

DRONE

THE AUTOMATED IMAGE

EDITED BY PAUL WOMBELL

**LE MOIS DE LA
PHOTO À MONTRÉAL**

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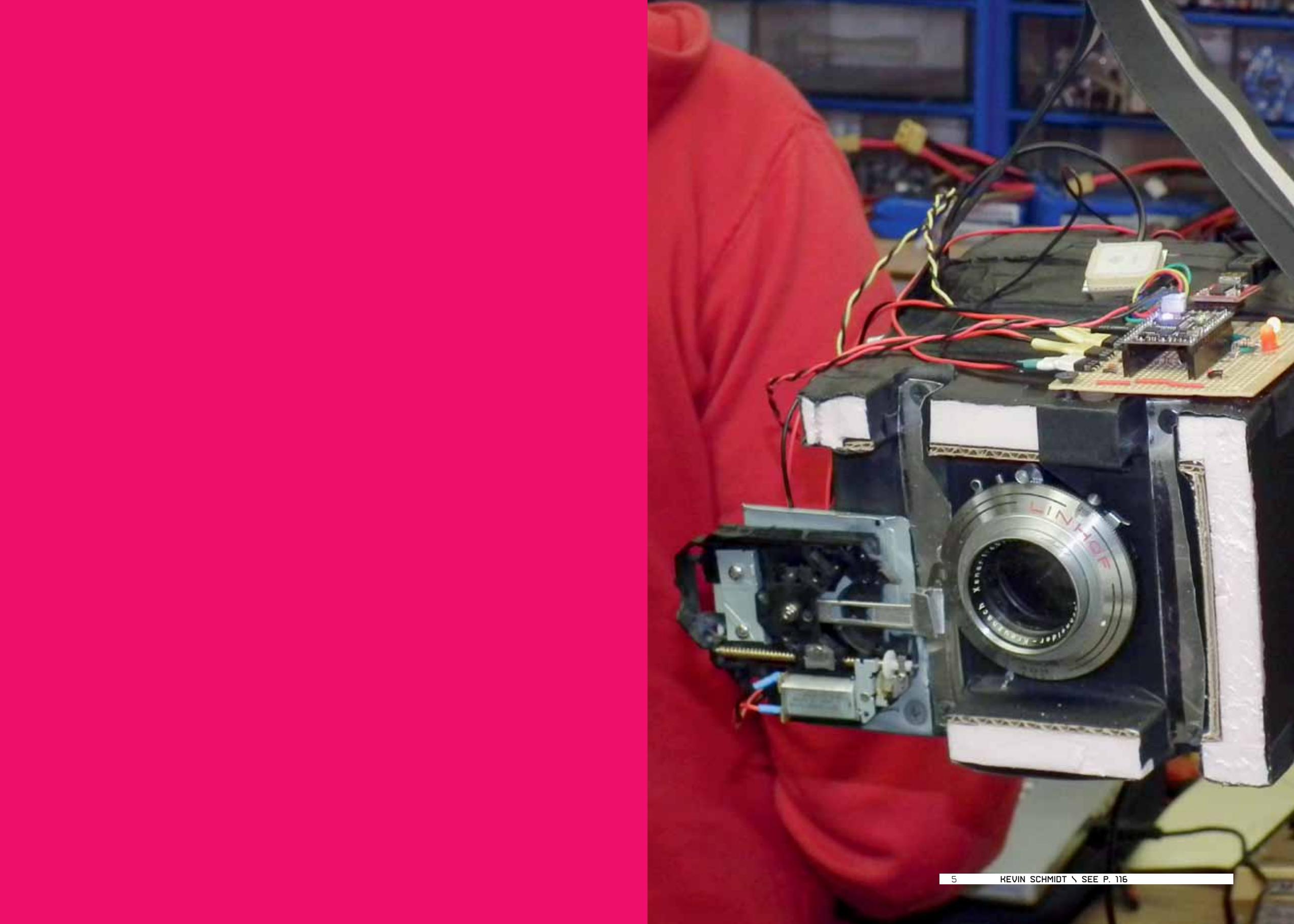
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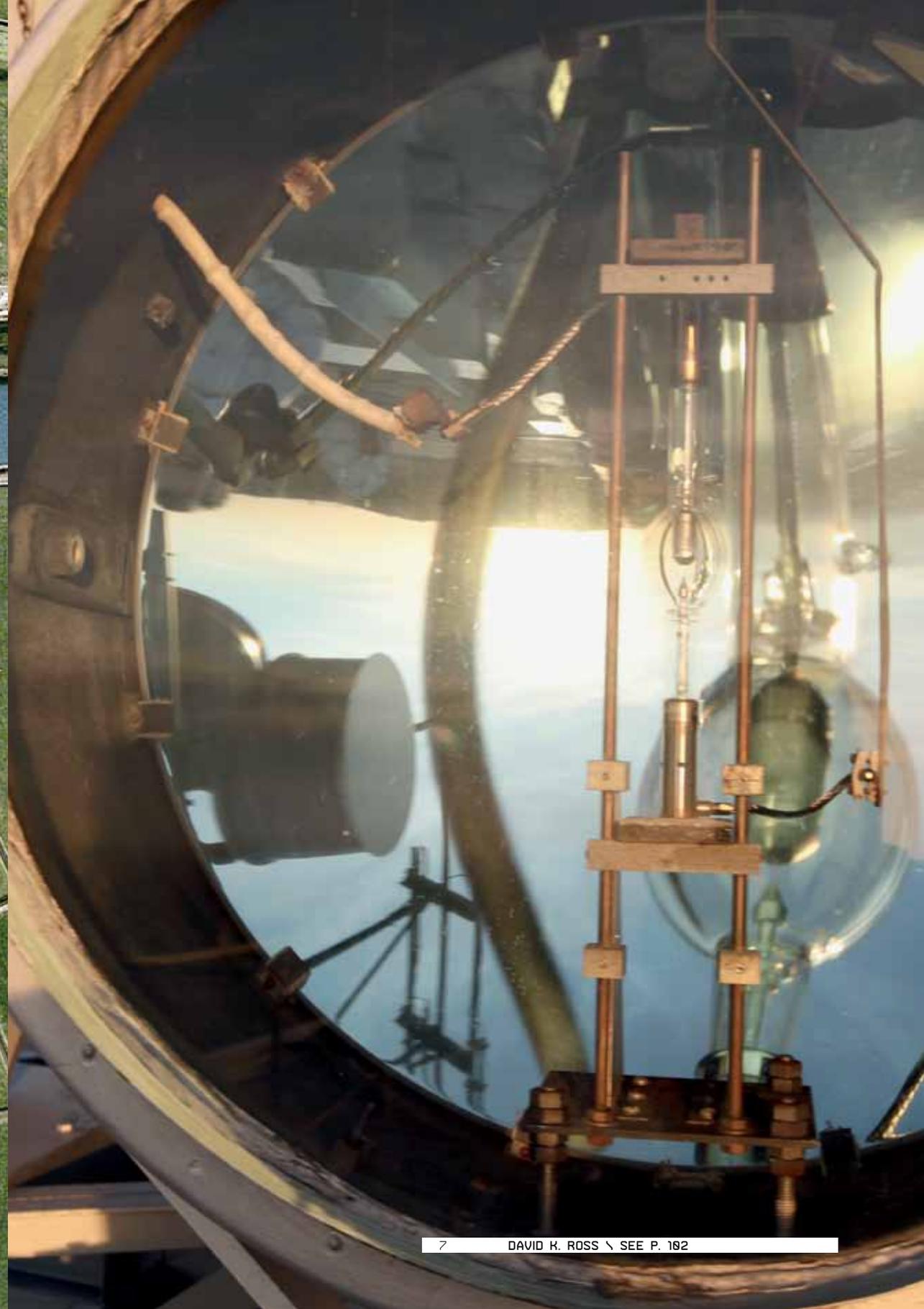
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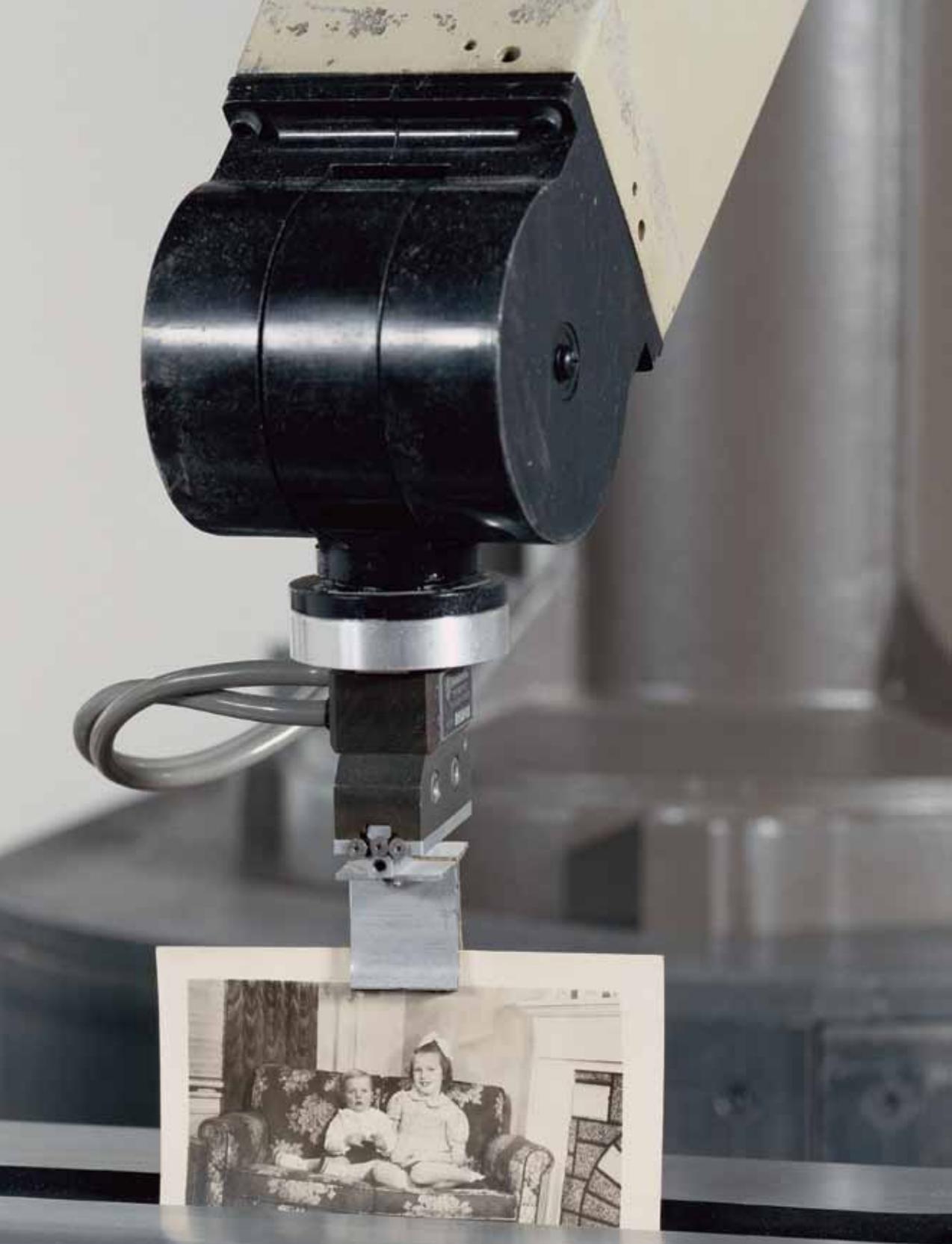
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PAUL WOMBELL
BLACK BOX

