BULLET

TIME



BULLET

STEVE CARR • DANIEL CROOKS • HAROLD EDGERTON • EADWEARD MUYBRIDGE







Eadweard Muybridge Emptying Bucket of Water c. 1884–7 BULLET TIME showcases the work of two New Zealand video artists who explore themes of time—Steve Carr and Daniel Crooks. It also places them in conversation with two historical photographers, pioneers of motion study, Eadweard Muybridge (1830–1904) and Harold Edgerton (1903–90), acknowledging them as precursors, influences, and reference points. In the process, it engages a complex history of interaction between science, art, and the movies, technology and consciousness, thought and feeling.

Photography has long been celebrated for its naturalism, for reinforcing common sense. The camera is sometimes seen as analogous to the human eye, but it is also unlike the eye. Camera technologies can capture appearances we cannot otherwise see, making the world seem strange and new. It can suggest different kinds of consciousness, superhuman or inhuman.

In the nineteenth century, there was much debate over whether or not a horse's hooves all come off the ground at once during its gait. It occurred too fast to see with the naked eye. In 1872, the former Californian governor, railways magnate, and racehorse breeder Leland Stanford engaged the prominent photographer, Eadweard Muybridge, to furnish evidence to settle the matter. Initial results were inconclusive. But, in 1878, using a bank of cameras with fast shutters triggered by trip wires, Muybridge captured a succession of images of a horse in full stride, proving the theory of 'unsupported transit'. These images forever changed the way we see horses and made a lie of many gallopinghorse paintings previously considered realistic. Muybridge may have wanted to freeze time, but his work anticipated the movies. He even invented a projector, the zoopraxiscope, to show his horse sequences as crude animations to paying audiences during his lectures.

Muybridge fell out with Stanford, but in the 1880s he continued his motion studies under the auspices of the University of Pennsylvania, photographing animals and people moving before gridded backgrounds. He documented men and women engaged in everyday activities: playing sports, going up and down stairs and ladders, at work and at play, horsing about. His subjects were often naked or scantily clad, to better see how their bodies worked. In 1887, his photos were published as a massive portfolio, his magnum opus, Animal Locomotion: An Electro-Photographic Investigation of Connective Phases of Animal Movements. This project contributed to science, but it was also artistic, fanciful, witty. Many sequences had negligible scientific interest or application, like the one showing a naked woman spanking a naked child stretched across her bare knee.1 Locomotion studies offered an alibi for voyeurism, if not for the photographer at least for his audience. Certainly the British painter Francis Bacon would later draw on a Muybridge image of wrestlers, because such figures could be easily mistaken for lovers in the throes.

IN THE 1930S, Harold Edgerton, a professor of electrical engineering at MIT, picked up where Muybridge left off. He made exposures swifter by using a high-speed electronic flash, lasting microseconds. In his photos, Edgerton used multiple exposures to trace athletes' movements, anticipating the use of motion analysis in sports coaching. He froze water streaming from a faucet and splashes of milk, and stilled flying bullets penetrating balloons, apples and bananas, playing cards, and Plexiglas. And he combined strobing flashes with high-speed slow-motion cinematography to observe airborne hummingbirds. And he did it all in the age of analogue photography.²

Edgerton's work had many practical applications. During World War II, he developed a photographic flash unit for nighttime aerial

reconnaissance (it was employed in preparing for the Normandy landings). In 1952, he photographed atomic-bomb tests at Enewetak Atoll, using his new rapatronic camera. Later, he developed tools to help Jacques Cousteau search for shipwrecks and the Loch Ness Monster. But, like Muybridge, Edgerton's work was always more than science. He was a showman, a populariser, publishing his spectacular images in Life. George Sidney's Oscar-winning documentary on his work, Quicker 'n a Wink (1940), closes with Edgerton footage of a dentist's drill grinding through a tooth in excruciating slow motion, as we wince in sympathy. And, like Muybridge, Edgerton's work had a veiled erotic aspect. More on that soon.

