

SHADOW  
OPTICS

LINA SELANDER

OPTIC SHADOWS  
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ISBN: 978-3-9504437-3-8

KUNST HAUS WIEN  
MUSEUM HUNDERTWASSER

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# SHADOW OPTICS

**LINA SELANDER**

edited by BAŞAK ŞENOVA



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# PREFACE

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Bettina Leidl & Verena Kaspar-Eisert

Based on the founder of KUNST HAUS WIEN, Friedensreich Hundertwasser's great interest in the ecological topics of his time, a programme at KUNST HAUS WIEN has been dedicated to the confrontations we face with nature and the arising ecological and social questions, where projects in the fields of art, architecture and design that deal with topics relating to environmental protection, sustainability, loss of biodiversity, climate change and socio-political issues, and much more are exhibited.

Curator Başak Şenova and Swedish artist Lina Selander, whose artistic work deals with images as memories, impressions and representations, have together conceived an exhibition alongside this book. The exhibition takes its starting point from the relationship between radiation



(radioactivity) and film, which the artist explores both historically and fictionally in her objects and videos. The exhibition titled *Shadow Optics* refers to the duality of light and shadow and makes one think of the opposites that condition them.

*Shadow Optics* is a further development of the work *Excavation of the image - Imprint, shadow, spectre, thought*, with which Lina Selander represented Sweden at the Venice Biennale in 2015.

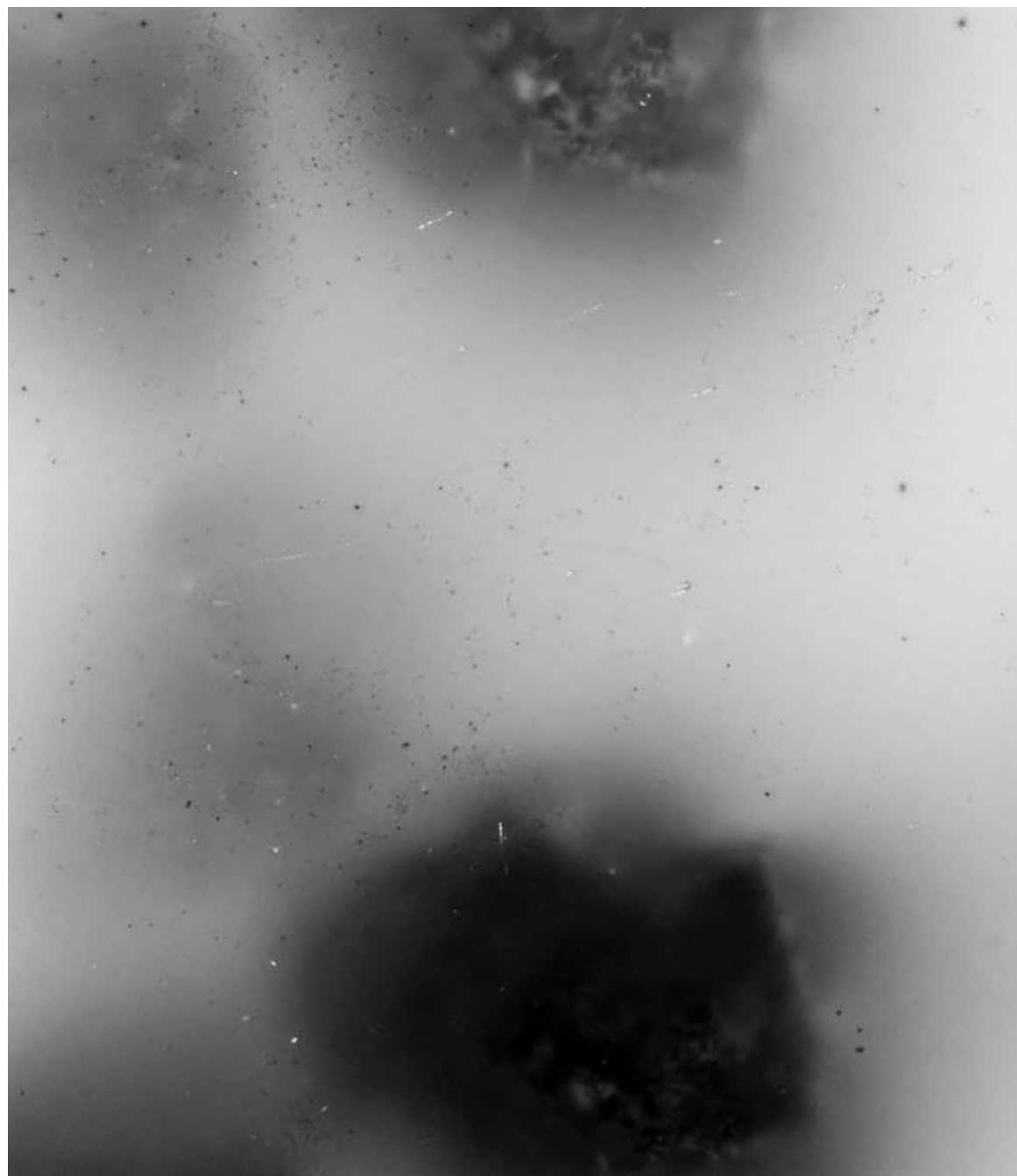
In autumn 2018, film footage was taken at the Austrian nuclear power plant in Zwentendorf. Selander entwined the shots from this colossal architectural relic—which never went into operation after a referendum in 1978—with the narrative strands of her project. The installation at KUNST HAUS WIEN is a collage of altered levels of meaning. Selander enables different ways of reading facts and fiction, thus questioning the reception of history and the present in general.

We would like to express our sincere thanks to everyone involved in the project. Above all, we would like to thank the artist Lina Selander for her trust and willingness to further develop her work for KUNST HAUS WIEN. Our thanks also go to the curator Başak Şenova for her great commitment to this exhibition.

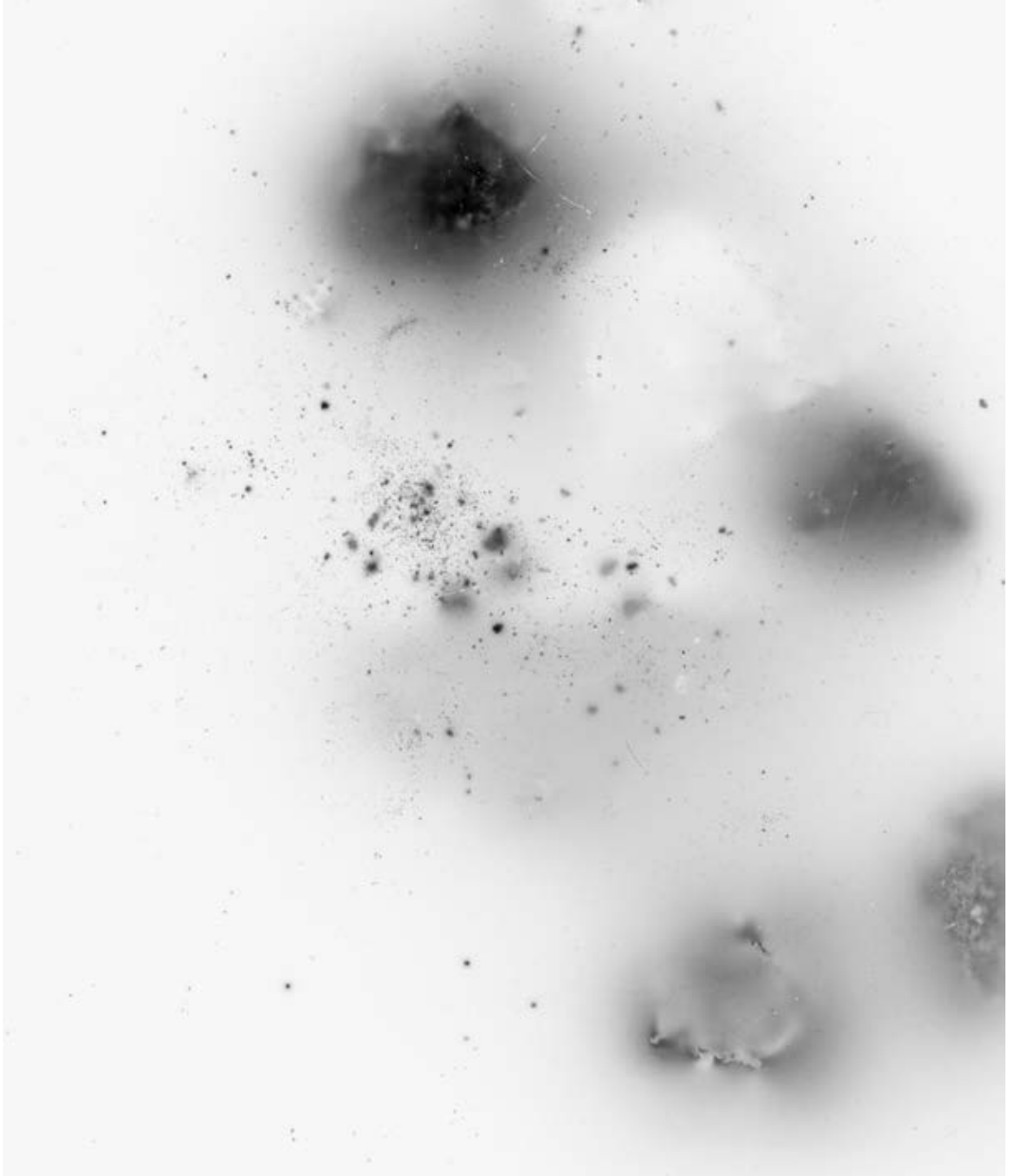
We are grateful to our sponsors Wien Kultur und Wien Holding and Iaspis, the international program of the Swedish Arts Grants Committee, who generously supported the exhibition and this publication. We would like to thank EVN AG for making it possible to film at the Zwentendorf nuclear power plant.

