

# **SPLITTING THE ATOM**

**Sep 18 – Oct 25, 2020**

***Splitting the Atom* takes place at the  
Contemporary Art Centre and  
the Energy and Technology Museum in Vilnius.**

**There are two nuclear power plants in the vicinity of Vilnius: Ignalina (decommissioned) and Astravets (not yet operational). A third, and infamous other, is Chernobyl, eerily present following the effects of its catastrophic failure, and more recently via the popular television series that focuses on the disastrous consequences of lies and neglect. The exhibition *Splitting the Atom* offers insight into the different cultural contexts of these plants and their role in the global infrastructure of the nuclear cycle – from natural resource extraction to waste.**

**Nuclear technology was integral to the aesthetics of the Cold War; the scale and terror of the atomic bomb shaped a hypnotic image of a nuclear sublime where modern science and technology were perceived as omnipotent. By the beginning of the new millennium, evidence of everyday experience of radioactive contamination through nuclear testing, uranium mining, and colonial exploitation combined with the dangers of radioactive waste was better understood and radically influenced how artists consider nuclear aesthetics.**

**Today nuclear culture explores questions of deep time contamination, colonial nuclearity and radioactive waste management as well as the need to disarm. Practical concerns caused by aging technologies and radioactive waste become graver and increasingly urgent every day. While this work takes place, nuclear technologies continue to penetrate different**

**aspects of our everyday life; and we know that radioactive fallout particles will remain across the surface of our planet forever.**

**Why is it so difficult to build trust in nuclear? What are the costs of energy created through nuclear fuels? What defines nuclear heritage, and what happens when radioactive waste becomes part of our culture? How are nuclear technologies part of colonial histories? These and other issues are explored in the exhibition by more than thirty artists from different countries working in the field of nuclear heritage.**

## **Curators:**

**Ele Carpenter and Virginija Januškevičiūtė**

## **Artists:**

**Lise Autogena & Joshua Portway, Erich Berger, U. Kanad Chakrabarti, Thomson & Craighead, Jurga Daubaraitė & Jonas Žukauskas, Hector Dyer, Finger Pointing Worker, Gershom Garlingarr, Jeremiah Garlingarr, Zaccheus Garlingarr, Jehosaphat Garlingarr, Isao Hashimoto, Gabriella Hirst, Martin Howse, Kristina Inčiūraitė, Erika Kobayashi, Sandra Lahire, Aimee Lax, David Mabb, Cecile Massart, Alex Ressel & Kerri Meehan, Deimantas Narkevičius, Yelena Popova, Lisi Raskin, Nick Crowe & Ian Rawlinson, Susan Schuppli, Augustas Serapinas, Emilija Škarnulytė, Ignas Krunglevičius & Siri Harr Steinvik, Himali Singh Soin, Kota Takeuchi, Mark Aerial Waller, Peter Watkins, Andrew Weir**

‘Since the splitting of the atom, nuclear knowledge and experience has changed the way in which we see and understand the world’, states Ele Carpenter in the very first lines of *The Nuclear Culture Source Book* that she edited in 2016. Curated by Ele Carpenter and Virginija Januškevičiūtė this exhibition draws from a vast array of artistic projects concerning the nuclear age. Among them are artworks that have been previously shown at the CAC as well as new commissions.

Lisi Raskin’s contribution is a small-scale replica of the promotional pavilion she set up at the CAC in 2003 as part of the exhibition *24/7 Wilno-Nueva York: visą parą*. Ignalina Heights is a speculative real estate agency that promotes future property on the grounds of the decommissioned Ignalina Nuclear Power Plant. Back in 2003, Lithuania was not yet a member of the EU but the plan for decommissioning the power plant had been set in place; in 2020, there is still no such real-estate agency nor any residential properties on the site of the plant, yet the INPP is being slowly dismantled, bringing us a step closer to Raskin’s satirical vision.

Among the new commissions is a project by Augustas Serapinas, which takes its title from the names of two former workers of the Ignalina plant, Yelena and Vera. As some of the plant’s first employees, they were involved in the construction of and where they later took on other roles. Now retired, they spend much

**of their time knitting and have created knit-wear to be worn by the exhibition invigilators. Serapinas notes that the apparel renders the staff 'somewhat more visible and more part of the exhibition' and in doing so highlights the often unacknowledged role of the work force in any given infrastructure.**

The nature of radioactivity and the micro scale of the nuclear reaction often leads to an assumption that radioactivity (and, in turn, other effects of the nuclear industries) is invisible. However, this is not entirely true. From storytelling to scientific imaging methods, from disparate realities of workers and those otherwise affected by nuclear infrastructures to policies of transparency and representation, which are always obscured by the need for a certain level of secrecy, the effects of the nuclear industries are manifest in a multitude of ways.

In 1896 Henri Becquerel exposed a photographic plate to uranium salts, which created fogging on the image and started a long visual history of the photographic sensing of radioactive rays. Martin Howse's photographic print is one such image: here, we see a burn created by uraninite in total darkness over the duration of three days.

The artist Yelena Popova overlays drawings of the atomic structure of two isotopes: Uranium 238 and Plutonium 239. Uranium, as a naturally occurring element, is used as fuel in a reactor to artificially create plutonium for nuclear weapons; through fission in a reactor, uranium loses a neutron and is transformed into the highly radioactive plutonium. The extra atom is shown floating in the centre of Popova's image, *One Too Many*.

