge, in 1875 Eduardo Santiago, and finally in 1882 Eadweard Muybridge. His cousin thought he changed his name from Muggeridge to Muygridge because it sounded more pleasing. Others suggest that Muybridge was partaking of the free-living, free-wheeling environment of the far western reaches of the country, where men and women could leave their pasts behind and remake themselves over and over again. But we are also in a
position to say that living a fundamentally nomadic and transnational life, crossing and recrossing both physical borders and cultural boundaries, allowed the man to take on whichever set of identities he might need to address the opportunities and demands of the moment. Being in perpetual motion, Muybridge quickly learned that the freedoms from convention and possibilities for renewal and self-invention were myriad.

Motion, movement, locomotion, and even migration—these are familiar terms in the study of Muybridge’s work. This book is devoted to introducing, emphasizing, and exploring the fundamental significance of one more.