We would also like to thank the authors of this book for their text contributions, which so remarkably contextualize the work of Lina Selander.









Radiograph (detail) *Lenin's Lamp Glows in the Peasant's Hut* (2011)

# INTRODUCTION

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In *Shadow Optics*, Lina Selander explores the different possibilities of the materials she works with through re-searching, re-visiting, and re-editing intersected aspects and resources of film, photography, objects, motives and ideas. Lina Selander's films and installations can be read as compositions or thought models where ideas and conditions are explored and weighed. She examines relationships between memory and perception, film and photography, and language and image.

*Shadow Optics* assembles a group of works and documents describing a migration between utopia and collapse. With a distinctive visual language, the works bridge and question the dichotomy between the visible and the invisible. The project is comprised of *Lenin's Lamp Glows in the Peasant's Hut* (2011), with a vitrine consisting of radiographs and a stainless steel text plaque; *Model of Continuation* (2013); and *Överföringsdiagram nr 2 [Diagram of Transfer No. 2]* (2018-2019).

*Lenin's Lamp Glows in the Peasant's Hut* (2011) is made partly in dialogue with Dziga Vertov's film, *The Eleventh Year* from 1928, about the construction of a hydroelectric plant on the Dnieper, juxtaposing it with contemporary footage from nearby Pripjat, a ghost town since the Chernobyl disaster. Images from the Swedish Museum of Natural History and the Chernobyl Museum in Kiev, among other places, are also included with samples of fossils, the earliest imprints documenting prehistory.

Radiographs displayed in a vitrine mark the striking similarity between fossils, early photography and the discovery of radioactivity, which, in turn, seems to herald the invisibility inherent in the code of digital photography.

The steel plaque reflecting the moving images as well as the surrounding space also constitutes a map or diagram of the work.

From a documentary, a “ground level” index of sources and narrative, intersecting mine shafts open and form a network of intersecting tunnels, linking disparate phenomena and images, archaeologically piecing together fragments into a narrative.

*Model of Continuation* (2013) re-visits Selander's earlier work *To the Vision Machine* (2013) and brings together the material filmed in Hiroshima, images from the atomic bombings of Hiroshima and Nagasaki intersected with the images of machineries, and artifacts from a museum of natural history. The work screens a film within a film by shifting the perspective and the cognizance of the audience with the play between the presence and the absence of the camera.

The new film, *Överföringsdiagram nr 2 [Diagram of Transfer No. 2]* (2018-2019), is an experimental 16 mm film transferred to HD video, and contains material from Schönbrunn Zoo and AKW Zwentendorf.

With the essays by Elke Krasny, Björn Norberg, and Başak Şenova, along with an extensive interview with Lina Salender, this book discusses the ideological, political, ecological, aesthetic and methodological aspects of the project in conjunction with the *Shadow Optics* exhibition, which takes place at KUNST HAUS WIEN.

# PROCESSING the PROJECT

## THE CONVERSATION

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Lina Selander & Başak Şenova

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*...a form of total photography that exceeded the economies of representation, testing the very visibility of the visual. Only a negative photograph is possible in the atomic arena, a skiagraphy, a shadow photography. The shadow of photography. By positing the spectator within the frames of an annihilating image, an image of annihilation, but also the annihilation of images, no one survives, nothing remains...\**

Akira Mizuta Lippit

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\* Lippit, Akira Mizuta. (2005) Atomic Light (Shadow Optics), University of Minnesota Press, p. 95.

**LS:** They all try to establish a link to something invisible; perhaps impossibly to a specific invisible quality, so that each work tries to formulate an invisibility of its own through radioactivity, the absence of image within digital image, and the relation to a previous work.

**LS:** All the films and vitrines are closely connected. I think they grow when they bleed into and read each other. There is a lot of cross-pollination. The whole installation is almost like a sound installation, with long lengths of silence, and only one of the works contains a voice - a female voice reading a short text. I really like it when she says "Image" because it refers to all the screens at the same time. The sound creates a presence and you never experience the same room twice. The sound is unsynced with the whole, yet it forms the impression, together with the images and the objects, of the internal movements in a complicated clockwork that is measuring some unknown quality.

I read this clockwork analogy as a mechanism that indexes and explores how the appearance of an image emerges, and is represented only through a set of momentary relationships formed with the tidal play between the visible and the invisible.

All of the works revolve, in one way or another, around the status of the image—as representation, memory, object, imprint or surface—and our relationships to it. They examine the official representations of historical events as well as the visual languages and apparatuses that produce

**BŞ:** Shadow Optics consists of four projects that relate to one another in a non-chronological and referential order.

**BŞ:** Could you further explain the intersection points and the rationale that bring them together?

them, thereby underlining that history which, in many respects, is the history of recording devices and technologies. Also, the works share a relation to the desires and failures of modernity. For instance, the disasters of Chernobyl and Hiroshima, or the exploitation of natural resources, or economic inequality are all juxtaposed with images of nature, thereby cross-referencing the visual effects of the processes connected to these events. All of this was done in an effort to create new sedimentations of meaning.

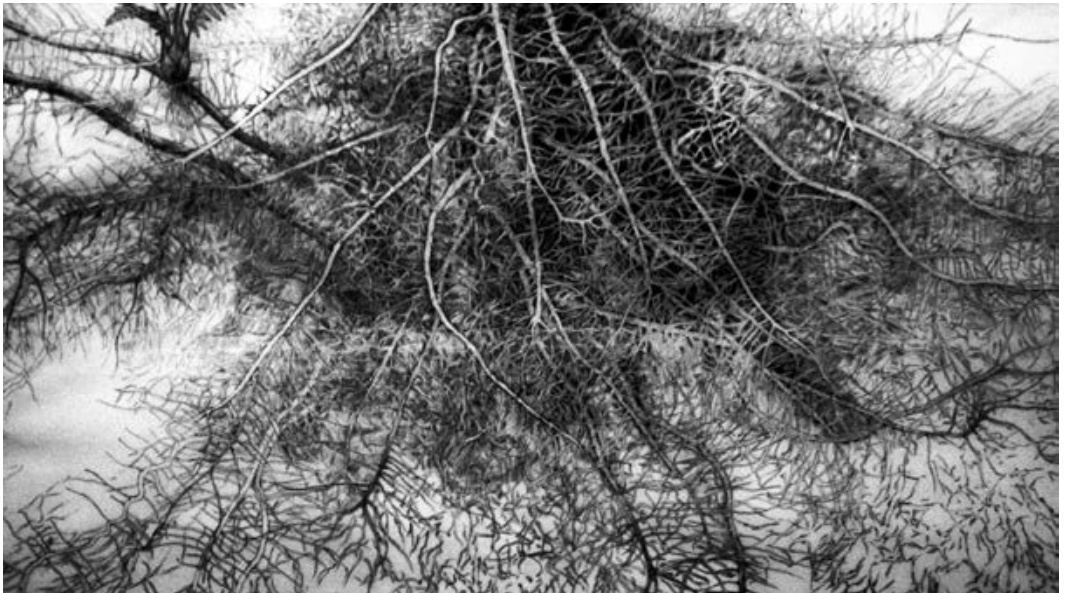
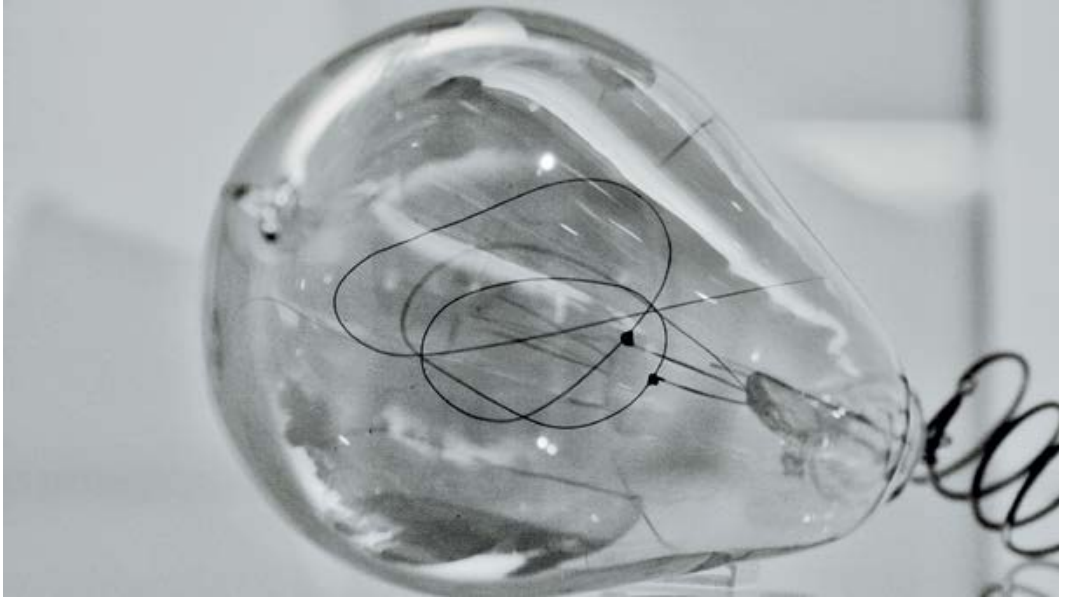
**BŞ:** The images correlate through multiple references by underlining the segments of a narration that never follows a linear plot organization and creates a feeling of constant incompleteness.