No photographer, not even the totality of all photographers, can entirely get to the bottom of what a correctly programmed camera is up to. It is a *black box*.¹
Vilém Flusser

Some villagers in Sikkim betrayed a lively horror and hid away whenever the lens of a camera, or “the evil eye of the box” as they called it, was turned on them. They thought it took away their souls with their pictures, and so put it in the power of the owner of the pictures to cast spells on them, and they alleged that a photograph of the scenery blighted the landscape.²
L. A. Waddell

1. Vilém Flusser, *Towards A Philosophy of Photography* (London: Reaktion Books, 2000), 27.

2. Laurence Austin Waddell, *Among the Himalayas* (New York: Amsterdam Book Co.; Westminster: A. Constable & Co., 1899), 85.

The account in this epigraph is taken from the book *The Golden Bough* by J. G. Frazer, which I found on the document-sharing Web site Scribd.³ As I scrolled down the site, an advertisement announced, “I AM A NIKON D3200.” This Nikon camera had a voice and said, “I AM ALIVE.” This camera is your friend, part of the family; it will remember the important events in your life, take photographs in the dark, record sound, and shoot remotely. This camera is alive.

One of the recurring stories in the history of photography is that in some so-called primitive societies there was a belief that photography could capture the soul. This photographic encounter from the late nineteenth century might seem, from a distance, to be more about anthropology and colonialism, which it is. However, the villagers in Sikkim were aware of something more profound: the changing relationship between the human and technology. This box might well have power over the subject, but the box also has power over the photographer. Many photographers have the perception that the camera is just an object over which they have complete mastery and control, an object that they can pick up and spontaneously use to take their photographs. The political theorist Langdon Winner has suggested that technical devices are not somehow separate and autonomous bits of machinery, but require social coordination and training: “We do not use technologies so much as live them. One begins to think differently about tools when one notices that the tools include persons as functioning parts.”⁴ We are socialized to use the camera both formally and informally. Family, friends, manuals, education, and advertisements all play a part in passing on the skills required to take photographs. More recently, the camera has become the active partner in transmitting these skills.

Cameras are complex instruments that transform three-dimensional space into miniature two-dimensional form by controlling space, light, and time. Whereas at one time the photographer had some control over the calculations used to make the final exposure, by the 1960s low-cost electronic internal components were commonplace and the actions required to take the photograph became automated. Cameras were equipped with exposure meters to adjust the aperture and shutter speed for the light conditions, autofocus sensors to determine the distance from the lens, and self-timing devices to set the exposure so that the photographer could move from behind the camera to be included in the picture. With the advent of the Internet and

3. James George Frazer, *The Golden Bough: A Study in Magic and Religion, Part II, Taboo and the Perils of the Soul*, 3rd ed. (London: MacMillan, 1919), <http://www.scribd.com/doc/18067818/Frazer-Taboo-and-the-Perils-of-the-Soul-The-Golden-Bough-part-II>.

4. Langdon Winner, *Autonomous Technology: Technics-out-of-Control as a Theme in Political Thought* (Cambridge, Mass.: MIT Press, 1977), 202.

Wi-Fi, images can now be instantly shared across social media platforms and stored on image libraries that are accessed via computers, mobile phones, and other cameras. The camera has taken on a life of its own, requiring little or no human involvement: it is part of the family, our friend, fully integrated technology, connected to other machines, an object of desire that makes images of our desires. But what kind of desire does the camera have for us? As the novelist J. G. Ballard said,

The Church of England has lost a lot of its authority, so has the monarchy. So what we have is consumerism. I'm not suspicious of consumerism, but the problem arises when it's all there is left. I mean, if you go out in the London suburbs, away from our great museums and Houses of Parliament and art galleries, theatres and the like, into a world where all you have are retail outlets . . . there's nothing other than a new range of digital cameras, or what have you, to sustain one's dreams . . .⁵

This view of authority being eroded by consumerism and, more importantly, the influence of technology on human imagination and desires are recurring topics in Ballard's novels, and also fundamental themes in *Drone: The Automated Image*. However, it is in museums and art galleries that artists have investigated the different multiple uses that the camera has today, and its transformation into an object that can inspire dreams.