DANIEL CROOKS is concerned with how technology can enhance, transform, and expand the way we can see and understand the world. Early on, he made stop-frame animations, which got him thinking about the relationship between the camera and the world, between film time and real time. Crooks's subsequent *Time Slice* videos are premised on digital video, where information accumulated as a database of ones and zeros can be rendered in vastly different ways. In these works, he separates and rearranges slivers of video information to generate bewildering timespace warps, treating time as a material, as malleable.

Many of Crooks's videos involve trains and train stations (where trains and commuters move relative to one another in endless combinations). For *Train No. 8* (2005), he filmed London from a moving train. The scene is rendered so the right-hand side of the image lags seconds behind the left. This has a surreal effect. Buildings in the foreground become horizontally compressed, in the distance they expand, and in-between they almost seem normal. Things in the background move faster than those in the foreground; perspective seeming to operate in reverse. And yet, it is clearly a photographic image.

Crooks works with trains knowingly. In the nineteenth century, when photography and cinema were invented, trains exemplified modernity and mobility-the age of speed. Trains made time important in new ways. Commuters needed to know when to catch them and when they would arrive. Consequently, they prompted the world to reject local time and synchronise watches (and timetables) to Greenwich. The movies have always been in love with trains, perhaps due to the resemblance between trains running on tracks and film running through cameras and projectors, and between train tracks and film frames. One of the earliest films showed a train pulling into a station and trains crop up in innumerable movies.³ For Albert Einstein, trains would become a convenient metaphor to explain the complexities of relativity; contrasting, say, the experience of a static grounded observer with that of one moving on a train, albeit near the speed of light.

Crooks's videos also recall slit-scan photos, like those generated for horse-race photofinishes (more horses). The slit-scan camera combines elements of a still camera and a movie camera. It doesn't have a shutter. Instead, on a moving piece of film, it records what passes before a slit. Down the length of the image, each point represents the same point at a different moment. You can see familiar forms of horses, because they are moving in concert with the film, while the background, being static, is reduced to stripes the same information recorded at length.⁴

In *Static No. 11 (Man Running)* (2008), Crooks's subject is an explicit nod to Muybridge. Crooks starts with slow-motion footage of a moving subject (a man running on a treadmill), shot from a static position. A temporal rift appears in the middle of the image. As the righthand side runs increasingly ahead of the lefthand side, the gap that opens up between them is filled with the digital equivalent of a slit-scan image, bridging the temporal gulf. The effect is strange. The runner's limbs appear reversed, with feet stuck on backwards, and his movement is abstracted into waves. Ultimately, the central slit-scan section fills the screen. We have seen a normal moving image morph into a slit-screen one. We have witnessed the process.

In most of Crook's videos, we can detect a familiar reality lurking behind the distortion. But in his Imaginary Object videos (2007), this is suppressed. Here, Crooks filmed objects slowly rotating on a turntable. From each frame, he extracted a one-pixel-wide section, and 'blended them in sequence to form a composite image where the vertical y axis represents space and horizontal x time'.⁵ This generates beautiful, rhythmic, helical patterns-organic flowing forms that don't actually exist. They suggest billowing silk or liquid marble, and recall Edgerton's slow-motion milk-splash studies.6 These works are perplexing. As it's Crooks, we know some everyday reality is lurking behind the shapes we see, but it is hard to know how it's been done, to mentally reverse engineer the filmed objects from what we see. We have left mundane reality behind, transcended it, and come out the other side.

Crooks's works have been linked to cubism in painting. Like the cubists, he wants to overturn habitual ways of looking at the world. But where they favoured the fractured and unruly, he leans towards the meditative and holistic. His work's meditative quality is reinforced by lack of editing (everything unfolding within a single shot), slow pace, and ambient soundtracks. He offers an unfamiliar, alien perspective on the world, 'refracted through some kind of sci-fi time crystal', as Stella Brennan puts it, revealing 'structures and harmonics behind the world of appearances'.7 Paradoxically, it's Crooks's thoroughly technological and materialist understanding of his medium that allows him to open up this metaphysical portal. In this, his work holds hands with the Wachowski Brothers' sci-fi film The Matrix (1999).