**LS:** There's a famous quote by René Magritte that might apply here: "Everything we see hides another thing, we always want to see what is hidden by what we see." If images present themselves as they are or as their probabilities—hidden by another image, or if what hides is itself invisible, then that may complicate things further. Also, these works all relate to a collapse, or the threat of a collapse of some sort – a natural, technological, or representational disaster; the appearance and/or disappearance of memories, images, or imprints.

**BŞ:** Images appear not only on the screen, but also extend their appearance and reference through the imprints of fossils in rocks in the form of radioactive reactions on photographic paper.

**LS:** The screening of a film within a film creates a stunning and strange stratification of different image -and time- spaces. The cameras shift viewpoints, and you become aware of your own gaze, as well as of the technological apparatus enabling the flow of images on the screen.





Stills, *Lenin's Lamp Glows in the Peasant's Hut* (2011) HD video, b/w, mute and sound, 23'43"



I also placed stones containing uranium on photographic paper and kept them in solid black boxes in a storage room for a couple of weeks; I then developed them in my bathroom at home. These are images made without light, where something invisible becomes visible as the radiation reacts with the silver in the photographic paper. This also points to how nuclear radiation was discovered, as a photographic event, by Henri Becquerel during his experiments with photographic plates. So, the elements of the installation are both material witnesses to the experience of modernization and agents of the very same history—a propaganda tool in the service of modernity, but also directly connected to the scientific discovery that made it possible to harness nuclear power as an energy source.

The book *Atomic Light (Shadow Optics)*, by Akira Mizuta Lippit led me to pursue ‘the visual inscription’s invisible center’, the non-visibility of film and the photographic image, and the uncertainty regarding our visual access to reality. The detonation of the atomic bomb over Hiroshima is like an original event here, itself a photographic event, an extreme light that exposes darkness, shadow and invisibility at its core.

**LS:** You can only read the text on the plaque when it reflects the light from the brighter images being shown on the screen. And when it does, you see that the plaque is a map or an index of the film, ordered typographically like mine shafts. The upper line contains all the places from which I collected materials; and then listed vertically are the images or scenes in the film. One idea with the text plaque was also to allow the two rooms—

**BŞ:** The other element in the exhibition is the plaque, which displays a script with a typographic composition. Could you explain the script and how it is read in dialogue with the other works?

that of the spectator and of the film—to dissolve into one surface. But the eye still has to adapt as a camera lens, either to read the text or to look at the reflected images.

**BŞ:** Since these are all an act of revisiting previous researches and results, what does it mean to revisit a work for you?

**LS:** To revisit a work is mostly a very undramatic event—though, at times, not without its problems. Looking back, I can say that every new work, in some way, is almost a revisit of a previous one—an attempt to solve some problem, answer some question that was left over or created by a previous work.

This is an urge that resists the realization that a solution creates new problems, and answers new questions – and this in the rare case in which it is possible to even reformulate the problem, the question. Rather, perhaps, the old works revisit what follows them. In any case, I like revisiting, and I believe in revisiting, in spending time with things, with what one has made, being in front of them. I see lingering as a political act.

This is very basic.

**BŞ:** Along with the act of revisiting works, you have started a new work for the exhibition.

**LS:** *Diagram of Transfer No. 2* is still very much a work in progress. It is an experimental film, 16 mm transferred to HD video, containing material from Schönbrunn Zoo and AKW Zwentendorf, among other places.

Its ambition is to express, as in a pantomime, some exchanges and transformations of nature and image; both driven into inner being, one within the other; only to later be extracted, one from the other, but in the form of the other.

for two hours,

order by radio: «Private Ivanov, you may come  
for a smoking break.»

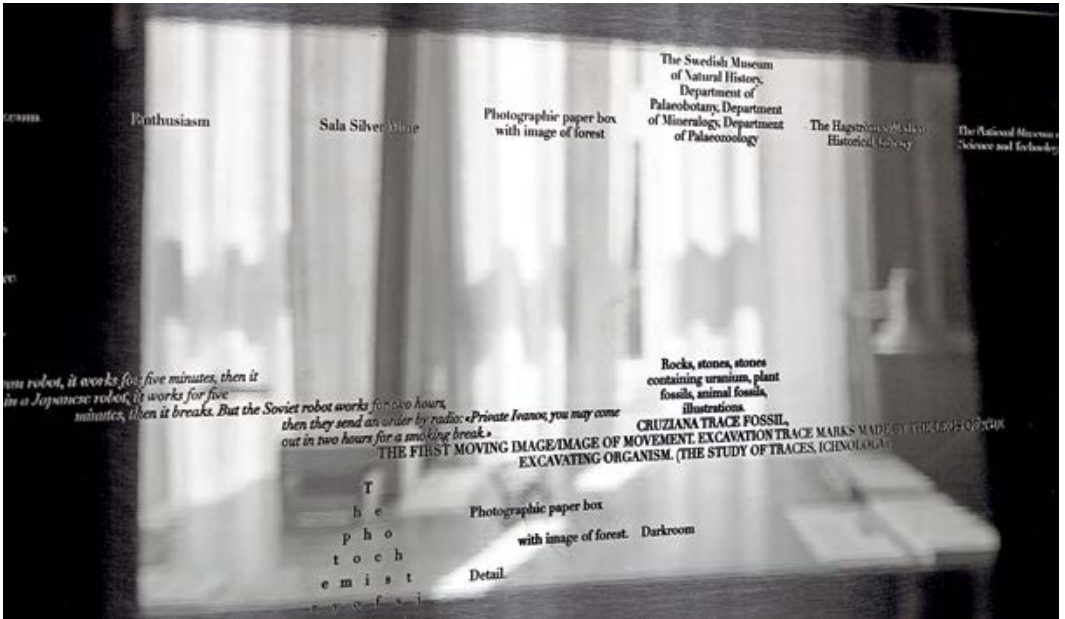
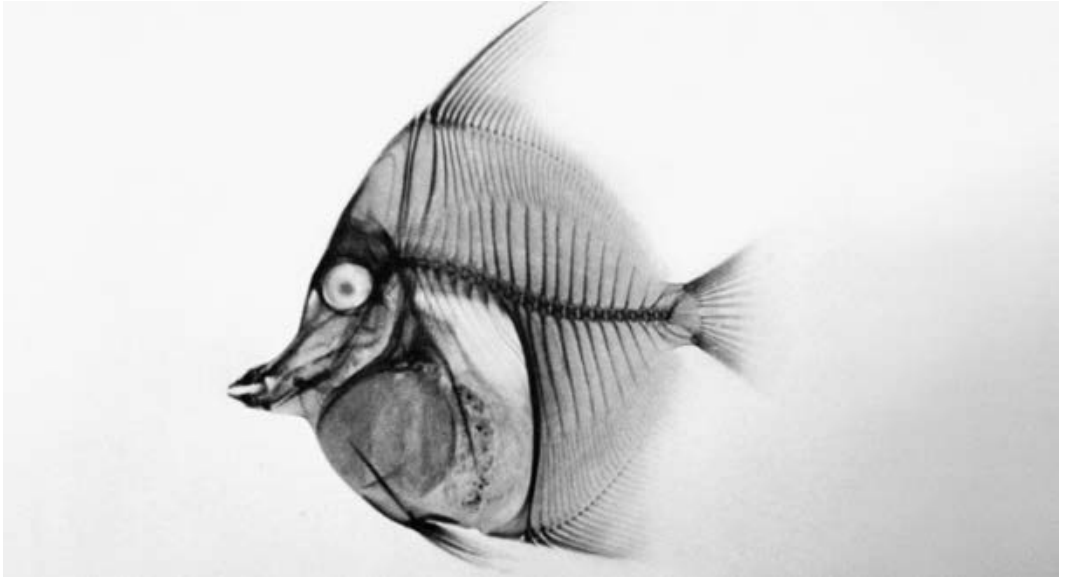
THE FIRST MOVING IMAGE/IMAGE OF M  
EXCAVATING ORGA

Photographic paper box

with image of forest.