We shall start our investigation into the life of the camera with the work of artists Penelope Umbrico and Cheryl Sourkes, and their connection to themes of consumerism and suburbia desire. **Penelope Umbrico** appropriates existing images from Web sites or from the printed pages of catalogues that sell consumer goods. The *TVs From Craigslist* (2009–12) project shows images of second-hand televisions that the artist found on Craigslist. The use of the digital camera's automatic settings produced visual results that inadvertently reflected the flash on the television screen, revealing the ghostly image of the sellers and their interior domestic space. Umbrico wrote about this series, “Believing in ghosts assumes that the ghost is ‘other,’ but maybe we are (or at least verging on becoming) the ghost if our relationship to our identification with nonmaterial digital representation and presence defines large aspects of our world. It's like we've found a way to leave the cave and have left our bodies behind.”⁶

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5. From a BBC Radio 4 interview with J. G. Ballard by James Naughtie in Simon Sellars and Dan O'Hara, eds., *Extreme Metaphors: Selected Interviews with J.G. Ballard 1967–2008* (London: Fourth Estate, 2012), 481.

6. Penelope Umbrico, “From Narcissus to Narcosis,” in *Penelope Umbrico (photographs)* (New York: Aperture, 2011), 9.

In his book *Haunted Media*, Jeffrey Sconce writes about the electronic media and their connection with the paranormal and the widely held belief in the 1950s that technologies such as television were “alive.”⁷ He draws an uncanny parallel between late-nineteenth-century *spirit photography* and late-twentieth-century cyberspace, and the idea of *cyberspirits*. His use of the Freudian concept of the uncanny makes reference to the familiar becoming strange or to fear of being taken over by external forces that can articulate hidden repressed tensions. The automatic settings of the camera are central to Umbrico’s work *Sunset Portraits from 12,193,606 Flickr Sunsets on 4/25/13* (2013), in which she uses pictures found on the photo-sharing Web site Flickr. The images depict people standing in front of a sunset, but because the cameras are set on automatic, the exposure compensates for the bright light of the sun by underexposing the people standing in foreground. Both sets of Umbrico’s works might be seen as bad photography with wrong exposures, but the mechanics of the camera have overridden the intentions of the photographers, displaying their own rules and behaviours.

Cheryl Sourkes evokes the domestic and the automatic in her works *Everybody’s Autobiography* (2012), *Facebook Albums* (2010), and *BRB* (2010). At some point in the mid-1990s, the once-private world of the home became more visible in a way that even Ballard could never have imagined. It became possible to connect a video camera to the computer and communicate with other people by the way of the screen. This system was to be called webcams. This transformation was part of a wider development of placing autonomous cameras both in private and public locations to watch traffic moving along streets, animals in zoos, or even people undressing and performing sexual acts.⁸ Webcams have become ubiquitous and integrated into our daily life. Sourkes may be one of the first artists to engage extensively and imaginatively with this extraordinary development. Using her computer to find material from live webcams and Web sites, she selects and edits from thousands of screen grabs and then organizes the images into typologies. Like Umbrico, Sourkes explores the role played by the camera in redefining the relationship between the public and the private to a point at which the most intimate moments are freely available to view by anyone with access to a computer and the Internet.

7. Jeffrey Sconce, *Haunted Media: Electronic Presence from Telegraphy to Television* (Durham, N.C.: Duke University Press, 2000).

8. This aesthetic recalls Andy Warhol’s early experimental films made in the 1960s, such as *Sleep, Eat, Screen Tests, and Empire*.

In 1942, the first closed-circuit television (CCTV) system was installed in Germany on the test range for the V2 rocket. The design and installation of this system were undertaken by the engineer Walter Bruch;⁹ the aim was to watch at close quarters the launch of the first long-range ballistic rockets. Since the 1960s, the countdown has become one of the visual icons of space exploration. Today’s high-definition CCTV cameras, connected to computers that make it possible to identify and track anything and anyone in their field of vision, are omnipresent in public spaces.

P. 124 In 2003, **Jules Spinatsch** started his Surveillance Panorama Projects utilizing CCTV in public spaces. His work *Vienna MMIX 17352/7000, Speculative Portrait of a Society* (2009–11) was made on February 19, 2009 during the annual Vienna Opera Ball, attended by over seven thousand people. The work was made using images generated from two computer-controlled CCTV cameras with a telephoto lens that scanned the event over a period of eight and a half hours. The cameras made two full rotations on their axis, while recording a picture every three seconds, and made 17,352 single images. Because of the automatic nature of the cameras, there is no hierarchy of subjects, no distinction between chandeliers, dust, curtains, and humans. Spinatsch took his inspiration from Josef Haslinger’s book *Opernball* (Opera Ball),¹⁰ a political thriller that tells the story of thousands of guests attending the Vienna Opera Ball being killed with poison gas due to a neo-Nazi terrorist attack.

In addition to webcams and CCTV, the other widely recognized automatic cameras are those used by Google Inc. for its Google Earth and Google Street View services. Google Earth, created by Keyhole Inc., was originally called Earth Viewer 3D.¹¹ Google now has over twenty satellites in operation that it uses for networking, mapping, and communication purposes.

P. 148 **Donovan Wylie’s** project *The Maze* (2003–09) is a photographic survey of the Northern Ireland prison that played a key role during what was called the Troubles. Wylie was the only photographer granted official and unlimited access to the prison. He describes its architecture as a Russian nesting doll – one space leading into another

9. Walter Bruch would later play an important role in the development of television broadcasting.

10. Josef Haslinger, *Opernball* (Frankfurt: Fischer, 2003).

11. Founded in 2001, Keyhole was a software company specializing in geospatial data visualization applications, and it was partly funded by the CIA. The name Keyhole is a reference to the KH reconnaissance satellites that were operated by the CIA and the U.S. Air Force in the 1960s. Google bought Keyhole in 2004.

Exhibited Works

Artists at Work, 2010

HD video, 41 min 11 s, 16:9, colour, stereo, dialogue in Finnish with English subtitles.

12 ans après, 1999–2012 (selection)

Pigment ink prints on Fine Art Baryta rag paper from analog and digital originals, variable dimensions.

There are two recurring subjects in Elina Brotherus's video *Artists at Work* (2010) and her photographic series *12 ans après* (1999–2012): the artist herself and the camera. Given her long-time interest in the representation of artist as model, Brotherus features predominantly in virtually all of her photographs and videos. The self-portraits picture her in expansive landscapes or in claustrophobic rooms, portraying a range of different emotions, from melancholy to anger, from perplexity to serenity. The other subject is the camera. Sometimes the cable release can be seen winding along the floor toward her hands, leaving the camera off image. In more recent works, the camera is present in her photographs, sharing the space with the artist.

Born in 1972 in Helsinki, Elina Brotherus divides her time between France and Finland, where she obtained an MA in photography at the University of Art and Design Helsinki in 2000. Her works have been in solo and group exhibitions around the world, including at The Photographers' Gallery in London (2013); the Lianzhou Photography Festival (2012); the Musée d'art moderne et d'art contemporain in Liège (2012); the Louisiana Museum of Modern Art in Humlebæk, Denmark (2012); BOZAR, Centre for Fine Art in Brussels (2012); the Sørlandets Kunstmuseum in Kristiansand, Norway (2011); the Bloomberg Space in London (2010); the Finnish Museum of Photography in Helsinki (2009); and the National Art Center in Tokyo (2008). She has received numerous grants and awards and her works are in major public collections. Brotherus is represented by gb agency in Paris, The Wapping Project Bankside in London, and Martin Asbæk Gallery in Copenhagen. \ www.elinabrotherus.com

From the series *12 ans après*:

p. 33 \ *Le Chemin*, 2011, 90 x 120 cm

p. 34 \ *Dans le brouillard*, 2011, 90 x 120 cm

p. 35 \ *En novembre*, 2011, 90 x 117 cm

p. 36 \ *Nu aux bottes de randonnée*, 2011, 90 x 110 cm

p. 37 \ *Exercice d'équilibre*, 2011, 90 x 120 cm

Courtesy of the artist







Exhibited Works

Ruins, 2011

Chromogenic prints on Dibond, 120 x 150 cm each.

Checkpoint Tangui, 2012

Video installation, 8 min 55 s, colour, loop.