Positioned to the right of the main gallery

entrance, a sculpture by Aimee Lax presents a study of materials considered for securing spent fuel. Copper canisters have been proposed a container for burying tens of thousands of assemblies of spent fuel from the Ignalina Power Plant; the canisters would be buried deep in the geological strata embedded in a layer of bentonite clay. Lax's sculpture has been executed on site and transforms throughout the duration of the exhibition, which is millions times shorter than the estimated time in which the spent fuel will become safe in its underground repositories.

Also at the entrance to the main gallery, is footage of an action carefully staged for a live web camera at the Fukushima site, and performed by one of the many workers cleaning up after the accident at the plant in 2011. Known as the Finger Pointing Worker, the anonymous worker throws an accusation and a call for responsibility directly to the viewer. This artwork is also screened in the Ignalina Reactor's RBMK-1500 Simulator, situated near Visaginas, alluding to the different histories of nuclear workers that respond to difficult conditions and the unpredictability of technology.



**The Ignalina Power Plant is part of a global nuclear infrastructure and its corresponding events, and was developed in direct correlation to large scale geopolitical projects.**

**The RMBK reactors used in Ignalina were identical to those of Chernobyl, but more powerful. Deemed unsafe and impossible to modernise, the closure of the plant was a condition of Lithuania's accession to the European Union, and secured the EU's commitment to finance the decommissioning.**

**The decommissioning of Ignalina's reactors created an opportunity for a new power plant in Belarus to fill the supposed void in the energy network. The Soviet Union built the power grid in such a way that it could maintain and increase the interdependence between its different parts – two or more union republics were made dependent on the same plant. It was especially convenient that large water resources like lakes or rivers tend to be 'natural' markers of boundaries between neighbouring countries – these kind of reservoirs are required for the plants to function. Thus the Belorussian Nuclear Power Plant, first planned in the 1980s, was built in this very same manner, on the border of Lithuania and Belarus.**

**Behind the scenes lies the unspoken connections between nuclear energy and its precursor the atom bomb, as nuclear reactors were originally designed to produce plutonium, and the**

**hard to trace supply chains of uranium mining and enrichment.**

**For example, artists Alex Ressel and Kerri Meehan have discovered that Nukem Technologies, the company decommissioning the Ignalina Power Plant and building interim waste storage facilities is the daughter company of Nukem Energy, bought by Cameco in 2012. Cameco has many uranium exploration tenements in Arnhem Land, Australia, and advertises some of them as being close to Sickness Country, which features in Ressel and Meehan's works presented in this exhibition.**

**‘In one important aspect, the field of nuclear heritage is not that different from what we’re doing in contemporary art’, observed curator Ele Carpenter at an interdisciplinary symposium, which gathered an array of sociologists, nuclear scientists and museum experts in an attempt to define the emerging field. ‘Nuclear industries, as well as those involved in the making of contemporary culture, are producing things that both parties hope will be adopted in the future. On one hand we’re producing nuclear waste, and repositories required to remain intact for humanity to have any chance of survival in the future; on the other hand nuclear culture is what we perceive as cultural practices and cultural heritage of the future’.**

**Can artistic practices share some of the responsibility for identifying nuclear heritage and locating radioactive waste? The sites of former nuclear power plants, bunkers, and testing grounds are being turned in to cultural destinations all over the world. The perception of waste is globally shifting from considering waste as something that disappears into complete absence once discarded, to acknowledging sewage and ocean beds as part of the world\*. The radioactive site marking project remains unresolved, and global knowledge extremely fragmented; but the actual repositories and archives tend to resemble the memorial and burial sites that human civilisations have attempted to care for over thousands of years.**

**\* See Gabriella Hecht's essay 'Human Crap' published on [www.aeon.co](http://www.aeon.co) and also available for reference in the Reading Room.**

**A totem counter by Thomson and Craighead publicly presents invisible data. It counts down, in seconds, the length of time that the high level waste from Ignalina needs to be isolated from the biosphere – 1 million years starting from 31 December 2009, when the last reactor was shut down. The design of the counter demonstrates how the human measurement of time is a contested process of linguistic and pictorial language.**

**The question of reliability also concerns those conducting interdisciplinary or international research. Transparency is an object of constant negotiation rather than a neutral procedure; the sociologist Eglė Rindzevičiūtė describes the origami-like ways in which the nuclear industry shares information: ‘upon request, you might receive the information that you need, but not all of it; it may be provided for you, but not necessarily in a form that you can use’. Negotiation of secrets and trust play a defining role in the geopolitical realm defined by nuclearity.\***

***Esther* by U. Kanad Chakrabarti is a network-based simulation of the Stuxnet cyber-weapon, displaying archival images which are algorithmically glitched and degraded during the run of the exhibition and beyond. Stuxnet infected computers worldwide in 2010, but appears to have been specifically targeted at the Iranian uranium enrichment facility at Natanz. Uranium enrichment is the process of separating the isotope U-235 (suitable for nuclear**

fission) from the more common and plentiful U-238 using spinning centrifuges. These fragile centrifuges are controlled by off-the-shelf software known as a Step7 SCADA, which is made by Siemens and runs on Windows-based computers. Stuxnet was a dormant piece of code that spread rapidly through Iran's computer networks, seeking machines that ran both Windows and the Siemens SCADA. When it found both, it would 'come alive' and send commands that caused the centrifuges to malfunction and eventually self-destruct.

\*See the essay by Paul Josephson, Tatiana Kasperski, Eglė Rindzevičiūtė and Andrei Stsiapanau published on [www.echogonewrong.com](http://www.echogonewrong.com) – also available in the Reading Room for reference – for a more in depth insight into the creation of trust.