Detail.

Detail from the stainless steel text plaque, *Lenin's Lamp Glows in the Peasant's Hut* (2011)



Still, *Lenin's Lamp Glows in the Peasant's Hut* (2011) HD video, b/w, mute and sound, 23'43" Stainless steel text plaque, *Lenin's Lamp Glows in the Peasant's Hut* (2011). Installation view from the exhibition *Excavation of the Image: Imprint, Shadow, Spectre, Thought*, the Venice Biennale 2015.

# ON the ALGORITHMS of the PROCESS

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Başak Şenova

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*A sign can produce an emotional and an energetic interpretant. If we consider a musical piece, the emotional interpretant is our normal reaction to the charming power of music, but this emotional reaction may elicit a sort of muscular or mental effort. This kind of response is the energetic interpretant. But an energetic response does not need to be interpreted; rather, it produces (I guess, by further repetitions) a change of habit. This means that, after having received a series of signs and having variously interpreted them, our way of acting within the world is either transitorily or permanently changed.\**

Umberto Eco

As an artist, the process that Lina Selander conducts is a durational art practice that involves a systematic, non-linear, and methodological approach. In time, this approach has tailored a very distinctive route for the artist to develop her own visual language, to generate the editing process, and to form her cinematographic

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\* Eco, Umberto (1979) *The Role of the Reader: Explorations in the Semiotics of Texts*. Bloomington: Indiana University Press. p.194

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1. Such as re-visiting the images of Dziga Vertov's films *The Eleventh Year* (1928) and *Enthusiasm* (1931), or even quoting text from them in the form of frames as in *Lenin's Lamp Glows in the Peasant's Hut*.
  2. Eco, Umberto. *The Open Work*, 1989. Trans. Anna Cancogni. Massachusetts: Harvard University Press.

language. All of her works contain multiple layers of images with unpredictable links and clues that shift spatially and temporally. Each time, the spatial elements of the installation add layers to the work by altering its perceptive codes for the audience.

In the same vein, none of Selander's works have a definite ending—completion that distinguishes the work as an entity in and of itself. Successively, she re-visits all of her works and re-installs them in a different context and order. Taking an even further step, she re-visits her references by internalizing them within her works<sup>1</sup>. While a composite system of her works is created with her editing techniques, the same operational logic of the system embodies the entire exhibition space by connecting the works.

This process also involves the elements of her artistic research; one can follow the same tracks of her research in different compositions that have been displayed. The audience always becomes the active participant in bringing and composing the layers together through their representative positions and autonomous reflective space.

Taking the above aspects into consideration, it can be argued that Selander's works indicate a dynamic process which constantly changes and progresses by articulating meaning and content. In other words, the work is always in movement, which suggests an association with Umberto Eco's well-known definition of the "open work" that describes an artwork in process without any fixed conclusion/ending or meaning<sup>2</sup>.

According to Eco, open work has two constituents: (i) multiplicity of meaning, and (ii) participation of the audience. The open work is contingent, and this openness—of producing content, connections, and meaning—determines



The Chernobyl Nuclear Power Plant Exclusion Zone	The Eleventh Year	The Chernobyl Museum	Enthusiasm	Sala Sil
		Clean-up crew members, «liquidators», working with highly radioactive mud. 1000 roubles and a diploma. Loss of hair, loss of skin.		
		<i>They send in an American robot, it works for five minutes, then it breaks. Then they send in a Japanese robot, it works for five minutes, then it breaks. But the Soviet robot works</i>		
		Death. Volunteers.	<i>then they send out in two hours</i>	
				h p t o e m r y o l v a l e l
		Model of Reactor 4		
	First scene, <i>The Eleventh Year</i> (Dziga Vertov, 1928)	The		
	The Dnieper River (The Wild River)	Sarcophagus		
Hospital		Evacuation of Pripjat.		
School	Scratch on film, still.	Monitor		
Theatre	Bell warning before dynamite blast.			
	Residential building			
	Library			
	Morgue	*		
Wild animals; dogs, horses.				
	The electrification of the whole land.		Railroad tracks, switches. <i>Enthusiasm</i> (Dziga V	
Animals not evacuated,		Documents, diplomas, medals.		
	become wild.	Modified	L E N I N ' S L A M P G L O W S I N T H E	
Radioactivity, propaganda, destroyed film. Film shot under the melting reactor; cameraman dead within a week (film destroyed).		«From a bumbling citizen through the poetry of the machine to the perfect electric man.» Reactor control room Reconstruction of events leading to the accident.		

Typographic sketch of the stainless steel text plaque (2011)

ver Mine

Photographic paper box  
with image of forest

The Swedish Museum  
of Natural History,  
Department of  
Palaeobotany, Department  
of Mineralogy, Department  
of Palaeozoology

The Hagströmer Medico-  
Historical Library

The National Museum of  
Science and Technology

*s for two hours,  
an order by radio: «Private Ivanov, you may come  
rs for a smoking break.»*

Rocks, stones, stones  
containing uranium, plant  
fossils, animal fossils,  
illustrations.

CRUZIANA TRACE FOSSIL,

THE FIRST MOVING IMAGE/IMAGE OF MOVEMENT. EXCAVATION TRACE MARKS MADE BY THE LEGS OF THE  
EXCAVATING ORGANISM. (THE STUDY OF TRACES, ICHNOLOGY.)

T  
e  
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Photographic paper box

with image of forest. Darkroom

Detail.

ertov, 1931)

P E A S A N T ' S H U T .

Stone  
containing  
uranium

Illustrations

its contingency. Correspondingly, Eco also talks about two different kinds of openness: contemplative openness and structural openness. In the case of Selander's works, the contemplative openness creates a cognitive communication between the audience and the work of art through a structure/script that is deliberately created by the artist. The audience is always encouraged to create sequence between the images and the works that share the same spatial and temporal conditions.

Each work—each image, order, position, and movement—opens up strings of possibilities to connect with other worlds and systems. Therefore, Selander's work is in a state of action and supports itself openly and deliberately into progression with references to technology, science, and history by also passing through the routes and connections that Selander determines and creates.

A clear demonstration of this methodology could be read through the script that is placed on the stainless steel plaque in the *Optic Shadows* exhibition. The script stipulates and deciphers a set of ideas, notes, and reference points—with a Dadaist poetry-like layout—as the algorithm of the operational logic followed by the works of the exhibition.

The plaque appears as a metonymy of the entire exhibition: not only does it establish all the elements and references of the exhibition by bringing to mind an index of a specific dataset, but by reflecting the projected images of the film, it also shows how the works diffuse into one another. The reflection is always eclipsed and/or altered by the presence of the audience. Through this object, even the notion of disappearance delves into another layer of indexing with the same algorithm.

# THE EYE and THE CAMERA

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Björn Norberg

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To approach Lina Selander's work is to approach a system of testimonies. Or an archive of samples that have started to leak into each other. Or a big building with several corridors and several entrances, where each entrance and each corridor represent a story. There are passages here and there, connections between the corridors. All together they create a greater logic and meaning. Some of the passages seem to be permanent with rigid structures. Others seem to be obscure, moving constantly with vague markings, and unclear signs and directions.