In 2010 Raphaël Dallaporta travelled to Afghanistan to assist a team of French archaeologists with compiling a visual inventory of that country's national heritage. Many of these historical sites are endangered by pillage, and the new war that started in 2001 has caused further damage to important monuments. Dallaporta was able to fly a specially adapted drone over the Afghani landscape to take pictures of historical sites. From this survey he made the work *Ruins* (2011). With their jagged edges that break the symmetry of the rectangle, the images reflect on the state of deteriorating remains and convey the fragile nature of the archaeological sites.

Raphaël Dallaporta was born in 1980 in Dourdan, France. He lives and works in Paris, where he graduated from Gobelins, l'École de l'image. He is the recipient of the Foam Paul Huf Award (2011) and the Young Photographer ICP Infinity Award (2010). He has had solo exhibitions at the Musée Nicéphore Niépce in Chalon-sur-Saône, France (2012); the Foam Fotografiemuseum in Amsterdam (2011); the Musée de l'Élysée in Lausanne (2010); and the New York Photo Festival (2008). His series *Ruins* was presented for the Prix découverte at Les Rencontres d'Arles in 2011. His works are in major public collections, including the Fonds National d'Art Contemporain and the Maison Européenne de la Photographie in Paris.
www.raphaeldallaporta.com

From the series *Ruins*:

p. 45 \ *CHESME SHAFI*. Fortification Wall. Balkh Province, Afghanistan.
Achaemenid period (6th–4th century BC)

p. 46 \ *CHESME SHAFI*. Balkh Province, Afghanistan.

From the Achaemenid period (6th–4th century BC) to the Ghoriid period (12th–13th century AD)

p. 47 \ *KAFIR QALA*. Citadel. Balkh Province, Afghanistan.

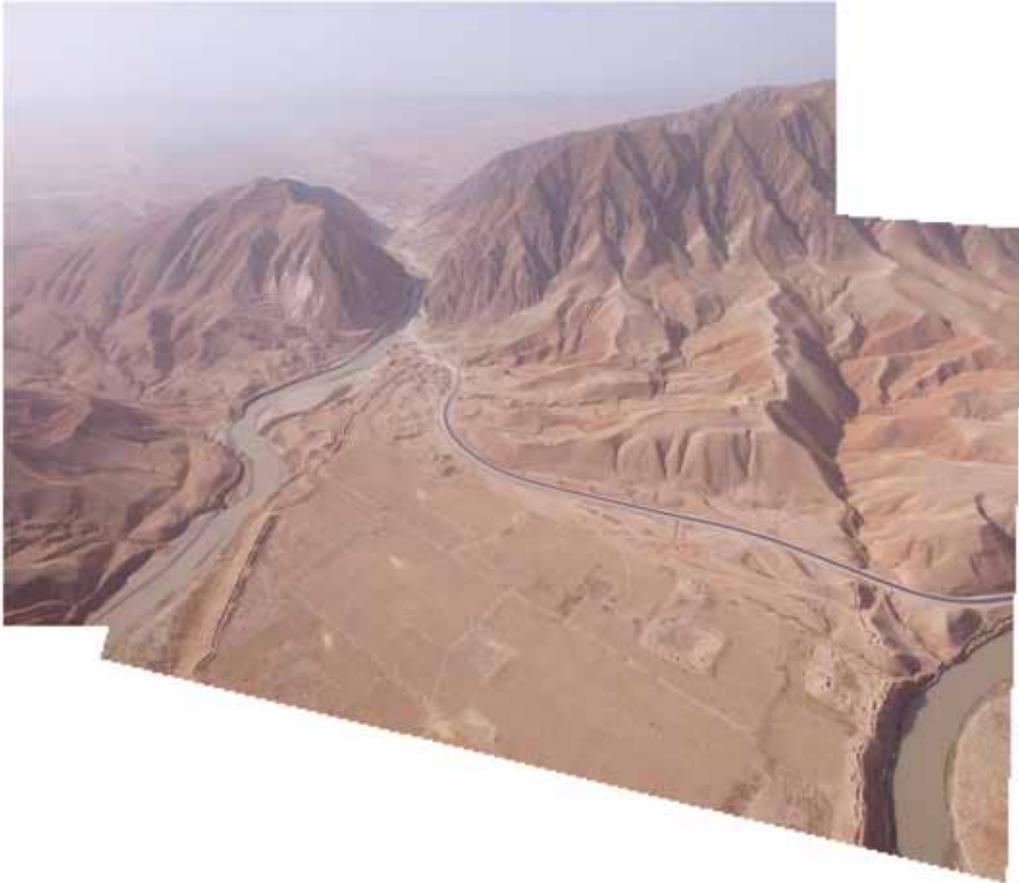
From the Achaemenid period (6th–4th century BC) to the Ghoriid period (12th–13th century AD)

p. 49 \ *SHAH TEPE, SOUTH-WEST*. Samangan Province, Afghanistan.

From the first Iron Age (late 2nd–early 1st millennium BC) to Timouride (15th century)

Courtesy of the artist







Exhibited Work

As Yet Untitled, 1992–95

Installation: metal, rubber, electronic and mechanical components, photographs, Plexiglas, archival paperboard box, 157 x 267 x 256 cm.
Gift of Jay Smith, David Fleck, Gilles Ouellette, and Terry Burgoyne, 2007.
Collection: Art Gallery of Ontario.

The destructive nature of technological innovation makes previous forms of technology obsolete and changes existing social relationships; this is the kernel of Max Dean's *As Yet Untitled* (1992–95). A pivoting robotic arm selects and presents the viewer with a family photograph. The viewer can decide to press on the hand-shaped panels in front of the robot, so that the print is saved and placed in an archival box; or do nothing, which causes the print to be shredded, its remains falling onto a conveyor belt to join other destroyed images. The arm then returns to the pile of photographs and repeats the process. The photographic print becomes a disposable item on the quest for a better tomorrow.

Born in 1949 in Leeds, U.K., Max Dean lives and works in Toronto. For over 35 years, his works have been in solo and group exhibitions around the world, including the Art Gallery of Ontario (AGO) in Toronto (2012); the Canadian Cultural Centre in Paris (2004); the National Gallery of Canada (NGC) in Ottawa (2002); ZKM Karlsruhe, Germany (2002); BOZAR, Centre for Fine Art in Brussels (2000); and the Venice Biennale (1999, 2001). His works are in public collections, including the NGC, the AGO, the Ottawa Art Gallery, the Vancouver Art Gallery, and the Winnipeg Art Gallery. He is the recipient of a project grant from the Toronto Friends of the Visual Arts, the Gershorn Isowitz Award, and the Chalmers Award. Dean is represented by Nicholas Metivier Gallery in Toronto.
\ www.metiviergallery.com
\ maxdean.grandportfolio.com



p. 8 \ Detail from an installation view, Art Gallery of Ontario, Toronto, 1997
pp. 51–53 \ Installation views, Art Gallery of Ontario, Toronto, 1997

Courtesy of the artist and the Art Gallery of Ontario



TOMOKO SAWADA
MAI (MONTRÉAL, ARTS INTERCULTURELS)

Exhibited Works

ID400, 1998

4 frames, 100 gelatin silver prints each, frame: 124.5 x 99.5 cm, each sheet: 10.3 x 8.8 cm. Edition of 15.

SKINHEAD, 1998

4 gelatin silver prints, 114 x 89 cm each. Edition of 15.

Tomoko Sawada's *ID400* (1998) was produced while she was a student in Kobe. "The photo machine, a small vending machine-like contraption, can be found in numerous locations around the city." Sawada spent weeks changing her physical appearance with make-up, clothing, and hairstyles, creating 400 different identities using a machine whose sole purpose is to produce stable images for official documents. The facial characteristics are so varied that the photographic project becomes a compelling study of physiognomy.