In *The Matrix*'s 'bullet time' sequences, the brothers famously 'make time and space their bitch'.⁸ Echoing Muybridge, they used a bank of still cameras to shoot action from a variety of angles at the same moment (or almost the same moment), compiling these still shots as a movie to suggest, paradoxically, that we could move around things frozen (or almost frozen) in time. Audiences had never seen anything like it. In the film, this effect is tied to our hero Neo's (and our) realisation that he is operating within a computer, a Platonic world of numbers, where bodies and gazes are virtual. Neo wants, at once, to return to and reinstate the real world, the world of concrete commitments and attachments, and to escape the real-world-like quality of the virtual world ('the construct'), for a higher, more abstract, more metaphysical plane within it (where he can fly and continue to wear cool clothes). In The Matrix, these two mutually exclusive objectives (anti-Buddhist and classic Buddhist) are horribly scrambled. The unanswered question: Is Neo freer in the real world or as master of time and space in the simulation? Crooks has said he wants to find a way of representing the world outside of our current 'Western construct'-to 'step outside of time'.⁹ Perhaps this explains the resonance of his occasionally 'Eastern' subject matter: a wise senior doing his tai chi routine in Shanghai or a tramp-sage staring into the camera as distorted commuters swirl around him in Tokyo.¹⁰ Perhaps these are Crooks's Neos, alive and well and living among us.

Generally speaking, Crooks is a utopian. He is excited by the possibility that technology could open up a new space for us, that it's liberating. However, a recent video, *Labyrinths* (2014), goes the other way. We see a man in a hoodie enter and trudge around a dark carpark. He is joined by another figure, himself again, exactly the same, from moments earlier. And so on and so on and so on. Until the room is full of these figures, all repeating the same action. Then they file out, one by one. Should we think of *Labyrinths* as representing a world where clones exist or one where our vision has evolved so we can see different moments simultaneously, staggered in time?

In sci-fi films, cloned figures imply a step up in capacity—superior multi-tasking abilities. Consider the army of Agent Smiths ganging up on Neo in *The Matrix Reloaded* (2003); or *Dr. Manhattan* in *Watchmen* (2009), one of whose bodies takes care of marital duties while others work in the lab; or *Limitless* (2011), where smart drugs enable Eddie Morra to simultaneously wash the dishes and take out the trash. But the replicated figure in *Labyrinths* is tragic and unproductive. The video recalls an exercise yard, where our trudging prisoner is condemned to pointless repetition—like Sisyphus. Is the typically utopian Crooks having second thoughts?

IN CINEMA, slow motion is used to assert the poetry of motion, to make violence and destruction feel epic, and to imply shifts in consciousness-and often more than one of these at once.¹¹ Steve Carr revels in it as a cinematic cliché, a trope. In his Screen Shots (2011), paintfilled balloons popped with pins are presented in slow motion. (Of course, balloons are often used in magic tricks and science experiments, and one of Edgerton's most iconic images shows three balloons being burst by a single bullet.) As Carr's balloon skins peel back, the paint briefly retains the balloon shape, before losing it. Takes-in different permutations of background colour, balloon colour, and paint colour—play continuously on nine screens, usually hung in a three-by-three array. No two takes are quite the same. There's a sense of anticipation in predicting which balloon will burst next and how. As we wait for one balloon to rupture, our eyes are distracted by another one doing so. Not only do the bursting balloons repeat, the whole idea feels like déjà vu. Everyone has seen these kinds

of high-speed images, somewhere, sometime. Edgerton's iconic set-ups have been endlessly reprised by commercial photographers and nerdy amateur myth busters, making their own flash photos and slow-motion movies of splashing liquids, popped balloons, and penetrated fruit. They seem compelled to repeat his experiments and effects. What is the attraction?