Lina Selander creates systems rather than models. She asks her audience for their attention and patience, requesting analysis and reflection—an unusual probe in our present-day. In piece after piece, she returns to the functions of the image, the film and the camera, and connects them to the dreams and hopes of the 20th century and

to the permanent marks left by life and physical phenomena: the fossil of the Cruziana; a pre-historic trilobite caught digging the seabed a million years ago; the spots left by a radioactive rock on photo paper when it reacts with the silver nitrate in the paper; the spots that swim in front of one's eyes after staring into bright light; or the shadow of a human body imprinted into the stone of the stairs of a bank entrance when the bomb was dropped over Hiroshima in 1945.

In her films, Selander merges her own footage and texts with archive material and film clips, disabling the absolute interpretations that can be derived from conventional editing. Selander constructs her films of long clips where one continues into the next without any fading in between. The material is presented carefully, yet still remains somehow raw, and she will always come back to the discussion of the camera's role—a discussion that is central for her art. In her work *Model of Continuation*, Selander films herself disassembling a video camera. The filming of the action is projected onto a screen that hangs from the wall and trespasses to the floor, reaching into the room so that the bounds between image and space seem to dissolve. The whole installation is then filmed. When exhibiting the piece, Selander uses the same screen that she used in the room, thereby adding another layer to the film.

In larger exhibitions such as the Venice Biennale exhibition in 2015, Selander carefully creates a larger and even more complex context with her works. The different art works create a system together, exuding into each other, and asking the audience to identify the passages in-between. Each work of art deconstructs media and history, but concurrently, the images all together assemble an overview of the story when zoomed out while the smallest parts and fragments become visible when the images are zoomed in.

Selander puts demands on her audience and gives them a challenge that goes against the contemporary flow of fast and instant images. She asks the audience to fully leave what is on the surface to dig into the depths. In her work the meaning takes form in-between the fragments, and this is the strength and beauty of Selander's art. She asks us to not only see, but actively perceive, and within us create the larger context and story.

Selander's art is very precise and based on archive material. Still, it also communicates a melancholy over time passed and dreams lost, dreams that stayed dreams and eventually led into dead ends.

Her piece *Lenin's Lamp Glows in the Peasant's Hut* discusses the project of modernisation in the 20th century and places the camera and film in the constructing of modern society. She borrows images from the Soviet film director Dziga Vertov, who was the founder of the Cine-Eye Movement and who, in a manifest from 1926, pleaded for film that did not imitate the way the human eye saw things. With the camera, the mechanical machine, the filmmaker would register the world so that a new truth would be created. The film should show the everyday life of workers rather than depending on a script, with real people instead of using actors. By filming the genuine workers in their candid environment, a new film media would capture life unawares and a truth would be achieved. Selander uses clips from Vertov's film *The Eleventh Year*, a film created to celebrate the eleventh anniversary of the Soviet state. The clips show the construction of the new Soviet society and the erecting of a large hydropower plant in the Dnepr. The river is tamed and conquered to deliver the electricity that would build the future and a new ideal society. Vertov understood the camera as a machine and an important tool in this construction.



Stills from *Model of Continuation* (2013) HD video, colour, mute and sound, 24'31"



Still from *Diagram of Transfer No. 2* (2019)  
16 mm transferred to HD video, colour, mute and sound, 10'31"  
with Oscar Mangione

Still from *Model of Continuation* (2013) HD video, colour, mute and sound, 24'31"



In *Lenin's Lamp Glows in the Peasant's Hut*, as in *Model of Continuation*, Selander connects the camera to radiation and to Henri Becquerel's discovery upon seeing how uranium reacted with photographic plates—a discovery that marks the start of the atomic age. Selander shows an installation with photographic papers which she exposed to radioactive rocks. The piece also consists of images from Pripjat, the city that was abandoned after the Chernobyl catastrophe. The dream of a clean energy source was a utopian idea that not only led to Nagasaki, Hiroshima, the catastrophes of Chernobyl and Fukushima, and nuclear waste, but it also fuelled the cold war and created a footprint that ended up marking the earth for the next thousands of years.

Lina Selander has collaborated with Oscar Mangione in several of her works. They started working on a new piece in the fall of 2018 where they have been filming at the Austrian nuclear plant AKW Zwentendorf.

The construction building was initiated in the early 1970's, but the plant was never activated. In 1978 a referendum was held which resulted in permanent denuclearization in Austria. Today, Zwentendorf represents another dead end of modern society, especially since it was replaced by an adjacent coal power plant. The modernisation project was fuelled by technological developments as well as philosophical, intellectual, ideological, scientific, political, and aesthetic changes where nature is conquered and replaced by a mechanical system. Great ideologies have been put to the service of the development of technology rather than that of humanity; yet it is again technology and the ideas of the 20th century that light up our homes. In a draft for the UN-Global Sustainable Development Report 2019, a group of scientists state that political decisions almost fully ignore the energy consuming factors of economy<sup>1</sup>.

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1. [https://bios.fi/bios-governance\\_of\\_economic\\_transition.pdf](https://bios.fi/bios-governance_of_economic_transition.pdf)

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2. Planck, Max. 1932. *Where is Science Going?* Translation by James Murphy, W.W. Norton & Co. Inc., New York. p. 64

Since economic and political systems still ignore the consumption they generate, we still live in the utopia of modernity, or at least in its effects.

The idea of crises and living with the looming of the end of humanity, an imminent disaster, or at least a critical shift is, of course, something that is significant not only in our times but in most past eras. In *Where is Science Going?*, published in 1932, Max Planck wrote: “We are living in a very singular moment of history. It is a moment of crisis, in the literal sense of that word. In every branch of our spiritual and material civilization we seem to have arrived at a critical turning-point.”<sup>2</sup> Planck’s quantum physics and Einstein’s theories showed that the established laws of physics were of a relative nature and suggested a much more complex world than man had previously envisioned.

Through the dissection of film media and perception, and by placing them in the context of modernisation, Lina Selander succeeds in accentuating how complex and central the image is for the development of the 20th century and present modern society. Dziga Vertov saw that the camera was an important tool in the construction of the Soviet state. The camera meant a possibility to control thoughts, interpretations, truths, history, and society. Selander’s deconstruction, and her system of fragments and associations indicate a necessary alternative to the mass-consumption of images in the contemporary wired world. Just like Vertov, we are using the mechanical eye to create a “truth” without a written script and trained actors. We are instantly publishing our images in a gigantic collective monologue on social media. For that matter, Vertov’s ideas still hold true in the utopias of commercialism, capitalism, and individualism in which we live, where we look at the world through the optics of the cell phone.

# FALLOUT: MATTERS OF RADIATION, OPTICS OF ANNIHILATION

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Elke Krasny

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FALLOUT: side effect

FALLOUT: the descent of radioactive particles after a nuclear explosion

Lina Selander's films, photographs and mixed-media installations are concerned with the technoscopic regimes of nuclear modernity as she traces and exposes the effects and side effects of "radioactive light in the twentieth century."<sup>1</sup> What we might want to call fallout aesthetics takes us into the violent aftermath of the atomic age and its visual and environmental impact. Selander's exploration of fallout aesthetics brings together matters of radiation, media archeology, nuclear memory, disaster ecologies, and optics of annihilation. This is achieved by connecting historical avant-garde traditions, in particular

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1. See: Akira Mizuta Lippit (2005), *Atomic Light (Shadow Optics)* Minneapolis: University of Minnesota Press., back cover.

2. Alex Fletcher, "Solidarity with the Dead," *Kunstkritikk* (15 Sep 2015), accessed on 1 Dec 2018, <http://www.kunstkritikk.no/wp-content/themes/KK/ajax/general/print.php?id=68786&r=0.09570529498159885> meta montage.
3. Joshua Sperling: "Montage in Cinema". *Routledge Encyclopedia of Modernism*, ed. Stephen Ross (9 May 2015), accessed on 1 December 2018 <https://www.rem.routledge.com/articles/overview/montage>.

the superimposing and juxtaposing strategies of montage in film, to today's growing interest in environmental visual aesthetics, especially the investigation of toxic anthropogenic landscapes. Selander's media archeological investigations make extensive use of both layering and editing. Images superimpose each other. They reflect one another and intersect with each other. This approach is not only employed in her film making, but also extends to her cinematic installations, her mixed-media installations, and to the overall spatial choreography of her exhibitions in general.

Much attention has been paid to the artist's engagement with the aesthetic legacies—particularly the formal qualities of montage. Lena Essling, who was the curator of Selander's *Excavation of the Image: Imprint, Shadow, Spectre, Thought*—the Swedish contribution to the 56th Venice Biennale of Art in 2015, has used the term "meta-montage" to describe this approach.<sup>2</sup> Meta-montage both employs and investigates the formal principles on which montage is based. The Soviet avant-garde tradition and the work of the film maker Dziga Vertov markedly present an important point of departure for Selander. Here, both the formal and the material legacy are of importance as the artist accesses the visual archive of radioactive light's history in its making and in its aftermath. She activates this legacy on the formal level to draw attention to the tensions and conflicts that arise through the juxtaposition of images. Dziga Vertov, "one of the first documentary filmmakers, spoke of montage as 'the organization of the seen world,' applying the principle not only to editing, but also to decisions made while filming (...)." <sup>3</sup> Therefore, meta-montage can be seen as a reflexive aesthetic strategy. It not only reveals the mechanisms through which montage functions as a specific mode of visually organizing the world, but it also divulges the mechanisms through which we get to see this organization of the seen world.