Born in 1977 in Kobe, Japan, Tomoko Sawada lives and works in Kobe and New York. She is the recipient of the Higashikawa Prize in 2008, photo-eye's Best Books of 2006, the Bleue Mer Award in 2006, and the ICP Infinity Award in 2004. She has exhibited extensively, including at the Andy Warhol Museum in Pittsburgh (2012); the Joan Miró Foundation in Barcelona (2008); and the Museum of Modern Art (MoMA) in New York (2005). Her works are in major public collections, including the National Museum of Modern Art in Kyoto, the Maison Européenne de la Photographie in Paris, MoMA, and the International Center of Photography in New York. Sawada is represented by MEM Gallery in Tokyo. \ www.e-sawa.com

p. 113 \ Frame from the series *ID400*
p. 114 \ *SKINHEAD*
p. 115 \ Details from the series *ID400*

Courtesy of the artist and MEM, Tokyo
© Tomoko Sawada





H-BLOCK.

PRISON HOUSING: DONOVAN WYLIE + SOCIAL HOUSING: ILSE BING

PRISON HOUSING: DONOVAN WYLIE

Exhibited Work

The Maze, 2003–09

Colour digital pigment prints.

15 prints of Prison Cells. H-Block 5, B-Wing, 2003, 30 x 40 cm each (framed).

4 prints of Walls, Fences, 60 x 70 cm each (framed), and one Google Earth image.

The Maze prison in Northern Ireland opened in 1971 to detain paramilitary prisoners during the Troubles, and closed 29 years later, after the Good Friday Agreement. With the “dirty protest,” hunger strikes, and escape attempts, the prison played a prominent role during this difficult period. But it was the prison’s architectural element, the H-block buildings, that became the symbol of the Maze and of the protests. Donovan Wylie’s photographic survey *The Maze* (2003–09) focuses on the different layers of imprisonment: the cells in the H-blocks, the various forms of fencing, and finally the perimeter walls. He reveals the vacant cells and interlocking fencing that confined prisoners within a machine of control.

Donovan Wylie was born in 1971 in Belfast, Northern Ireland. In 1998, at the age of 27, he became a full member of the Magnum Photos agency. In 2011 Wylie was awarded the Bradford Fellowship in Photography and in 2010 he was shortlisted for the Deutsche Börse Photography Prize. He has had solo exhibitions at the Imperial War Museum in London (2013); the Royal Ontario Museum in Toronto (2011); the National Media Museum in Bradford, U.K. (2010); the Irish Museum of Modern Art (IMMA) in Dublin (2006); and The Photographers’ Gallery in London (2005). His works are in major public collections, including IMMA, the Victoria and Albert Museum in London, and the Centre Pompidou in Paris. Wylie is represented by Magnum Photos. \ www.magnumphotos.com

pp. 150–51 \ *Prison Cells. H-Block 5. Maze Prison. Northern Ireland, 2003*

pp. 152–53 \ *Fence. Deconstruction of Maze Prison. Maze Prison. Northern Ireland, 2009*

pp. 154–55 \ *Demolition of South Perimeter Wall. Maze Prison. Northern Ireland, 2009*

Courtesy of the artist

SOCIAL HOUSING: ILSE BING

In collaboration with the CCA

Exhibited Work

Ilse Bing, Photographs from the CCA Collection, 1930

Thanks to Louise Désy, Curator of the Photographs Collection, for her valuable collaboration in the development of this project.

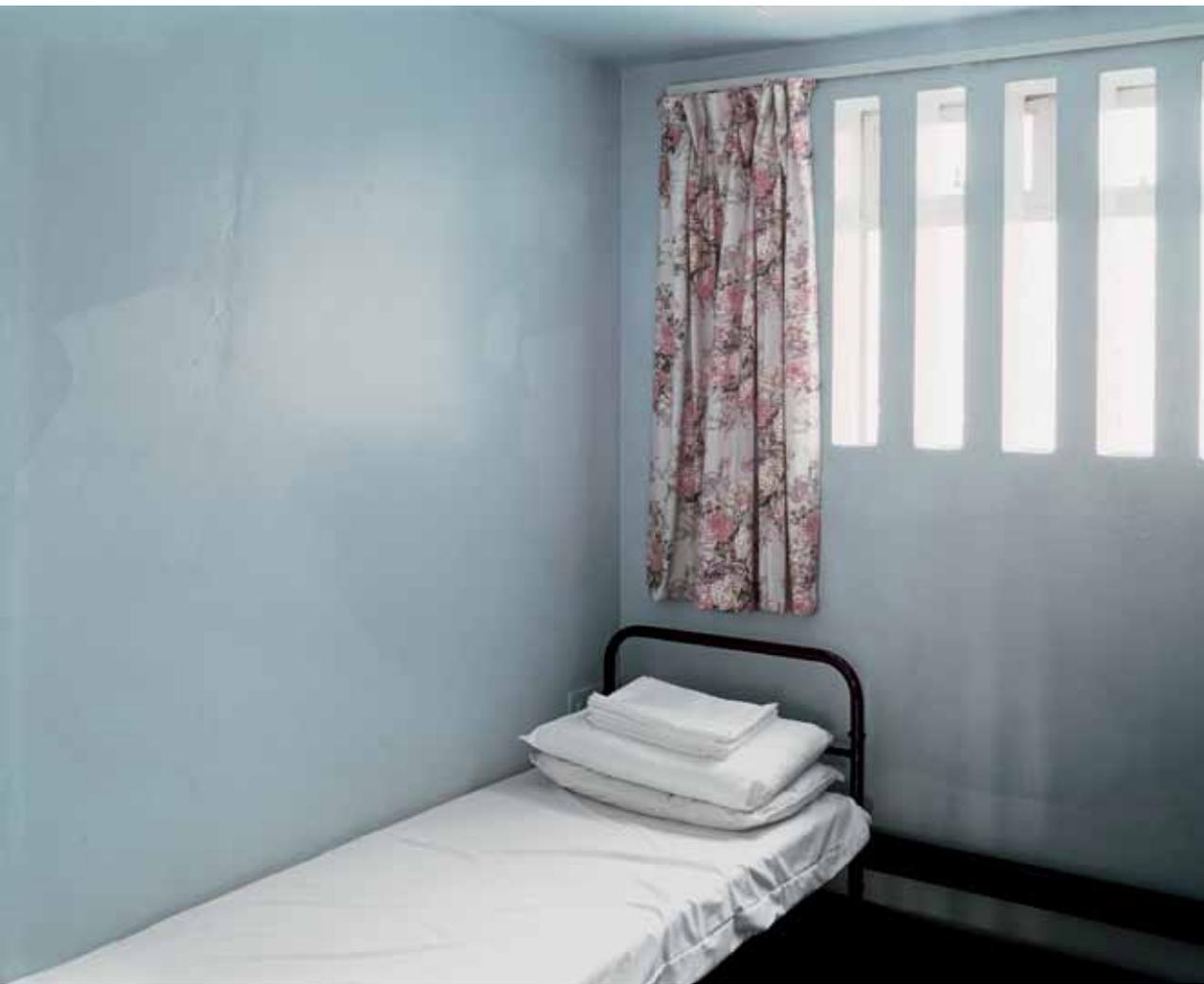
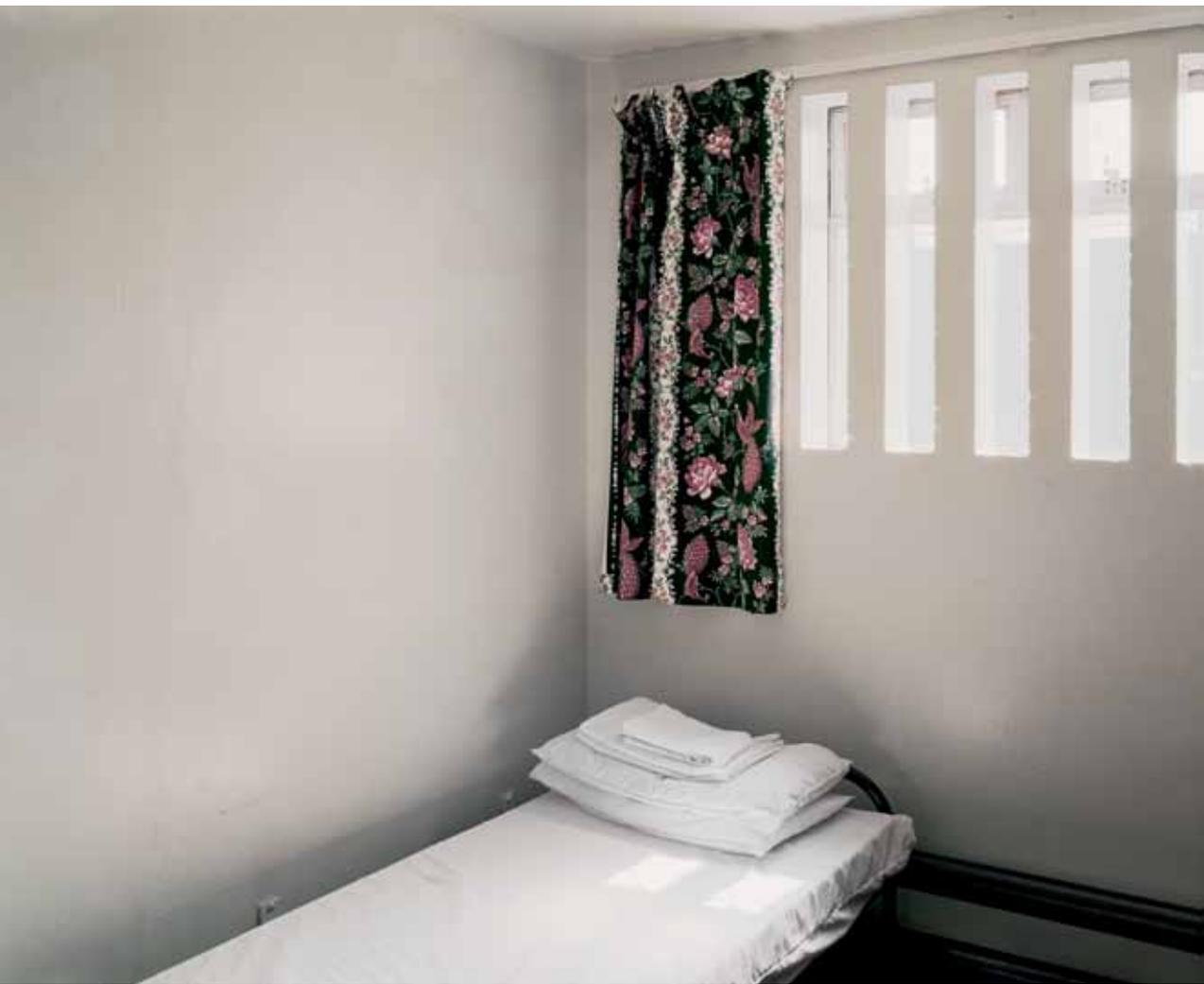
The 35 mm still camera fundamentally changed how we view the world. Small and portable, it was made to be hand-held and placed at eye level. In 1929, the young German photographer Ilse Bing bought a Leica and started a photographic career that took her from Frankfurt to Paris and on to New York. While Bing was in Frankfurt, the architect and urban planner Mart Stam commissioned her to undertake a photographic survey of the Henry and Emma Budge-Heim project, a social housing H-block building designed for elderly people. Bing starts with an exterior overall view of the building and then records the interior corridors and rooms. This gives the impression of a visual narrative that moves with dexterity from outside to inside the building, advancing closer to objects, and taking a microscopic view of the smallest details within the recently constructed building.