Edgerton's images were often sexually loaded: a gun discharging with an ejaculatory puff of smoke, an exploded apple (tempting forbidden fruit), a ruptured banana (a phallus), milk splashes (mummy!). They suggest those movie cutaways that signify sex without showing it-steam trains entering tunnels and fireworks exploding. Carr picks up on the erotic subtext. Screen Shots's scenario is gendered. The genericanonymous male demonstrator may not wear a lab coat, but his crisp, clean, white-cuffed shirt means business. Because he is male, it is easy to understand the pendulous balloons as female and their rupture and release as orgasmic. Is this a portrayal of male prowess (he always bursts her bubble) or of male bewilderment (show me again, I don't understand)? Screen Shots is a compilation of orgasms, of feminine money shots.

Carr's Dead Time (2012) is another steal, being based on Edgerton's famous images of bullets bursting through apples. It was an idea Edgerton himself repeated, like a party trick (he called it 'making apple sauce'). Carr's work is presented on a row of seven monitors. Each screens a different video featuring a different apple hanging from a string, against a black background. (Crooks was thinking of those still lifes by the Spanish baroque painter Juan Sánchez Cotán that often feature fruit and fowl similarly suspended.) For most of Dead Time's eight-minute duration, nothing happens, building a sense of anticipation as an audience gathers-or not. Then, at some point, bullets are fired through all the apples, pulping them in exquisite slow motion. Particles of apple hang on the air, recalling those exploding commodities at the close of Michelangelo Antonioni's Zabriskie Point (1970). It's only at this point that we see that the videos are in slow motion. The shots are coordinated so the bullets pass through the apples in sequence, as if they were all pierced by a single projectile. The monitors have been spaced to support this impression. While Screen Shots continually unfolds, seemingly at random, Dead Time is synchronised; what happens happens all at once. The work is as much about the suspense as the pay off. (Carr says the piece is also a nod to Muybridge, who famously shot and killed his wife's lover. This may be why Carr choose the apple variety he did—Envy.)

Carr explores anticipation and duration, but he doesn't only do slow motion. Watermelon (2015) is in real time, and Transpiration (2014) is time lapse. Watermelon is based on a Japanese trick, where rubber bands are placed around a watermelon until the pressure becomes so great that it ruptures.¹² In Carr's video, two pairs of female hands stretch bands across a melon's girth—we hear them going 'smack'. The fruit bulges, until, long after we expect it to, it finally does split, violently—a straw broke the camel's back. For the viewer, there is a sense of empathetic build up and release, not to mention hints of decapitation and castration. Indeed, Carr associates the melon trick with castration scenarios in Japanese films, the most famous being in Nagisa Ôshima's In the Realm of the Senses (1976). With its female hands, Watermelon is a FemDom sequel to Screen Shots.

Carr's six-channel video installation *Transpiration* is based on a classic classroom science experiment (and florist trick), where white flowers, whose stems are placed in dyed water, suck up the colours into their petals. Against a black background, his white carnations turn pink, yellow, and blue—another joke on painting. Carr plays the sequence forwards then backwards, in a seamless loop. Although agonisingly slow, it's actually sped up, but it's not fast enough to make the transformation explicit, testing our powers of discrimination. Carr's blushing flowers imply something sexual or romantic, albeit cheesy and fake.¹³

Designed to accompany Transpiration, Carr's single-channel video American Night (2014) also plays on this sense of artificial, 'represented' time. It is a nod to the famous shot of the robin (representing 'love') eating a bug at the conclusion of David Lynch's film Blue Velvet (1986). According to legend, Lynch wanted to use a real robin, but had to make do with a stuffed one, which he manipulated like a puppet. The effect looked phoney, but he liked it.¹⁴ In American Night, a mechanical bird perches on a branch before a fake theatrical background. The background's colour changes over the course of fifteen minutes, suggesting the passage of time over an entire day. The title refers to a movie trick, also called 'day for night', where night scenes are shot in daylight or under bright studio lights using a colour filter. Natural time has become contrived—a simulation.