## ORGANIZING THE SEEN WORLD IN THE ATOMIC AGE

Meta-montage can be used, as described above, to understand how Selander places her work in a historical lineage of film, making use of the principles of the avant-garde film tradition. Yet, meta-montage can also be used to better understand her transhistorical and transgeographical ways of working. The juxtaposition and superimposition of constellations connecting matters of radiation and radioactive zones is a historiographic approach that results in meta-montages across histories of science, technology, industrialization, and war.

Selander has turned her interest to matters of radiation and has thoroughly investigated radioactivity occurring naturally in fossils, photography as image making based on recording light or other forms of electromagnetic radiation, and radioactive sites such as Hiroshima and Chernobyl. These two sites also represent the end of World War II and the beginning of the Cold War with its two super powers, the United States and the Soviet Union. Referred to as the site of nuclear apocalypse and of nuclear disaster respectively, these two sites have been rendered spectral.<sup>4</sup> They are at once present and absent, visible and invisible. “(...) the detonation of the atomic bomb over Hiroshima is an original event” writes Selander in her proposal for the Kunst Haus Vienna exhibition *Shadow Optics*.<sup>5</sup> On 6 August 1945, the United States of America dropped the atomic bomb on the Japanese city of Hiroshima. This marks the first time a nuclear weapon was used against people in war. The bomb had been given the codename Little Boy. Three days later, on 9th

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4. On spectralities and the spectral turn, see: “The Spectral Turn / Introduction” by María del Pilar Blanco and Esther Peeren and “Spectrographies” by Jacques Derrida and Bernard Stiegler in *The Spectralities Reader. Ghosts and Haunting in Contemporary Cultural Theory*, ed. María del Pilar Blanco and Esther Peeren. (2013) New York and London: Bloomsbury Academic. p. 31-36 and 37-52.
  5. Lina Selander: *Shadow Optics* (working title), draft proposal for Garage Kunsthaus Wien (2018). The author thanks curator Başak Şenova for sharing the exhibition proposal.

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6. *Ibid.*
  7. William J. Broad. (23 May 2016) *The Hiroshima Cloud that Wasn't*. New York Times accessed 1 Dec. 2018 <https://www.nytimes.com/2016/05/24/science/hiroshima-atomic-bomb-mushroom-cloud.html>.

August, a second bomb, which had been called Fat Man, was dropped on Nagasaki. More than seven decades have passed. Terms like radiation risk, residual radiation, radioactive dust, or fallout have since entered the vocabulary of everyday language. The name of the city of Hiroshima has become the synonym for the apocalypse connected to atomic warfare and nuclear assault. During the bombing, a photograph was taken by one of the men who was aboard the Enola Gay aircraft from which the bomb was deployed. The atomic bomb exploded with a blinding flash. The photograph that captured the detonation shows a shape which was made out of smoke, debris, dust, water vapor. Its shape is that of a mushroom. This iconic rising mushroom cloud has become the visual synonym for Hiroshima. We conceive of the mushroom cloud as the central image in the global visual archive of nuclear memory. It is the very first image of its kind. It captures the atomic bombing from the perspective of someone who was part of the crew behind dropping the bomb.

Interested in the interconnectedness of radioactivity, exposure, film, and the making of images, the artist refers to the Hiroshima event as a “photographic event.”<sup>6</sup> This does not merely point to the fact that Bob Caron, the Enola Gay plane’s tail gunner, took a photograph in the minutes that followed the dropping of the bomb. In recent years, some debate has ensued around the status of the mushroom cloud as it is on display today in the Hiroshima Peace Memorial Museum. Nuclear experts have argued convincingly, as the *New York Times* reported in 2016, that the most iconic image of the Hiroshima event is actually not the kind of mushroom cloud that forms immediately after an atomic bomb’s detonation.<sup>7</sup> What is shown on the photograph, even though it has a striking resemblance to the iconic mushroom shape, resulted from the “billowing smoke from a raging firestorm” as Hiroshima had burst into flames.



Just a slow evaporation of the visual.  
 It does no longer belong to you.  
 It just exists.



Working archive: radiographs, fossils, stone containing uranium, ancient coin with Silphium plant, 140 photographs, Anteroom of the Real (video), publications and documents. Installation view from from the exhibition *Excavation of the Image: Imprint, Shadow, Spectre, Thought*, the Venice Biennale 2015  
*Lenin's Lamp Glows in the Peasant's Hut*, vitrine with radiographs. Installation view from from the exhibition *Excavation of the Image: Imprint, Shadow, Spectre, Thought*, the Venice Biennale 2015  
 Still from *Model of Continuation* (2013) HD video, colour, mute and sound, 24'31"



Stills from *Diagram of Transfer No. 2* (2019).  
16 mm transferred to HD video, colour, mute and sound, 10'31"  
With Oscar Mangione



It is hard not to be struck here by the haunting reversal of events: the photographic event which captured a moment in time that occurred hours after the detonation of the bomb has come to represent the original event. This is profoundly disturbing, troubling, haunting even. And, of course, this raises crucial questions for materialist historiography, namely for materialist visual and art history, as it has to rely on interdisciplinary knowledge to fully interrogate the epistemic power of photography. Knowledge that the iconic mushroom image is in fact not what it was believed to be for decades is owed to “bomb designers”, “nuclear experts” and “military experts.”<sup>9</sup> John Coster-Mullen, an expert on the Hiroshima bomb, put the time as just before noon—more than three hours after the strike on the morning of 6 August 1945.”<sup>10</sup>

This is a reminder that historical and material investigations that seek to explore more fully the epistemic dimension of images have to draw on the knowledge of other fields and other disciplines, such as nuclear or military experts in this case, to understand the organization of the seen world. Discursive and semantic analysis reaches an impasse if it is not undertaken together with a historico-materialist investigation of images.

Selander is concerned with opening up questions that have to do with the onto-technological status of photography. She writes: “THE original event— itself a photographic event, an extreme light that exposes darkness shadow and invisibility at its core—as THE effect.”<sup>11</sup> Extreme light is spectral. At its heart are the ghosts of invisibility. In their introduction to the *Spectralities Reader: Ghosts and Haunting in Contemporary Cultural Theory*, the two editors Maria del Pilar Blanco and Esther Peeren connect the extreme light condition of the nuclear apocalypse to the disaster owed to fully enlightening that which Horkheimer and Adorno

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9. Ibid.

10. Ibid.

11. Lina Selander: *Shadow Optics* (working title), draft proposal for Garage Kunsthaus Wien (2018).

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12. Blanco, María del Pilar and Esther Peeren. (2013). "Spectrographies", *The Spectralities Reader: Ghosts & Haunting in Contemporary Cultural Theory*, ed. María del Pilar Blanco and Esther Peeren. NY and London: Bloomsbury Academic. p. 259.
  13. United Nations, "International Chernobyl Disaster Remembrance Day, 26 April" (no date), accessed on 1 December 2018, <http://www.un.org/en/events/chernobyl/day/backgrounds.html>

have most lucidly cautioned against. One year before the atomic irradiation of Hiroshima and Nagasaki, they warned that "the fully enlightened earth radiates disaster triumphant".<sup>12</sup>

While Hiroshima has become synonymous with twentieth century's nuclear warfare, Chernobyl has become the synonym for nuclear disaster caused by an accident in a nuclear power plant. During the 1970s, generating nuclear electricity was a priority for the USSR. Therefore, Soviet authorities gave priority to building nuclear power plants. The beginnings of the Chernobyl power plant date back to the year of 1970, when the construction of the power plant was planned and built alongside the new city of Pripyat, meant for the housing of the workers and their families.