p. 156 \ *View of the glass partitions on the balconies of the Budge Foundation Old People’s Home, Frankfurt am Main, Germany, 1930.* Gelatin silver print, 28.0 x 22.1 cm. CCA Collection, PH1984:0288:007

p. 157 \ *Interior view of the Budge Foundation Old People’s Home showing the architect Mart Stam closing a window shade, Frankfurt am Main, Germany, 1930.* Gelatin silver print, 28.0 x 22.1 cm. CCA Collection, PH1984:0288:047

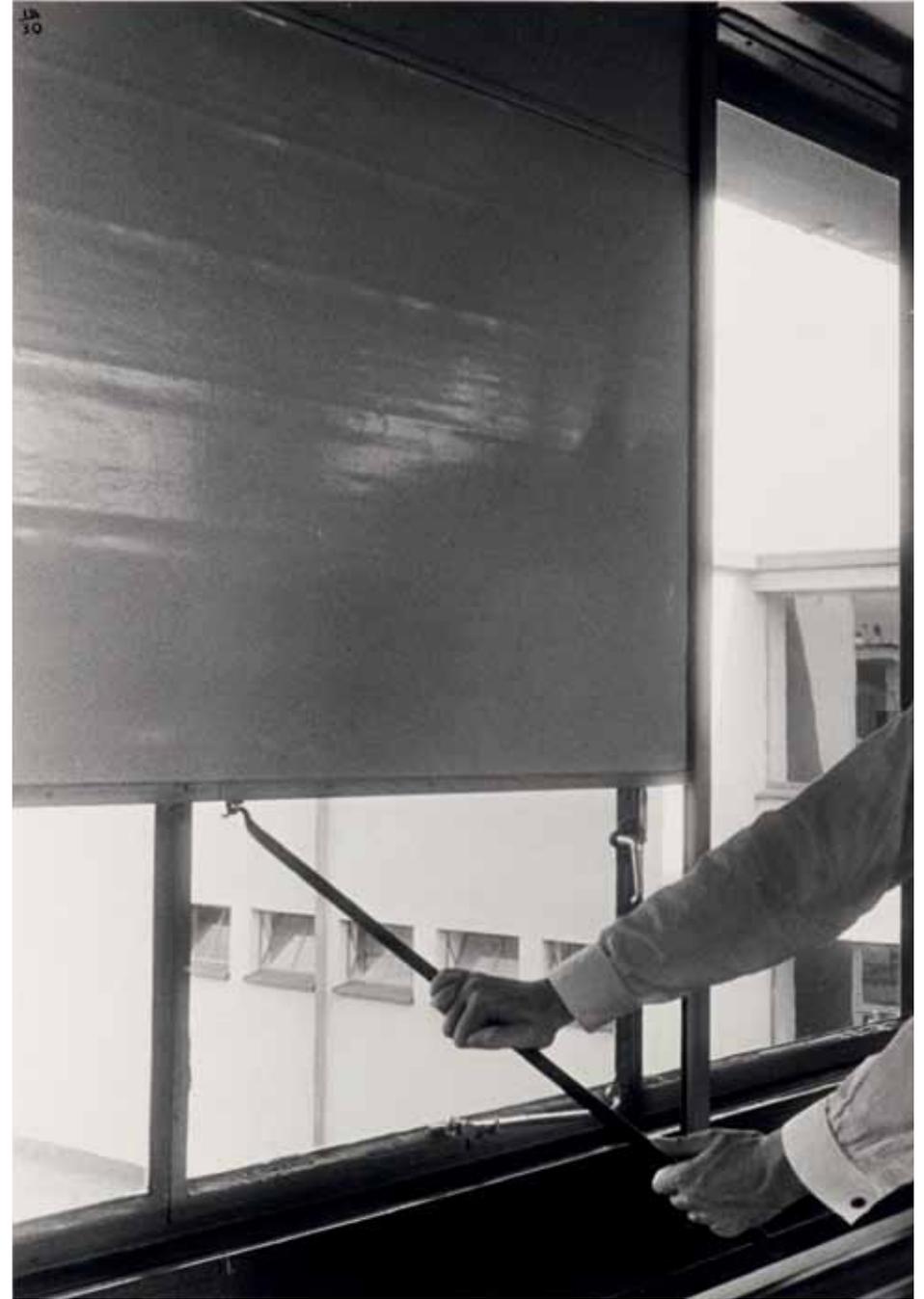
Courtesy of the CCA

© Estate of Ilse Bing









JOANNA ZYLINSKA

ALL THE WORLD'S A CAMERA: NOTES ON NON-HUMAN PHOTOGRAPHY

The photographic apparatus lies in wait for photography; it sharpens its teeth in readiness. This readiness to spring into action on the part of apparatuses, their similarity to wild animals, is something to grasp hold of in the attempt to define the term etymologically.¹