CROOKS AND CARR are chalk and cheese. They have interests and references in common, but much divides them. Crooks is technically innovative (everything surprises us and exceeds our expectations), while Carr's effects are familiar quotes, reruns, readymades (always in inverted commas). Despite his technical novelty, Crooks traffics in transcendental, metaphysical implications, elevating us to a higher plane, but Carr takes us back to visceral, bodily pleasures. Crooks lacks irony, Carr sincerity. Each offers an antidote to the other, but each, in his way, is a seducer. Seduction takes time.

Robert Leonard is Chief Curator at City Gallery Wellington.

- 1. It's hard to even know why he even shot the bizarre, sadistic Chickens; Scared by Torpedo sequence.
- 2. Edgerton worked closely with photographer Gjon Mili. They had a lifelong association.
- 3. The Lumière Brothers's Arrival of a Train at La Ciotat (1895). More recently, the opening scene of Lars von Trier's Europa (1991) focuses on flickering railway track 'sleepers' from the point of view of a moving train, as the narrator attempts to talk us into a hypnotic trance.
- Douglas Trumbell used slit-scan photography for his stargate-corridor sequence for Stanley Kubrick's 2001: A Space Odyssey (1968), where it suggests elevation to a higher level of consciousness.
- 5. http://eyecontactsite.com/2012/06/crooks-photographsand-videos.
- John Hurrell sees 'architectural columns, figures draped in fabric, glisteningly wet ceramics' and 'open books spliced into black flowing hair'. http://eyecontactsite. com/2012/06/crooks-photographs-and-videos.
- 7. Stella Brennan, Daniel Crooks and Jae Hoon Lee (Brisbane: Institute of Modern Art, 2008), np.
- 8. 'Top 10 Slow-Mo Moments of All Time', https://www. youtube.com/watch?v=rLgmfSGQAkE.
- 9. https://www.youtube.com/watch?v=Z6M1NV8Mch8.
- In Static No. 12 (Seek Stillness in Movement) (2009– 10) and Static No. 19 (Shibuya Rorschach) (2012) respectively.
- 11. Leni Riefenstahl pioneered the use of slow motion in filming sport in Olympia (1938), with its famous diving sequence. Today, we expect slow-motion replays. Arthur Penn and Sam Peckinpah explored slow motion's mythic force in those epic, balletic shoot-outs in Bonnie and Clyde (1967) and The Wild Bunch (1969). As did Stanley Kubrick, with his tidal wave of blood in The Shining (1980). Slow motion's appeal was the subject of Dredd (2012), which finds a new drug is on the streets. It's called Slo-Mo, because (conveniently) its effects recall slow-motion movie sequences, making it easy for the filmmakers to put us into the heads of addicts. In the bitter-sweet end, the drug-dealing crime lord Madeline Madrigal gets a dose of her own medicine and is hurled down the central shaft of a skyscraper, to her death. The drug attenuates her experience of freefall, her anticipation of suffering, and our pleasure in it. It's horrific but beautiful, visceral but transcendental. Splat.
- 12. For instance, 'Japanese Style Watermelon Cutting'. https://www.youtube.com/watch?v=9TGsOGuYD8c.
- 13. Transpiration also nods to Andy Warhol's Flowers series (1964–5).
- 14. In Blue Velvet, the robin sequence includes a closeup of flowers. In linking American Night and Transpiration, Carr repeats this association.



