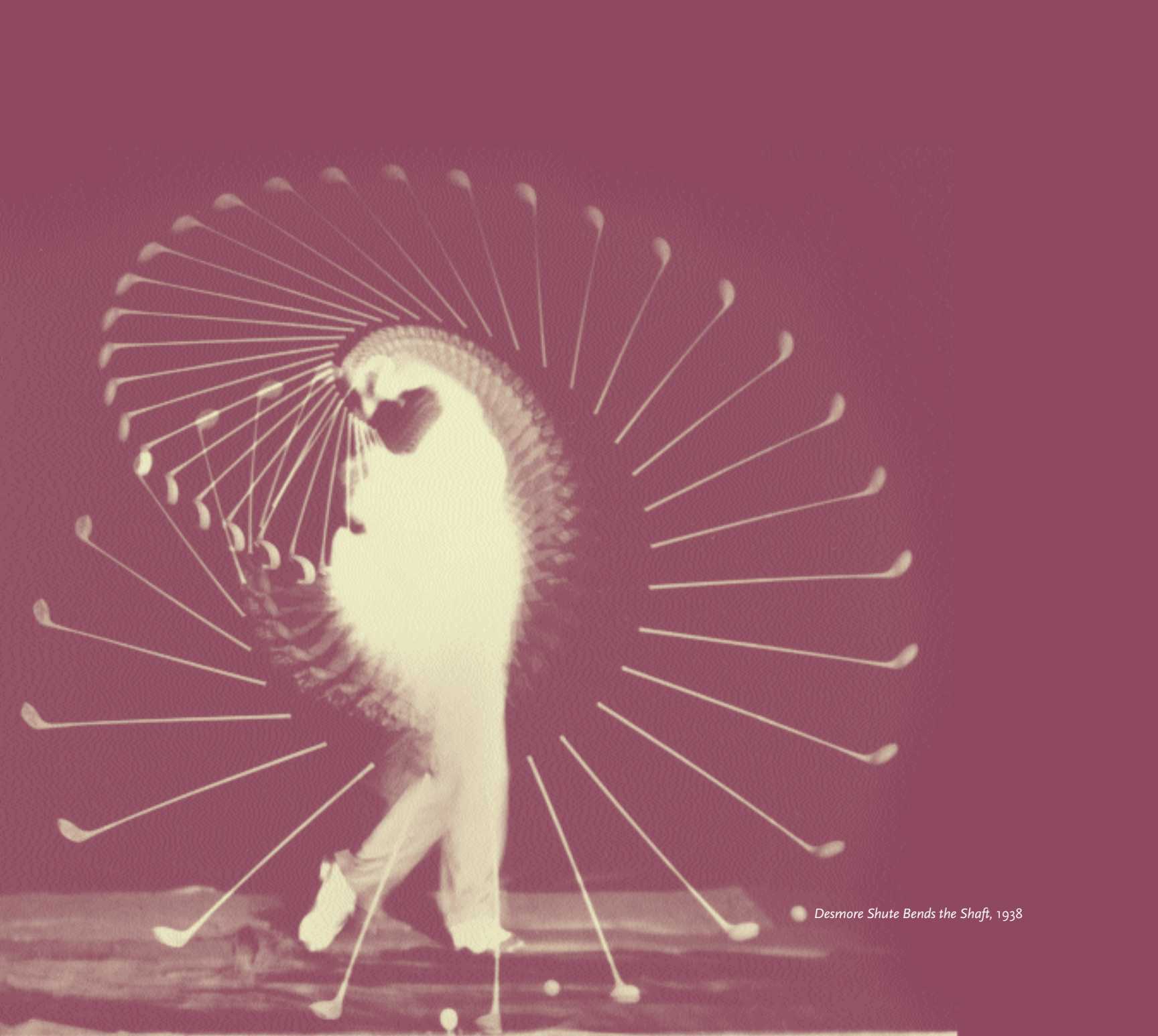




*Shooting the Apple, 1964*



*Cutting the Card Quickly, 1964*



*Desmore Shute Bends the Shaft, 1938*

became clear, though, and in the early 1920s, when many of the firm’s repairmen were still in the military, Edgerton fixed electrical equipment and even strung power lines on the Nebraska prairie. Around this time, Edgerton was introduced to photography. His uncle, Frank Edgerton, ran a photo studio in Fremont, and there Harold learned how to make and print pictures.

After high school, Edgerton earned a degree in electrical engineering at the University of Nebraska, then applied to the Massachusetts Institute of Technology in 1925. Edgerton was accepted, but before classes began he was offered a place in a one-year research program to work on large electrical motors at General Electric’s huge facility in Schenectady, New York. The next year he finally entered MIT, where he remained until his death in 1990.

At MIT, Edgerton studied how large surges of electricity, like those caused by lightning, affected a particular kind of electric motor. But there was a problem: The motor turned far too fast for him to see what was happening. A few years earlier, he had noticed that a thyratron—a mercury gas-filled tube that emitted regular pulses of light—had made the blades of a moving fan seem to rotate very slowly. Edgerton set up a mercury tube next to the electric motor and synchronized its pulses

with the speed of the motor, so that each flash of light occurred when the motor was in the same position. It worked perfectly; when Edgerton turned the mercury tube on, the moving parts of the motor seemed to be standing still. He was able to capture this on film, using a movie camera.

What Edgerton had used was a stroboscope, a device that fools the human eye into thinking that a moving object is still. It works, Edgerton explained, because “eyes aren’t designed for speed.” When we see a split-second image, our brain retains it for a moment. This is how movies work: Motion picture film contains a sequence of still images, each of which pauses for a split second before the next moves into view, at a speed of 24 frames per second. A shutter blocks the frames from view as they move. The brain retains each image until the next appears, giving the impression of continuous movement. Edgerton’s stroboscope allowed him to see only the “frames” created by its flashes of light. When properly synchronized with the motor, it hid its motion from view.

Edgerton knew his stroboscope could be used to examine machinery in any number of industries, not just his electric motor. He soon formed a partnership with two colleagues from MIT, Kenneth Germeshausen and Herbert Grier. The three began using stroboscopes to let businesses closely examine their



*Wes Fesler Kicking a Football, 1934*