**Nuclear heritage includes the infrastructures, materials, objects, cultures and waste from every aspect of the nuclear cycle, from uranium mining, weapons and energy production, to the decommissioning of aging reactors. As one generation of technology undergoes decommissioning another is built in its place, and much of its history is in danger of being lost. At the same time, high level radioactive waste such as spent fuel rods, need to be isolated from the biosphere for a million years and lower levels of waste also need to be securely stored in special sites for centuries.**

**Nuclear landscapes include the geologic, infrastructural and radiological sites exploited for uranium extraction, enrichment and fission. One example is the Ranger Mine in the Northern Territory of Australia captured by Alex Ressel and Kerri Meehan in a large-scale panoramic photograph, or the Narbalek mine in Kakadu National Park, featured in the duo's film. We can also think of nuclear landscapes as sites of social, technical and biological entanglement, including contaminated environments and social communities. For example, radioactive particles were dispersed into the atmosphere through the fallout from weapons testing as mapped out by Isao Hashimoto's animation *1945–1998*. This testing, along with nuclear accidents, has raised global background radiation levels.**

**For thousands of years artists have told the**

**story of uranium ore and its dangers through many different forms; these forms are continuously evolving and are increasingly being shared internationally.**



The *Bula Djang* paintings were made between 2011 and 2018 by different generations of the Garlangarr family live in the remote Aboriginal community of Gunbalanya in Western Arnhem Land, the scene is painted as a way to pass on a warning to future generations. Bula Djang, or Coronation Hill, is a site in Jawoyn country. It is also called Sickness Country, an area that has been known as a sacred and dangerous place for thousands of years. According to ancient and living stories, disturbing the earth, removing rocks, camping, harvesting crops or cutting yourself through injury in Sickness Country could have grave consequences. The area correlates to where uranium deposits are located: Bula Djang was mined for uranium from 1957 to 1964 against the wishes of the Traditional Owners, who, after years of struggle in the Australian legal system, eventually put a stop to the mine.

According to one story that is passed down from generation to generation, long ago, when the Nayuhyungki (first people) lived in the country, some elderly women went digging for long yam and goanna. They were carrying digging sticks and travelling in an unfamiliar country. They travelled into the Bula Djang area, prodding the earth with their sticks but had unknowingly entered a sacred place where women and outsiders are forbidden. The ground began to shake and an earthquake created a crack in the earth into which the women fell. Then Bula, the earthquake force, created

**another earthquake and all the people and animals were killed. It is believed that Bulah still resides in the earth and should not be visited or disturbed.**

**The photograph of the Miamia rock art (taken by Alex Ressel and Kerri Meehan) depicts a person sick with Miamia, with swollen joints from disturbing the land.**

**Gabriella Hirst's performative research project *How to Make a Bomb* propagates the Atom Bomb rose as a critique of horticultural and nuclear colonialism, and is explored through her botanical drawings and the newly grafted plants growing in the CAC atrium.**

**This specific breed of rose was first cultivated and registered in Germany with the common name Rosa 'Atom Bomb' in 1953. Although once a popular garden rose, the Atom Bomb is now almost at the point of extinction. Hirst is attempting to propagate new specimens from a single sourced rose. The artist's project coincides with the recurrence of long-dormant cold war-era public fear-mongering and examines the desire to name artificially cultivated plants after sublime but disastrous historical events and modern inventions. The utopian aesthetics of nuclear modernity are embodied both in the rose and its name.**

**In the 1950's the nuclear state established the economically secure and culturally conservative nuclear family to ensure the stability of social relationships to protect state atomic secrets. High quality housing, recreational facilities, and gardening all helped to create contented workers. As described in 'Plutopia: Nuclear Families, Atomic Cities and the Great Soviet and American Plutonium Disasters' (Kate Brown, 2013).\***

**Gabriella Hirst's project is developed in**

**collaboration with Warren Harper and in  
London, and Antanas Dombrovskij in Vilnius.**

**\*Available in the Reading Room.**

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&  
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**Lise Autogena & Joshua Portway,  
*Kuannersuit; Kvanefjeld, 2016.***

**Video (29 min)**

**(CAC Video Room)**

For this work, Lise Autogena and Joshua Portway are investigating the conflicts facing the community in the region near the Kvanefjeld mountain in South Greenland; site of one of the richest rare earth mineral resources deposits in the world, and one of the largest sources of uranium. Greenland is a former colony of Denmark, an island of 56,000 people living across an area of 2.1 million square kilometers. Since the 1960s a movement of anti-colonialist nationalism has been growing in the country, which is recognised as an 'autonomous administrative division' of Denmark, supported economically by the Danish state. Many people see the exploitation of mineral deposits as the only viable route to full independence. For generations the farming near Kvanefjeld has been Greenland's only agricultural industry. This way of life may soon be threatened, as Greenland considers an open pit mine proposed by the Australian/ Chinese-owned company Greenland Minerals and Energy, which is expected to process over 1 billion tons of rare earth oxide and substantial uranium contents of 593 million pounds.

Autogena and Portway's film *Kuannersuit; Kvanefjeld* (2016) portrays a community divided on the issue of uranium mining. It explores the

difficult decisions and trade-offs faced by a culture seeking to escape a colonial past and define its own identity in a globalised world. The second stage of their project will involve working with stakeholders to support community radiation mapping in the *Kvanefjeld* area.