Hiroshima is remembered as a photographic event. The visual memory of Chernobyl has remained much more elusive, with the eruption of a large fire ball into the sky that blew off the steel and concrete lid of the reactor—remembered more through these words used in its description than through a photographic image. The Chernobyl disaster took place on 25-26 April in 1986. Today, 26th April is commemorated by the UN as International Chernobyl Disaster Remembrance Day. The UN website states as follows: "The force of the explosion spread contamination over large parts of the Soviet Union, now the territories of Belarus, Ukraine and Russia. According to official reports, thirty-one people died immediately and 600,000 "liquidators," involved in fire-fighting and clean-up operations, were exposed to high doses of radiation. Based on the official reports, nearly 8,400,000 people in Belarus, Russia and Ukraine were exposed to the radiation (...)." <sup>13</sup> In her 2011 mixed-media installation and the 25-minute long, black-and white HD video *Lenin's Lamp Glows in the Peasant's Hut*, Selander creates a meta-montage juxtaposing the period of early Soviet

electrification under Vladimir Ilyich Lenin and the period of nuclear power plant building during the Brezhnev era. This is achieved through a “dialogue” with Dziga Vertov’s film *The Eleventh Year* from 1928, about the construction of a hydroelectric plant on the Dnieper, juxtaposing it with contemporary footage from nearby Pripyat, a ghost town since the Chernobyl disaster.”<sup>14</sup>

The meta-montage also extends beyond the film to the mixed media installation as it connects radioactivity to the beginnings of photography. “Radiographs displayed in a vitrine corroborate the symbiosis between early photography and the discovery of radioactivity, which, in turn, seems to presage the invisible code of digital photography.”<sup>15</sup> Such a line of inquiry has been taken up by visual cultural studies scholars, particularly in Akira Mizuta Lippit’s important book *Atomic Light (Shadow Optics)*, which was first published in 2005. Here, we learn that the radioactive light of the twentieth century gave rise to its organization of the seen world.

Lippit speaks of the haunted visual order owed to the effects, the aftermath, of “penetrating radiation.”<sup>16</sup> While he introduces the haunting as connected to the nuclear apocalypse of Hiroshima, he traces its beginnings to a much earlier point in time, to the year 1895 “with the emergence of three new phenomenologies of the inside: psychoanalysis, X-rays, and cinema.” And he establishes the connection between visibility and annihilation to X-ray photography. “X-ray photography represented the advent of a new technique, one that explicitly recorded the destruction of its object, producing at once an optics and an archive of annihilation.”<sup>17</sup>

Visible annihilation and annihilated visibility are the “ghostly matters” of nuclear memory.<sup>18</sup> Avery Gordon has introduced haunting as a

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14. Lina Selander: *Shadow Optics* (working title), draft proposal for Garage Kunsthaus Wien (2018).
  15. Ibid.
  16. Akira Mizuta Lippit. 2015. *Atomic Light (Shadow Optics)* Minneapolis: University of Minnesota Press. p. 4.
  17. Ibid. p.5
  18. See: Avery Gordon. 2008 *Ghostly Matters. Haunting and the Sociological Imagination* Minneapolis: University of Minnesota Press.

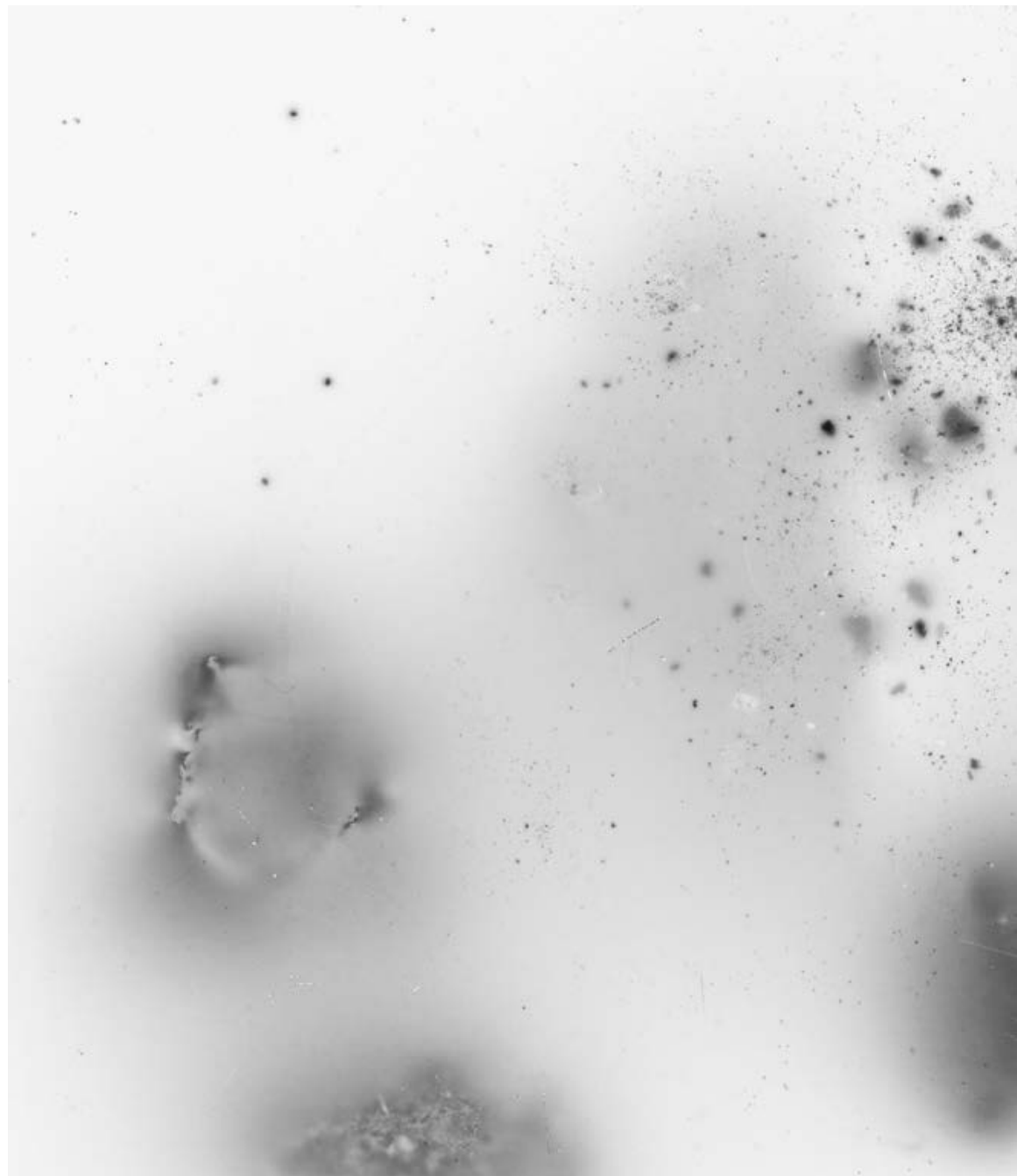
## HAUNTING FALLOUT

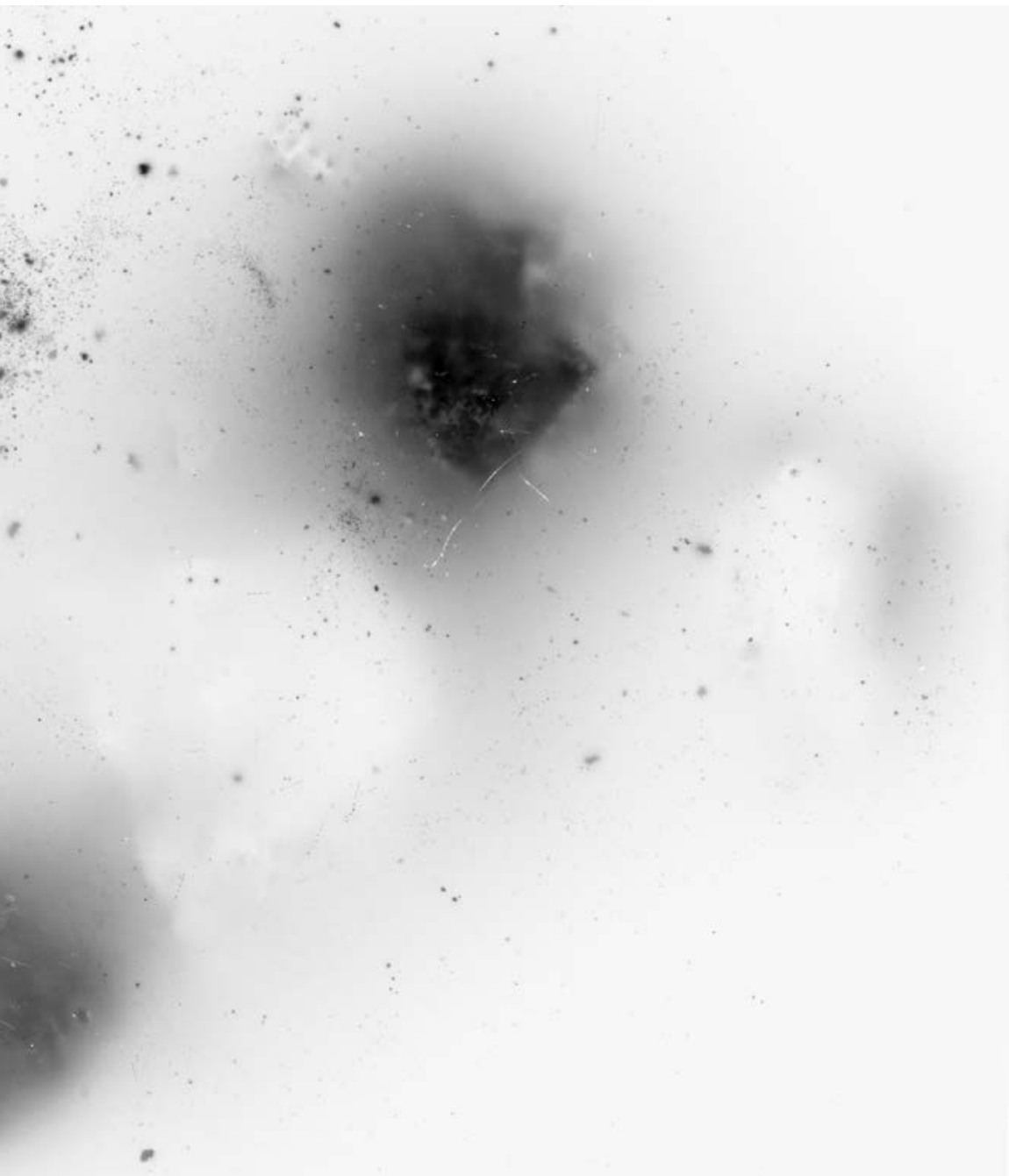
19. Aimee Bahng, (2018). *Migrant Futures: Decolonizing Speculation in Financial Times*. Durham and London: Duke University Press. p. 37.