Eadweard Muybridge Ascending Ladder c. 1884–7



Eadweard Muybridge *Cockatoo, Flying* c. 1884–7



Daniel Crooks Train No. 10 (Onward Backwards) 2012

Static No. 11 (Running Man) 2008





Daniel Crooks Imaginary Object No. 3 2014 Daniel Crooks Static No. 19 (Shibuya Rorschach) 2012

Daniel Crooks *Labyrinths* 2014





Harold Edgerton Bullet through Apple 1964 **Harold Edgerton** *Bullet through Banana* 1964





Harold Edgerton *Bullet through Plexiglass* 1962 **Harold Edgerton** *Bullet through Balloons* 1959







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Steve Carr	Daniel Crooks
Screen Shots 2011 nine-channel video installation 26min 22sec looped Chartwell Collection, Auckland Art Gallery Toi o Tāmaki (purchased 2011)	Imaginary Object No. 14 2006 Lambda print 102 x 102cm University of Auckland Art Collection Imaginary Object No. 3 2007
Dead Time 2012 seven-channel video installation 8min 40sec courtesy Michael Lett, Auckland	video 6min 38sec courtesy Anna Schwartz Gallery, Melbourne
<i>American Night</i> 2014 video 14min courtesy Michael Lett, Auckland	Static No. 11 (Running Man) 2008 video 4min 32sec courtesy Anna Schwartz Gallery, Melbourne
Transpiration 2014 six-channel video installation 15 min looped courtesy Michael Lett, Auckland <i>Watermelon</i> 2015 video	<i>Static Runner 2008</i> Lambda print 26.5 x 53mm courtesy Anna Schwartz Gallery, Melbourne
33 min 9sec courtesy Michael Lett, Auckland	Static No. 19 (Shibuya Rorschach) 2012 video 6min 3sec courtesy Anna Schwartz Gallery, Melbourne <i>Train No. 10 (Onward Backwards)</i> 2012 video 7min 23sec
	courtesy Anna Schwartz Gallery, Melbourne

Labyrinths 2014 video 14min 11sec courtesy Anna Schwartz Gallery, Melbourne

Harold Edgerton

Antique Gun Firing 1936 silver-gelatin print 41.5 x 55cm

Gussie Moran 1949 silver-gelatin print 44.5 x 36.5cm

Atomic Bomb Explosion c. 1952 silver-gelatin print 54.5 x 42cm

Moving Skip Rope 1952 silver-gelatin print 31.5 x 47cm

Bullet through Balloons 1959 silver-gelatin print 32.5 x 54.5cm

Bullet through Apple 1964 dye-transfer print 34.5 x 45cm

Bullet through Banana 1964 dye-transfer print 35.5 x 40.5cm

Bullet through Plexiglas 1962 silver-gelatin print 28 x 24cm

Palm Press, Berkeley CA

George Sidney with Harold Edgerton

Quicker 'n a Wink 1940 film 9min courtesy Metro-Goldwyn-Mayer, Los Angeles

Eadweard Muybridge

A, B, C; 1, Spanking Child 48.4 x 61.4cm

Ascending Ladder 48.4 x 61.4cm

Boxing, 53 Knocking 52 Down (Shoes) 48.5 x 61.3cm

Cockatoo, Flying 47.9 x 60.6cm

Contortions on the Ground 47.9 x 60.7cm

Double Amputation of Thighs; Boy; A, Moving Forward; B, Getting on Chair; C, Down from Chair 48.4 x 61.3cm

Emptying Bucket of Water 48.5 x 61.3cm

Jumping a Hurdle; Saddle; Clearing, Landing, and Recovering; Bay Horse, Daisy 48.3 x 61.5cm

Movement of the Hand; Beating Time 48.4 x 61.3cm

Pouring Basin of Water over Head 48.7 x 61.4cm Running Somersault 48.5 x 61.4cm

Walking Commencing to Turn Around 48 x 60.7cm c. 1884-7 collotype plates from Animal Locomotion: An Electro-Photographic Investigation of Connective Phases of Animal Movements George Eastman Museum, Rochester NY

Muybridge measurements are for the sheets.

WORKS

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COVER Harold Edgerton Antique Gun Firing 1936

Edgerton images reproduced courtesy Palm Press, Berkeley CA.

INSIDE COVER Steve Carr Watermelon 2015