*Kuannersuit; Kvanefjeld* was produced with funding from the Danish Arts Council, Sheffield Hallam University – Art and Design Research Centre, Arts Council England, the British Council, the National Academies/ Keck Futures Initiative.

**Erich Berger,  
*Spectral Landscape, Kovala-REE, 2020.*  
Gamma radiation intensity mapping  
(CAC)**

This image is the first in a series of works by Erich Berger under the umbrella Spectral Landscapes. Kovala in Finland is one of several field sites in Berger's project, which show naturally occurring radioactive mineralisation close to the surface. The emitted radiation produces a landscape of colours which are invisible to human senses. In Berger's own words: 'When I enter Kovala and close my eyes I imagine a bizarre topography not ever seen by any human, rising from the beautiful landscape. Unreal shapes, large but soft bodies of gamma radiation are protruding from the smoothly shaped hill-rocks and fade into the sky beyond the forest canopy, where they merge with the continuous rain of background radiation and particle showers in the earth atmosphere. The shapes follow the features of the stone, and are rooted within shallow puddles of beta and alpha particles, all products of the ongoing radioactive decay in the bedrock.'

Berger's motivation is to explore artistic strategies for what he calls 'radical witnessing'; artistic attempts to facilitate experiences and phenomenal encounters in cases where the human sensorial comfort zone is not able to meet the scope of the real, for example when human senses are simply not built to perceive certain phenomena, or when a process in question would outlive any spectator.



**U. Kanad Chakrabarti,  
*Esther*, 2020.  
Code, Internet  
(CAC)**

Chakrabarti has scripted a simulation of the Stuxnet computer virus, to create an internet artwork displaying archival images which are algorithmically glitched and degraded during the run of the exhibition and beyond, highlighting the contingencies specific to network-based durational media. The Stuxnet cyberweapon infected computers worldwide in 2010, but appears to have specifically targeted the Iranian uranium enrichment facility at Natanz. Uranium enrichment is the process of separating the isotope U-235 (suitable for nuclear fission) from the more common and plentiful U-238 using spinning centrifuges. These fragile and hard-to-operate centrifuges are controlled by off-the-shelf software known as a Step7 SCADA, made by Siemens and which run on Windows-based computers.

Stuxnet was a dormant piece of code that spread rapidly through Iran's computer networks, seeking machines that ran both Windows computers and the Siemens SCADA. When it found both, it would 'come alive' and send commands that caused the centrifuges to malfunction and eventually self-destruct. A complex piece of software, it was designed to operate stealthily, erratically 'glitching' the centrifuge operation, such that

operators couldn't easily diagnose why they were malfunctioning. It is thought that the size and sophistication of the Stuxnet code would be difficult for a non-state actor to achieve. Approximately 1,000 centrifuges were destroyed, or about 10% of Iran's enrichment capacity at the time. The artwork's opacities recall both the position of the Iranian scientists, and the international atomic community, who were initially baffled by the erratic behaviour of the centrifuges, and the code itself.

Like biological pathogens, computer viruses are dependent on networks: telecommunications systems but also human carriers (the individual who introduced the USB stick at Natanz, or anyone who opens a phishing link in an email), and interconnected economic systems (the Step7 is German, Windows is American, while the P-1 centrifuges are a Pakistani design stolen from a Dutch design bureau). Social practices and community hygiene also play a part: security managers strive to create an 'air-gap' between critical military or civilian computer networks and the internet-at-large (which can however be breached by physical means, as in the Stuxnet case).

From Iran's perspective, Stuxnet also opened a digital front in an overt and covert campaign of foreign interference that long pre-dates the current Islamic Republic. Iran, by virtue of geography and hydrocarbons has long been a site of contention: from the humiliating

Russio-Persian treaties of Gulistan and Turkmenchai (1813/1828); to the Anglo-Russian Convention (1907) which carved up Persia into spheres of influence; to the deposition of the democratically-elected Prime Minister Mossadegh in an Anglo-American-assisted coup d'etat (1953); and the convoluted Iran-Contra arms affair (1985).

**Thomson & Craighead,  
*Temporary Index: Ignalina, 2020.*  
Projection  
(CAC)**

Jon Thomson & Alison Craighead investigate understanding of geological and planetary time through the relationship between live data and the material world. At the core of *Temporary index* is a database which drives an array of numeric counters which countdown the probabilistic decay of radioactive materials in seconds. The counters can be presented as a full array or single totem, embedded in specific sites, syndicated online, presented in an art gallery, included in nuclear archives, and preserved in museum collections.

These animated objects of contemplation are representations of time that far outstrip the human life cycle and provide us with a glimpse into the vast time scales that define the universe in which we live, but which also represent a future limit of humanity's temporal sphere of influence. The design of the counter demonstrates how the human measurement of time is a process of linguistic and pictorial language. The full array of counters and their sites are illustrated in *The Nuclear Culture Source Book*, edited by Ele Carpenter, p18–20.

Thomson & Craighead's *Temporary Index* totems are a series of signposts for high level radioactive waste sites around the world. They have created counters pointing towards

Chernobyl in the Ukraine, Dounreay in Scotland, Dessel in Belgium, and now Ignalina in Lithuania. For the CAC the artists have created a totem to map the distance between the CAC and the Ignalina Nuclear Power Plant Waste Store:147km Northeast. The artwork counts down in seconds the length of time that the high level waste from the Ignalina NPP needs to be isolated from the biosphere, 1 million years starting from 31 Dec 2009, when the last reactor was switched off at the Ignalina plant.