Bahng uses Gordon's ghostly matters to connect Hiroshima and Nagasaki to the history of the Human Genome Project (see page 196). Her writing is a strong reminder that the violence of the super power geography of the Cold War extended far beyond its national boundaries. This is particularly relevant when we think of fallout histories and their invisibilized side effects. Bahng points out that many Pacific islands not only were US atomic test sites, but also functioned as radiation ecology laboratories for the Atomic Energy Commission after World War II (see page 147).

method in sociology to look at the toll erasure takes, to better understand the presence of that which does not seem to be present. Hiroshima and Chernobyl are two such haunting examples in the scorched landscapes of nuclear memory. While synonymous to nuclear apocalypse, one caused by a man-made nuclear attack in war and the other by a man-made accident in a nuclear power plant, they are also examples of erasure in the archive of radioactive annihilation. They are to be understood as haunting fallout. Aimee Bahng has taken up haunting and writes that "Avery Gordon asks us to approach haunted texts and the ghosts they produce as an opening to remember the disappeared, the dispossessed, and the disavowed by threading 'the ghost story' through materialist historiography."<sup>19</sup>

Meta-montage, as employed by Selander, is one possible approach to threading fallout stories through visual historiography. Fallout, the term used to describe the descent of radioactive particles after a nuclear explosion, also means side effect. Leander's work turns to the side effects of radioactive fallout histories. These haunting side effects that have led to erasures in nuclear memory, are at the heart of Selander's engagement with matters of radiation. Much more critical research will be needed in the future to connect such visual investigations to materialist historiographies to arrive at more complex understandings of haunting fallout histories with the unresolved violence embedded in their optics of annihilation.





**LINA SELANDER** studied at the School of Photography and Film in Gothenburg, the Royal Institute of Art in Stockholm and at Valand Academy in Gothenburg. She is a professor at the Royal Institute of Art in Stockholm.

Selander's works often focus on junctures in history where a system or physical place collapses and something new begins to emerge; the narrative of mechanical cinema giving way to that of digital video, or a political or economic system plummeting into a new one. Her works revolve around images as memories, imprints and representations. Her artistic practice has been resembled to archeology, as neither often has a historical investigative tone, and she often sets out from film and photo material that she finds when digging into archives.

Lina Selander's solo shows include Argos, Centre for Art and Media, Brussels; Iniva (Institute of International Visual Arts), London; Index, The Swedish Contemporary Art Foundation, Stockholm; Moderna Museet, Stockholm; VOX, Centre de l'image contemporaine, Montréal. Selander was the Swedish representative at the Venice Biennale 2015.

Some of her group exhibitions are CrossSections Trilogy (2018); The Pleasure of Love (2007); the 56th October Salon Belgrade, 2015; Kyiv Biennale 2015; Seoul Media City Biennale 2014; Manifesta 2012 in Genk, Belgium; Bucharest Biennale 2010; and at Haus der Kulturen der Welt, Berlin. Lina Selander is also one of the artists partaking in the CrossSections project (2017-2019).

Lina Selander lives and works in Stockholm.

**BJÖRN NORBERG** is a curator and writer based in Stockholm and Uppsala, Sweden. He has been active since the mid 1990's and his main interest has been focused on the intersection of art and science, and art and technology. He is the curator of public art in Gävle, and the curator and founder of the Ulvhälls hällar art park in Strängnäs. Previously he has worked at Dome of Visions/KTH, Bonniers Konsthall, and Mejan Labs and has curated exhibitions for Moderna Museet, Färgfabriken, Bildmuseet, Kiasma, Museet for Samtidskunst, Roskilde, Reykjavik Art Museum. Norberg is a member of the boards of Siftelsen Filmform and the Nordic Art Association.

**ELKE KRASNY** is a curator, cultural theorist, and writer. She received her Ph.D. from the University of Reading. Krasny is a professor at the Academy of Fine Arts Vienna, Austria. Her research connects architecture, urbanism, contemporary art, and feminisms. In 2012 she was a visiting scholar at the Canadian Centre for Architecture in Montreal. Together with Lara Perry and Dorothee Richter, she organizes a series of international conferences on feminisms and curating. Exhibitions and edited volumes include *In Reserve: The Household!* with Regina Bittner at Bauhaus Dessau; *Hands-On Urbanism 1850-2012*; *The Right to Green* at Architekturzentrum Wien and the 2012 Venice Biennale of Architecture. Her recent essays are 'Modernist Green. Changing Regimes of Labour'; 'Citizenship and the Museum: On Feminist Acts'; and 'Caring Activism: Collections and Assemblies'.

**BAŞAK ŞENOVA** is a curator and designer. She studied Literature and Graphic Design (MFA in Graphic Design and Ph.D. in Art, Design and Architecture at Bilkent University); attended the Curatorial Training Programme of De Appel Foundation, Amsterdam and received Associate Professorship in Fine Arts in 2017. Şenova was the resident fellow at the University of the Arts, Helsinki (2017). She is one of the founding members of NOMAD. She curated the pavilions of Turkey and the Republic of Macedonia at the Venice Biennale (2009 and 2015); co-curated the 2nd Biennial of Contemporary Art, D-o ARK Underground (B&H); curated the Helsinki Photography Biennial 2014 and the Jerusalem Show VII: Fractures; and acted as Art Gallery Chair of "ACM SIGGRAPH 2014" (Vancouver). She is the initiator and curator of the CrossSections project in Vienna, Helsinki, Stockholm (2017-19).



IMPRINT

# OPTIC SHADOWS

## LINA SELANDER

### BOOK

**Published by:** KUNST HAUS WIEN GmbH, Bettina Leidl

**Editor:** Başak Şenova

**Texts:** Verena Kaspar-Eisert, Elke Krasny, Bettina Leidl, Björn Norberg, Lina Selander, Başak Şenova

**Proofreading:** Nuşin Odelli

**Graphic Design:** Başak Şenova

**Print:** Mas, Istanbul

First Edition

© 2019 KUNST HAUS WIEN GmbH

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**ISBN: 978-3-9504437-3-8**

### EXHIBITION

**Shadow Optics. Lina Selander**

January 24 – March 3, 2019

**Guest Curator:** Başak Şenova

**Director:** Bettina Leidl

**Team:** Eva Engelberger, Stefanie Fröhlich, Herbert Gollini, Sophie Haslinger, Verena Kaspar-Eisert, Corinna Prey, Chiara Pompermaier, Sabine Nedwed, Martin Stangl, Ádám Stecker, Sonja Vikas, Brigitte Vytisk, Florian Brandner.

**Production:** Art Consulting & Production and TECHIZART

### KUNST HAUS WIEN

Untere Weißgerberstraße 13

1030 Vienna, Austria

[www.kunsthauswien.com](http://www.kunsthauswien.com)

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Both the exhibition and the book are generously supported by **iaspis**.

The Swedish Arts Grants  
Committee's International  
Programme for Visual  
and Applied Artists

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