



Daniel Crooks *Static No.11 (Man Running)* 2008.

**City
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Te Whare Toi

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City Gallery Wellington is managed by The Wellington Museums Trust
with support and major funding from the Wellington City Council

City Gallery Wellington's Education service is supported
by the Ministry of Education's LEOTC fund.

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Bullet Time

26 MARCH – 17 JULY 2016

About the Exhibition

Bullet Time showcases the work of two New Zealand video artists who manipulate time, Daniel Crooks and Steve Carr. It places them in the context of two historical photographers, pioneers of motion studies – Eadweard Muybridge (1830-1904) and Harold 'Doc' Edgerton (1903-90) acknowledging them as precursors, influences, and reference points. In the process it engages a complex history of interaction between art and science, photography and cinema. The show takes its name, *Bullet Time*, from a Muybridge inspired special effect made famous by the sci-fi movie *The Matrix* (1999). For it a set of still cameras surrounding the subject are fired simultaneously or sequentially. The resulting shots are arranged consecutively to produce an orbiting view, with the subject frozen in time or in extreme slow motion.

Daniel Crooks

Daniel Crooks is concerned with how film technology can enhance, transform and expand the way we can see and understand the world. Using a computer, he reorganises information from digital-video footage, so what you see on one part of the screen might, in reality, have been shot seconds earlier than something on another, creating an often unsettling effect in which space-time appears warped. Many of his works involve trains and train stations. He explores the distortion effects he can produce on views of a static world shot from a moving camera, and on views of moving things shot from a static camera. His work is imbued with rich metaphors, which nod to scientific theories of time-space and relativity.

Steve Carr

Steve Carr revels in the use of slow motion to create suspense in observing bursting paint-filled balloons and bullets tearing open apples. Inspired by Edgerton, he is less interested in the scientific implications of Edgerton's experiments than the psychological ones.

Eadweard Muybridge

In the 1870's, in California Leland Stanford enlisted the photographer Eadweard Muybridge to help him determine whether a horse's hooves all come off the ground at once when it runs. Muybridge proved that they do, using a long line of cameras, whose shutters were released in sequence using tripwires. He went on to make hundreds of photographic sequences of human and animal movement. Although he sought to freeze motion, his work led to the development of cinema.

Harold Edgerton

In the late 1930s Harold Edgerton, a professor of electrical engineering picked up where Muybridge left off. He made photographic exposures swifter by inventing a high speed electronic flash, lasting microseconds. Edgerton made multiple exposures to capture photographic images of athletes in action. He also froze fast-moving things such as bullets piercing apples, bananas and playing cards, and liquid in motion. And he combined strobing flashes with slow motion cinematography to observe the beating wings of airborne hummingbirds. Edgerton was interested in the scientific applications of his work, enabling us to see and understand aspects of the world previously invisible to the human eye alone.

Images

Eadweard Muybridge collotypes, 1884-7.

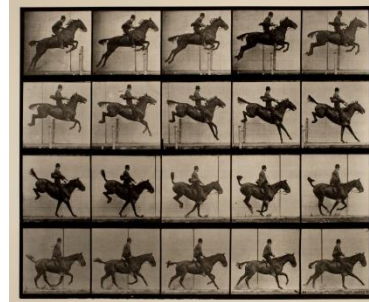
Kodak Moments photo flip book. http://www.kodak.com/eknec/PageQuerier.ihml?pq-path=10953&pq-locale=en_US&requestid=37785.

How to make a flip book. <http://videotoflipbook.com/>

Harold Edgerton *Bullet through Apple* 1964.

Harold Edgerton *Moving Skip Rope* 1952.

Things to do at school



WATCH this recent BBC documentary featuring Andy Serkis to find out more about Eadweard Muybridge's life and work: *The Weird World of Eadweard Muybridge* (60min 2013). <http://youtu.be/5Awo-P3t4Ho>

LEARN how Muybridge migrated from the UK to the USA and began his early career in landscape photography. Then after his life took many dramatic turns, he made his name through his now famous motion studies. See the impact his work had on society at the time and how he influenced future generations of artists and film makers.

DISCUSS how it might have felt for people to see Muybridge's images for the first time.



MAKE your own motion sequence using a digital camera, smartphone or tablet that has a shutter-burst function that allows you to take a series of images in quick succession. Try jumping, running, skipping or dancing in front of the camera, while it captures multiple images. Print out your series of pictures, making them all the same size. Then collate them in order, and pin them together to make a flip-book animation.



WITNESS the original photographic experiments made famous by Harold Edgerton in this humorous Oscar-winning black-and-white short film made by George Sydney in 1940: *Quicker 'n a Wink* (9min 1940). <http://youtu.be/jUZwFrGzQGw>

SEE eggs sliced by a fan, smoke chopped into waves, a golf ball bursting through a telephone directory, bubbles popped by needles, bullets smashing light bulbs and a cat drinking milk in slow motion. Learn how Edgerton used his strobe light and camera shutter inventions. Listen as each experiment is explained.

EXPERIMENT with the strobe-light function on smartphone or tablet torch app. In a darkened room, see what effects the strobe light has on different movements. Ask a friend to video you moving in front of the strobe light. Does the strobe light make your movements appear stilted? Why? (Warning – before you begin experimenting make sure that neither you nor your friends suffer from Photosensitive Epilepsy, a condition where seizures can be triggered by strobe lighting).

FIND OUT more about Edgerton's experiments at <http://edgerton-digital-collections.org/> where the photographic techniques he developed are explained.