# **Jonas Žukauskas & Jurga Daubaraitė, *Nuclear Assembly, 2020.***

## **Installation (CAC)**

*Nuclear Assembly* is an installation illustrating the timeline of the Ignalina Nuclear Power Plant (INPP) from its conception to eternity, providing sequential information about the construction, operation, decommissioning, and final disposal of radioactive waste.

Commissioned by Minsredmash, the Ministry of Medium Machinery Production of the Soviet Union, responsible for the military and nuclear weapons industry, two RBMK 1500 reactors were imposed on Lithuania as part of Soviet colonisation. After the Second World War, the Soviet Union actively developed electricity networks as a tool for territorialisation of parts of Europe. The northwestern energy system inter-connecting the Soviet republics became the most important part of this new grid, and the Ignalina Nuclear Power Plant was its central component. Apart from Communist Party officials, the society and scientific community of occupied Lithuania were not involved in any decisions related to the planning, design and construction of the INPP. After Lithuania became a member of the European Union, this Soviet-built electricity grid has unavoidably remained in use, creating geopolitical tensions with Russia. The Northwest Energy System currently operates as the BRELL network

connecting Belarus, Russia, Estonia, Latvia, and Lithuania. The closure of the INPP and the non-construction of the new Visaginas NPP created favourable economic conditions for assembling the new Astraviets NPP in Belarus. Lithuania, in cooperation with Latvia and Estonia, aims to synchronise its electricity infrastructure with mainland European networks and disconnect from BRELL by 2025.

After Lithuania regained its independence and inherited the INPP in its territory, the plant became essential infrastructure in the first years of independence. However, it also brought the problem of nuclear safety, which could be solved only with the help of Western specialists and funding. During the construction of this power plant, the Soviet Union did not plan how to eventually decommission it, nor did it allocate any necessary funds. During Lithuania's negotiations to integrate into the European Union, the closure of INPP became paramount. Recognising that decommissioning represents an exceptional financial burden disproportionate to the size of the country and its economy, the European Commission has committed itself to supporting the process of plant closure together with the G7 countries and other donors. The cost of the Ignalina NPP decommissioning works (including equipment dismantling, construction of waste storage infrastructure, and projects to strengthen Lithuania's energy security) is approximately 3,316 billion euros. The decommissioning process, planned to

be completed by 2038, is only a temporary solution. The final deposition of 21,571 spent fuel assemblies and other high-level radioactive waste requires a Deep Geological Storage Facility, the cost of which could reach an additional 2.52 billion euros. These funds and the location of the storage facility in the territory of Lithuania are not yet planned.

Consultants: Dr Eglė Rindzevičiūtė,  
Dr Andrei Stsiapanau



**Hector Dyer,  
*Rising on the Horizon (i) and (ii), 2020.*  
Cotton, Turkish madder, turmeric, thread,  
bamboo  
(ETM)**

**Hector Dyer,  
*Tracing. Long. Shadows, 2020.*  
Cotton, ferric ammonium citrate, potassium  
ferricyanide, clock hands, watch pieces,  
bamboo  
(ETM)**

Hector Dyer has made a series of props to accompany his performance *Thank You For Your Patience* that explores how we warn the future about the legacies we are leaving behind. These delicate fabrics were specially designed for the Energy & Technology Museum in preparation for his performance, which has been postponed due to the pandemic travel restrictions.

The performance weaves together spoken word, story-telling, sound and installation, uncovering plans for the long-term storage of nuclear waste and the worlds this could lead to. Lyrical, folkloric and driven by epic imagery from deep time to our day-to-day actions, this provocative performance exposes the nuclear futures we are already creating. Dyer has developed the performance over the last few years, adapting the script and props to new contexts and the evolving perception of memory and waste. <https://hectordyer.wixsite.com/dyer>

**Finger Pointing Worker,  
*Pointing at Fukuichi Live Cam, 2011*  
(CAC / Simulator)**

Artist Kota Takeuchi is the agent for the 'Finger-pointing worker' who was employed at the Fukushima Nuclear Power Plant immediately following the meltdown of the reactors in 2011. The worker recorded himself pointing at one of the many webcams positioned around the plant, pointing directly into the camera. In the film, the worker is positioned within a visual loop of image capture: the worker can see himself pointing via the streamed webcam on his mobile phone, which records the moving image. Viewers could follow the performance in real time and then circulate it online, inserting themselves into the media mythology around the event. The work is also described as a reference to the American performance artist Vito Acconci's performance-to-camera *Centers* (1971).

*Pointing at Fukuichi Live Cam* creates a loop of responsibility between the worker, the clean up of the accident at the plant, and the viewer. For this exhibition, the film is also screened on a monitor in the Ignalina Nuclear Power Plant Simulator near to Visaginas, alluding to the different histories of nuclear workers responding to difficult conditions. The Simulator was used to train plant operatives in managing speculative malfunctions in the Ignalina reactor control room.

**Gershom Garlingarr, Jeremiah Garlingarr,  
Zaccheus Garlingarr, Jehosaphat Garlingarr,  
*Bula Djang*, 2016–2018.**

**Paintings  
(CAC)**

These *Bula Djang* paintings were made by different generations of the Garlangarr family: Gershom, Jeremiah, Zaccheus, and Jehosaphat Garlingarr. They show how knowledge of the landscape is passed onto future generations.