Vilém Flusser

But is it not obvious that the photograph, if photograph there be, is already taken, already developed in the very heart of things and at all the points of space?²

Henri Bergson

1. Vilém Flusser, *Towards a Philosophy of Photography* (London: Reaktion Books, 2000), 21–22.

2. Henri Bergson, *Matter and Memory*, trans. Nancy Margaret Paul and W. Scott Palmer (London: Allen & Unwin, 1911), 31.

Human-driven photography – in which an act of consciously looking through a viewfinder or, more frequently nowadays, at a liquid crystal display (LCD) screen held at arm's length – is only one small part of what goes on in the field of photography, even though it is often made to stand in for photography *as such*. The execution of human agency in photographic practice, be it professional or amateur, is ostensibly manifested in decisions about the subject matter (the “what”) and about ways of capturing this subject matter with a digital or analog apparatus (the “how”). Yet in amateur, snapshot-type photography, these supposed human-centric decisions are often affective reactions to events quickly unfolding in front of the photographer's eyes. Such reactions happen too quickly – we could even say *automatically* – for any conscious processes of decision making to be involved, bar the original decision to actually have, bring, and use a camera, rather than not. This automatism in photography is also manifested in the fact that these kinds of “snap” reactions are usually rechannelled through a database of standardized, pre-programmed, pre-existing image-frames, whose significance we are already familiar with and which we are trying to recreate in a unique way, under the umbrella of so-called individual experience: “toddler running towards mother”; “girl blowing a candle on a birthday cake”; “couple posing in front of the Taj Mahal.”

Similar representationalist ambitions accompany many professional photographic activities, including those undertaken by photojournalists – who aim to show us, objectively and without judging, what war, poverty, and “the pain of others,” to borrow Susan Sontag's phrase,³ are “really” like – and those performed by photographic artists. Even prior to any moment of making a picture actually occur, the latter remain invested in the idea of an artist as a human agent with a particular vocation, one whose aesthetic and conceptual gestures are aimed at capturing something unique, or at least capturing it uniquely, with an image-making device. And thus we get works of formal portraiture; images of different types of vegetation or geological formations that are made to constitute “landscapes”; still-life projects of aestheticized domesticity, including close-ups of kitchen utensils, fraying carpets or light traces on a wall; and, last but not least, works that can be gathered into the rag-bag called “conceptual photography.”

3. Susan Sontag, *Regarding the Pain of Others* (New York: Picador, 2003).

MELISSA MILES

PRIVACY IN GOOGLE STREET: WEBCAMS, STREET VIEW, AND THE TRANSFORMATION OF PHOTOGRAPHY AND PRIVACY IN PUBLIC

In 2009, angry residents of Broughton, a village in Buckinghamshire, United Kingdom, surrounded a Google Street View vehicle and, berating the driver about the “invasion of privacy,” blocked the vehicle from entering their town.¹ Street View² has surveyed countless public streets in thousands of cities and towns around the world since its launch in 2007, using vehicles mounted with a series of cameras positioned to take overlapping photographs. By stitching the photographs together to form a 360-degree image, linking them to geospatial data, embedding them into Google Maps and Google Earth,³ and making them available online, Street View allows Internet users to step into the mapped locations and virtually stand on the streets. The obstructive Broughton residents were concerned that criminals might be among those Internet users and that a recent spate of local burglaries could increase if Google made photographs of their streets and houses available online. Despite police reassurance that there was no evidence of a connection between Street View and an increased risk of burglary, the residents’ desire to protect their private property, and more widespread anxieties about photography and the limits of privacy in public, compounded and erupted.

1. Murad Ahmed, “Village Mob Thwarts Google Street View Car,” *Times* [London], April 2, 2009.

2. <http://www.google.com/streetview>.

3. <http://maps.google.com>, <http://earth.google.com>.



Jon Rafman, *125 Rua Maestro Benedito Olegário Berti*, Mogi das Cruzes, São Paulo, Brazil, 2010.
From the project *The Nine Eyes of Google Street View* (2008–ongoing).

Although Google is not the only company to offer this type of mapping,⁴ it has received the most attention and criticism, largely around issues of privacy. This focus on Street View’s cameras is particularly curious in the United Kingdom, where an estimated 1.85 million closed-circuit television cameras (CCTV) watch over the public every day.⁵ Other privacy-related confrontations with Street View have taken place in the media and in courtrooms in the United States, Japan, South Korea, China, Italy, Germany, Switzerland, Spain, and the Czech Republic, and the relationship between photography, privacy and the public is being hotly debated. As in comparable controversies concerning publicly mounted webcams, the repercussions of these debates extend well beyond the parameters of individual disputes. The perceived boundaries between public and private have long been traversed by photography. However, in the era of the automated image and its mass consumption online, it has again become necessary to reassess photography’s relationship with privacy and reconsider its wider implications for public life today and into the future.

4. See Bing Maps Streetside (<http://www.bing.com/maps>) and Mapjack (<http://www.mapjack.com>).

5. Paul Lewis, “You’re Being Watched: There’s One CCTV Camera for Every 32 People in the UK,” *Guardian* [London], March 3, 2011, <http://www.guardian.co.uk/uk/2011/mar/02/cctv-cameras-watching-surveillance>.

FRANCINE DAGENAIS

THE BIOMACHINIC PHYLUM: THE DRONES IN THE HIVE, IMPLICATIONS FOR CONTEMPORARY ART

In physics, the term *singularity* refers to a point at which, usually in a black hole, it is no longer possible to predict the outcome of the interaction between various forces and matter (or antimatter in this case). Similarly, technological singularity refers to a point at which interaction between artificial intelligence (AI), artificial life (Alife), and humans will produce technological change so rapid that it will no longer be fathomable by pre-singularitarian humans – a sublime technological state often referred to as the “nerd rapture.” Through the 1940s and 1950s, a number of theorists conceived of the singularity. Isaac Asimov, Alan Turing, Stan Ulam, and John von Neumann, among others, imagined a kind of melding of human and non-human DNA with AI, the blending of data (organic code + machinic code) becoming a new super-entity. Judging by the artists whose works I am about to discuss, it is perhaps not so counterintuitive to conceive of the singularity as a sociological event affecting our behavioural patterns, in which the act of self-discipline and self-surveillance becomes our bridge to a new *biomachinic phylum*, *Machina Chordata*.

We are emerging from a long era of individuality that took hold during the Renaissance, when the experience and consciousness of an individual human being was viewed as not only central in the universe but exemplary of all others: *Homo universalis*. Increasingly, we are being immersed in an era of the collective, in which a constantly interconnected *hive* of distributed humans is jacked into a multipartite, virtual, ubiquitous network composed of text- and voice-based devices that drive social media and the Internet, a *hive mind*. The hive mind was initially conceived as a knowledge base and set of beliefs prevalent at a given point in history and shared by a collective community. In the early twentieth century, French sociologist Émile Durkheim studied the hive mind, or, as he coined it in French, the “*conscience collective*”;¹ he concluded that it found its strength in group dynamics and that the sharing of values and information that it generated was crucial to the well-being of those within it. In this metaphorical structure, the division of labour within a community follows the roles within a real hive – queen, worker, drone, and so forth. Durkheim viewed the hive mind as a rational complex with, as was the case in his era, a slow reaction time. He did not foresee its current incarnation, which, in addition to reason and faith, is driven by emotion and instinct. What can be said of today’s construct, which reacts instantaneously to messages or events by staging flash mobs that may address superficial dance, fashion, or lifestyle trends on the one hand, or important political ideals on the other hand? What is this hive mind about? Does it obliterate the individual or does it free it by allowing a perpetual state of flux? How we view it depends entirely to the degree to which we are plugged into it.