Bulah Djang or Coronation Hill is a sacred site in Jawoyn country in Kakadu National Park, Australia. The area is also known as Sickness Country because of sacred sites that warn of dangerous places, which directly correlate to where uranium deposits are located. Long ago, when the Nayuhyungki (first people) lived in the country, some elderly women went digging for *karrbarda* (long yam) and *kalawan* (goanna or sand monitors). They were carrying digging sticks and travelling in unfamiliar country. They travelled into the Bulah Djang area, prodding the earth with their sticks but they had unknowingly entered a sacred place where women and outsiders are not allowed to go. The ground began to shake and an earthquake created a crack in the earth into which the women fell. The force of the quake affected the entire country. Bulah created another earthquake and all the people and animals were killed. The area is still sacred as Bulah, the earthquake force, resides in the earth and should not be

visited or disturbed. Bulah Djang was mined for uranium between 1957 and 1964 against the wishes of the Traditional Owners, who, after years of struggle in the Australian legal system, eventually put a stop to the mine.

## **Isao Hashimoto**

***1945–1998, 2003.***

**Video (14:25 min)**

**(CAC)**

This animated map illustrates the 2,053 nuclear explosions that took place between 1945 and 1998, beginning with the Manhattan Project Trinity test near Los Alamos and concluding with Pakistan's nuclear tests in May of 1998. Hashimoto, who began the project in 2003, says that he created it with the goal of showing the fear and folly of nuclear weapons. Each nation on the map displays a flashing marker where a nuclear weapon was detonated, and includes a running tally of explosions. Visualising the tests on a global map clearly illustrates how nuclear nations tested their weapons on indigenous lands and peoples, as an act of nuclear colonial violence. Atmospheric testing of nuclear weapons, along with nuclear accidents, has also raised global background radiation levels. The anthropogenic radionuclides are distributed across the planet and do not recognise the borders of the nation states that created them.

The data for the artwork is based on the report 'Nuclear Explosions, 1945–1998' by Nils-Olov Bergkvist and Ragnhild Ferm, co-published by the Swedish Defence Research Establishment (FOI) and the Stockholm International Peace Research Institute (SIPRI) in 2000. The film does not include six atomic tests by North Korea. The video can be viewed on the

Comprehensive Test Ban Treaty Organisation  
(CTBTO) website: [https://www.ctbto.org/  
specials/1945-1998-by-isao-hashimoto/](https://www.ctbto.org/specials/1945-1998-by-isao-hashimoto/)

**Gabriella Hirst,  
*How To Make a Bomb, 2020.*  
Roses and Botanical Drawings.  
(CAC)**

Gabriella Hirst's performative research project propagates the Atom Bomb rose as a critique of horticultural and nuclear colonialism, explored through her botanical drawings and the newly grafted plants growing in the CAC atrium.

This specific breed of rose was cultivated and registered with the common name Rosa 'Atom Bomb' in 1953. Although once a popular garden rose, the Atom Bomb Floribunda is now almost at the point of extinction, and Hirst is attempting to propagate new specimens from a single sourced rose, in tandem with the recurrence of long-dormant cold war-era public fear-mongering. Alongside the horticultural activity, Hirst is researching connections between colonial land exploitation, botanical nomenclature, and gardening.

In the 1950s the popularity of the ornamental rose bush emerged alongside nuclear suburban new-towns in the USA and USSR which encouraged the 'nuclear family' of a stable household to ensure the security of nuclear information (Brown, 2013). In Hirst's project the utopian aesthetics of nuclear modernity are embodied both in the rose and its name. The journey of the propagation of the new rose bushes across Europe and their shifting

symbolism reveals new ways of thinking about nuclear networks, languages and processes of care in the nuclear landscape.

The project is developed in collaboration with Warren Harper in the UK, and Antanas Dombrovskis in Vilnius. [www.htmab.xyz](http://www.htmab.xyz)



**Martin Howse,  
*Three day exposure in total darkness,  
uraninite sample, 2016*  
(CAC)**

As the title suggests, this photographic print was created after a 'three day exposure in total darkness, uraninite sample'. Here the energy of the uraninite has created a deep burn in the image. In 1896 Henri Becquerel exposed a photographic plate to uranium salts, which created fogging on the image, starting a long visual history of the photographic sensing of radioactive rays. The image was created for *The Nuclear Culture Source Book*, edited by Ele Carpenter, p31.

**Kristina Inčiūraitė,**

***Leisure*, 2003.**

**Video (4:32 min)**

**(CAC)**

This short film addresses the invisibility of women within cultural, public, and therefore political life, in Visaginas, the residential town for the Ignalina Nuclear Power Plant built in 1975. By avoiding the use of the camera to reinforce a voyeuristic gaze, the women are able to freely discuss the problems of their visual representation and their lack of agency in their lives. The youth choir is rehearsing in the Visaginas Cultural Centre, and the words reverberate around the empty stage, yet another unoccupied space. The words of the song are reminiscent of the desperate and deep faith in the future inherited from the Soviet period: 'We wish you happiness, happiness in this big world'. Today this song no longer carries such positive overtones in Visaginas.

The project addresses an important issue of women's visibility in patriarchal and highly masculine soviet and postsoviet atomic culture, also raised by Augustas Serapinas' knitwear project for this exhibition, *Yelena and Vera* (2020). The reflections of the women form a stark contrast to the bravado of the official cultural events held to commemorate the plant recorded by Ignas Krunglevičius and Siri Harr Steinvik in their film *Is That All There Is* 2004.

**Erika Kobayashi,**  
***Half-Life Calendar, Radium 226, 2014.***  
**Poster**  
**(ETM)**

Erika Kobayashi uses narrative strategies to make the materiality of radiation visible, and thought-felt, through manga novels and drawings. *Half Life* originally consisted of 1,601 double-sided calendar–posters, a number which represents the half-life of radium 226. On one side *The Story of Mothers* maps the discovery of radium through the generations of the artist’s family; while the other side provides a calendar to count down the half-life of radium from the date it was discovered by Marie and Pierre Curie, until its half-life is reached in 3035. The poster presents the story in Japanese and English, with a Lithuanian translation available in the gallery. *Half-Life Calendar, Radium 226*, is published in *The Nuclear Culture Source Book*, edited by Ele Carpenter, p114–116.

Design in collaboration with Mina Tabei.

**Ignas Krunglevičius & Siri Harr Steinvik,  
*Is That All There Is*, 2004.**

**Video (8 min)**

**(CAC Video Room)**

This amateur film provides a voyeuristic glimpse from the audience of the 25<sup>th</sup> Anniversary Celebration of the first Turbine installed at the Ignalina Nuclear Power Plant. The event was held at the Banga Culture House, Visaginas on 10 December 2004, as a cultural celebration complete with women in costume and a light show. The stage frames a Fantasia-style documentary of the plant and turbine installation, beautifully edited to the musical score. The artists have captured the staging of this documentary as a cultural event, which is emphasised by the microphones silhouetted by the projection, as if it is the film itself that is performing to the audience. The artists' film captures the importance of preserving nuclear cultural heritage from multiple perspectives and time periods.

**Ignas Krunglevičius & Siri Harr Steinvik,  
*Ignalina Mon Amour*, 2006.**

**Video (27 mins)**

**(ETM)**

Harr Steinvik and Krunglevičius' film presents the decommissioning of the Ignalina NPP as an entirely political project through the eyes of people employed by the plant, along with a soundtrack of Geiger click acoustics. Interviews with Visaginas residents capture the mood of the town in 2006, just seven years after the decision was made to decommission the plant, reflecting on the communist architecture of the Soviet Union, and the challenges of retraining following plant closure. The last few minutes of the film features an extended clip from the 25<sup>th</sup> Anniversary Celebration of the Turbine Hall opening. Where the Plant Director Shevaldin, speaks reassuringly to the Visaginas audience: 'When we built our plant, we couldn't imagine that Chernobyl was going to happen. It's not our fault that it happened. Our achievement is that it didn't happen here in Lithuania'. In true Soviet style, he then goes on to praise the Ministry for sending the best workers to Ignalina, followed by music and dancing.

**Sandra Lahire,  
*Uranium Hex*, 1987.  
16mm to video (11 min)  
(CAC Video Room)**

Sandra Lahire (1950–2001) was an important feminist experimental filmmaker. Using a kaleidoscope of experimental techniques, *Uranium Hex* explores uranium mining in Canada and its destructive effects on the environment and the women working in the mines. A plethora of images ranging from the women at work to spine-chilling representations of cancerous bodies are accompanied by unnerving industrial sounds and information about the effects of uranium mining. Marina Grinz writes: ‘The radiation of the body is transferred to the radiation of the picture. The radon 222 that disintegrates the skin seems here to over-expose the film image. Radioactivity is deployed as a radioactivity of the film image in itself’.

The film was made in collaboration with Jean Matthee, Anna Thew, Lis Rhodes et al. Funded by Channel4 at the London Filmmakers’ Co-op.

**Aimee Lax,  
*Repository*, 2020.  
Copper and Bentonite  
(CAC)**

This sculpture investigates the materials used in the Swedish KBS design of copper canisters proposed for burying roughly 21,500 spent fuel assemblies from the Ignalina Nuclear Power Plant. The bentonite clay would be used as a buffer for the storage of this high level waste deep in the geologic strata for a million years. As a ceramics artist working with clay, Aimee has been experimenting with the different qualities of bentonite, and how it changes in different environments over time, easily dehydrating into solid flakes. At the CAC, the circular surface of the top of a radioactive waste canister echoes the hidden circular patterns across the first floor of the building, reflecting on the massive scale of the required storage repository. Lax developed the proposal for this sculpture while undertaking the Ceramics Artist in Residence at the V&A in London, 2020.

**David Mabb**

***Chernobyl, Ukraine; Ignalina, Lithuania; Astravets, Belarus, 2020.***

**Acrylic on canvas, card and wood.**

**(CAC)**

Three painted placards appropriate postcards of Soviet national costume patterns from 1958, removing idealised images of industry and replacing them with images of a nuclear power station from each country: Ukraine, Lithuania and Belarus. The placards reveal the material realities behind the romanticised representations of national traditions, and simultaneously place the power stations in the historical context of the Soviet Union.

The placards each appropriate an illustrated postcard by I. Shimanskaya from a series called 'A Friendly Family of the Peoples of the USSR', printed in Kalinin City (now Tver) in 1958 in an edition of 125,000. By montaging images from the costume patterns in juxtaposition with images of the nuclear power plants, the three works seek to place nuclear power in the context of the Soviet culture that produced them.

By introducing nuclear imagery into a visual context where industrial development is celebrated as an emblem of supra-national progress, the paintings might offer the possibility of a hopeful reading of the promise of nuclear energy. However, the inclusion of imagery from Chernobyl and the fact that the painted images



have been made into placards also enables them to be read as signifiers of protest against the values that produced both the nuclear power plants and nuclear state itself. Nuclear power has not gone away. Even after the Chernobyl disaster and the closure of the Lithuanian nuclear power plant at Ignalina, Belarus has built a new nuclear power plant close to the Lithuanian border at Astravets.