The image of the hive mind is certainly convenient; it serves to form a bridge between the real, the virtual, and the cyber, on the one hand, and communications systems and devices such as the Internet and social media, on the other hand, forming one overarching structure. Post-9/11, this structure has also been a means of acquiring control over and intelligence on individual members of the hive. As theorist Ollivier Dyens points out, “[The hive] redefines the territorial borders that isolate (or do not isolate) living beings. . . . A hive is both unique and multiple, one and several.”² Since 9/11, there has been an explosion of surveillance technologies, and as they become smaller and more polyvalent our most intimate boundaries become increasingly permeable.

1. Émile Durkheim, *The Division of Labor in Society*, trans. George Simpson (New York: The Free Press, 1947), 73–80.

2. Ollivier Dyens, *Metal and Flesh: The Evolution of Man: Technology Takes Over*, trans. Evan J. Bibbee and Ollivier Dyens (Cambridge, Mass.: MIT Press, 2001), 45.

JORDAN CRANDALL

ONTOLOGY OF THE DRONE

We begin this analysis from the tail end, rather than the front. Not with the eyes, but with the ass. We start at the bottom and work our way up. When we finally arrive at the helm, we may be a bit greasy.

When seen from below, the tiniest component can assume large-scale relevance, can have the biggest effects. We ignore it at our peril. A Global Hawk – the largest unmanned plane in the U.S. military’s arsenal – was once brought down by a *rudder*. As the hulking, ungainly vehicle rumbled through the sky, resembling a strange sea creature with no eyes, this lowly steering device swerved back and forth at the tail end, lodged within the fin. Its motion was irregular, owing to the fact that it had become loosened during a previous mission. During the fatal flight, it began flapping uncontrollably. Its excessive flailing created, over time, a sufficient degree of destabilization to cripple the mammoth plane and send it plummeting to earth.

In the event of a failure, inquiries are launched, explanations set into motion. Probes are conducted into – in this case – the maintenance of the rudder, the programming of the mission, the writing of the code. They reveal the drone’s concealed infrastructures, its systems of operation, logistics, and maintenance. When delving into this subterranean level, parts take on new relevancies and meanings, for they are always linked with other components in shared functions that complicate their

discreteness. The roles that they play are always contingent, connected across scales in relational couplings that are hard to fathom. Even the smallest coupling can be of paramount importance.

In certain cases, the rudder might be viewed as an autonomous entity. A human observer might isolate the form, regard it in terms of its material and functional specificity, marvel at the contours of its design. Its smooth, curved shape is the material outcome of the need to harness the properties of moving air – to maximize the efficiency of the interactions between air and the solid bodies that move through it. Yet without the input of information or power, the device does nothing. It is simply a control platform, a surface that awaits command. The control is provided by an actuator (a motor). The rudder is attached to its output hub and secured in place with hinges.

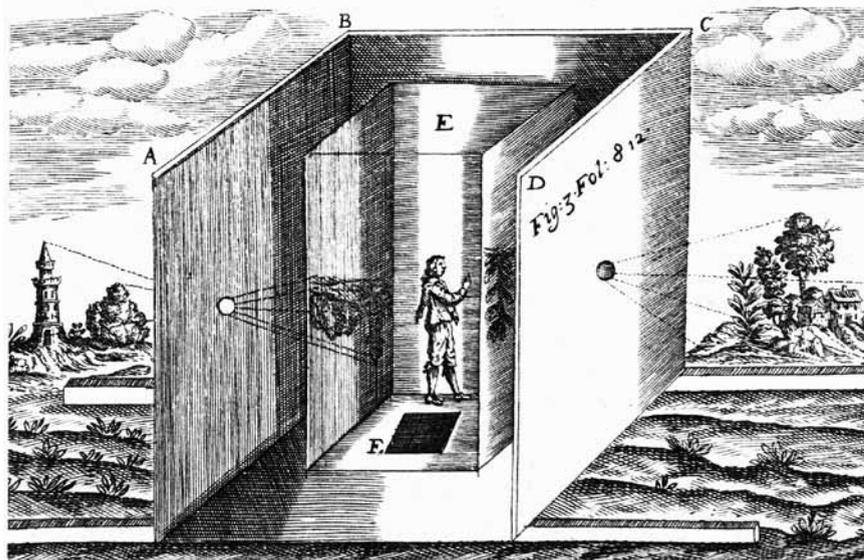
At the most basic scale, the rudder’s job is very simple. It moves back and forth along a set range of motion in accordance with received instruction. When we move up in scale, this action stays the same, but the task changes. At a larger scale, its job is to change the shape of the tail fin’s surface and subsequently vary the amount of force that it generates. At a still larger scale, its job is to control movement of the plane about its vertical axis – to change the horizontal direction in which the nose is pointing.

In order to accomplish these tasks, the rudder must work in conjunction with the plane’s other directional control surfaces. The cooperation occurs across a number of fronts. Actuators drive control platforms at their own local scale (such as at the tail or wing), in ways that alter their aerodynamic features, and these movements, in turn, alter the aerodynamic characteristics of the larger-scale platform of the plane. The overall cooperative job is to provide stability for the aircraft – to keep it straight in flight.

The actuator assumes command based on the control signals that it receives. It converts these control signals to physical actions. Its ability to drive its platform well requires that it receive *informed* operational instructions. In order for this to occur, environmental conditions must be detected and measured, the data processed by the flight computers, and the necessary information exchanged via transmitters and receivers. The flight computers send relevant information to operating crews and other teams of actors who might be involved with launch and recovery elements, maintenance and logistical support systems, mission command and control, or image processing and dissemination. Flight engineers at ground control stations monitor

GEORGE LEGRADY

REFLECTIONS ON THE COMPUTATIONAL PHOTOGRAPH



Camera Obscura, 1671. From *Ars Magna* by Athanasius Kircher (Amsterdam, 1671).

The optically reflected image has been part of our cultural evolution since the dawn of history. One can only imagine the amazement that people felt, thousands of years ago, when they saw images of outdoor scenes projected on cave surfaces or in darkened nomadic tents. Such projections were eventually scaled down and made visible in portable, darkened boxes with light waves entering through a pinhole or lens at one end, and being projected onto a ground glass at the opposite end. The challenge of capturing and retaining the optically projected image was first resolved in 1826 by the French inventor Nicéphore Niépce (1765–1833), whose eight-hour exposure of an image of a rooftop was preserved on a sheet of pewter coated with a mixture of bitumen and lavender oil.

During the twentieth century, chemically processed photographic and cinematic images became the dominant form of visual representation, transforming Western society into an image-based culture. Our understanding of the photographic image as a chemical-based technological medium emerged and crystallized over a 170-year period, resulting in conventions of visual representation; cultural definitions, applications, and functions; and an epistemological understanding of the photographic image. Over the past two decades, with the transition to digital and increased computer functionalities, photography is in the process of being reinvented.

Eastman Kodak, which dominated the photographic supplies industry internationally throughout the twentieth century, filed for bankruptcy protection in early 2012,¹ some thirty-seven years after one of its engineers, Steven Sasson, invented the digital camera in 1975 (US Patent 4131919).² His prototype machine consisted of an electronic still camera that employed a basic audio-grade magnetic tape to record the data captured by a charged-couple device (CCD) that converted incoming photons into electron charges, which were then translated into pixel values. It wasn't until the early 1990s that the digital camera fully entered the market.

My first interaction with digitized images occurred in the mid-1980s, when an affordable imaging system, the AT&T Truevision Targa frame buffer placed inside an IBM AT computer, became available. The card could grab a colour image from a video stream and turn it into a bitmap image composed of a matrix of pixels at a 16-bit resolution of 32,768 colours for each pixel. Once digitized, the image could then be processed computationally or through an onscreen interactive paint program. The digital camera and related imaging technologies shifted the processing of the image

1. Kodak plans to complete its reorganization and emerge from Chapter 11 of the U.S. Bankruptcy Code in the first half of 2013. The Rochester-based company will be focusing its future business on commercial imaging. See Associated Press [New York], November 28, 2012, <http://bigstory.ap.org/article/kodak-reaches-improved-financing-deal-worth-830m>.

2. <http://www.google.com/patents/US4131919?printsec=abstract#v=onepage&q&f=false>.

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