*Chernobyl, Ukraine*, acrylic on canvas, card and wood, 168x51x13cm, 2020

*Ignalina, Lithuania*, acrylic on canvas, card and wood, 168x51x13cm, 2020

*Astravets, Belarus*, acrylic on canvas, card and wood, 168x51x13cm, 2020

**Cecile Massart, *Particules*, 2005.**

**Video (2:33 min)**

**(CAC Video Room)**

Cécile Massart has been researching radioactive waste sites around the world for over 30 years. Her drawings, films, books and exhibitions investigate the formal aspects of brutalist architecture of the sites, exploring how this 21st century archaeological stratum is being inscribed in the landscape. By working with nuclear agencies in Belgium and France she has an in-depth understanding of the semiotic and future archaeological challenges in marking waste sites across the generations, and the need for continuing responsibility.

Filming of the cloud chamber of *Particules* was made at the Isotopolis Visitor Centre for Belgoprocess in Belgium, which teaches people about the characteristics of radiation. The cloud chamber is a sealed environment containing a super saturated vapour of water or alcohol. When a radioactive source is applied to the chamber, the ionising radiation can be seen as moving vapour trails.

Camera: Chloe Cramer, Sound: Todor Todoroff,  
Edited: Jeremie Ducrocq, Emilien Lazaron.

**Alex Ressel & Kerri Meehan,  
*Ranger Mine*, 2020.  
Panorama,  
(CAC)**

**Alex Ressel & Kerri Meehan  
*Living at Nabarlek*, 2020.  
Video (6:28 min)  
(CAC)**

**Alex Ressel & Kerri Meehan:  
*Miamia Rock*, 2020.  
Photograph  
(CAC)**

Alex Ressel and Kerri Meehan live and work in Gunbalanya in Arnhem Land, in the Northern Territory of Australia. They are working in collaboration with the local community to create artworks that explore the role of intergenerational storytelling in the culturally rich uranium landscapes of the region. Indigenous people in Arnhem Land and Kakadu have to deal with the legacy of former uranium mines on their land, as well as contemporary prospectors visiting in the dry season. Uranium mining is rarely included in the nuclear discourses of the global north (Hecht), and these works seek to make visible deep time material traces along with the knowledge of the landscape passed on through generations over thousands of years.

The vast landscape of the *Ranger Mine* in the Northern Territory of Australia is captured in this

panoramic composite photograph. The uranium mining complex stretches as far as the eye can see, and has contaminated the region for four decades to produce Uranium for Asia, Europe and North America.

In the Kakadu National Park, Ressel and Meehan collaborated with Jill Nganjmirra to make the film *Living at Nabarlek* recounting her experience of growing up at the Nabarlek uranium mining camp. Her story describes the devastating impact of the mine on the social structures and cultural traditions of her community.

Sickness Country is an area within Kakadu National Park that has been known as a sacred and dangerous place for thousands of years. According to ancient and living stories, disturbing the earth, removing rocks, camping, harvesting crops or getting cut in Sickness Country could have grave consequences. *Bula Djang* paintings by different generations of the Garlangarr family are also presented in this exhibition, demonstrating how knowledge of the landscape is passed onto future generations. (See *Garlanger* above). The photograph of the *Miamia Rock* art depicts a person sick with Miamia, with swollen joints from disturbing the land, which was mined for Uranium in the 1950s. The music video, *Bininj Birriyoy* (2020) shown in the Video Room tells the story of taking children to see this rock art in the school holidays.

**Alex Ressel & Kerri Meehan,**

***Bininj Birriyoy, 2020.***

**Video (3:34 min)**

**(CAC Video Room)**

This music video consists of three visual layers, a photogrammetry model of the first rock art gallery on Injalak Hill, Australia; a video screen in the shape of a hand; and drone footage of the hill and the country immediately around Gunbalanya, providing a broader environmental context to the rock art and music.

Photogrammetry is used by different actors in Arnhem Land such as archaeologists who use it to record rock art sites and create highly accurate digital models with surface textures. Natural resource companies also use photogrammetry to monitor the volume of their stockpiles. One of the paintings visible at the back of the cave is a decorated hand stencil. Hand stencils can be found in rock art galleries all over the world, they're almost like a photograph in their indexicality. Ochre is blown from the artist's mouth around their hand and forearm which stencils the creator's body into the rock. An archaeologist who has spent many years working in western Arnhem Land told the artists that in the early period of colonisation, Europeans brought contagious diseases (among other things) which devastated the Indigenous population and traditional ways of life, and these types of hand stencil were being made in great numbers at the time. She considers them as

magic paintings that call upon the powers of the ancestors to help in this desperate time.

Inside the digital model of the rock art gallery is a hand which mirrors the rock art painting, and operates as a screen for videos of the Injalak Band performing and rehearsing Bininj Birriyoy; a song originally written in the 1990s by Mimih Band. The song is about taking children out 'on country' to see rock art, learn stories and experience for themselves how their ancestors would have lived, not that long ago. The song is not a Dreamtime story itself, but references the importance of traditional cultural knowledge being passed onto future generations. The artists chose to use the shape of a hand to help suggest the manifestation of ancestral power to which the song alludes. Hands are a profound presence in western Arnhem Land rock art, they're the index of direct (and sometimes specifically known) ancestors, waving through time to their great great grandchildren.

**Deimantas Narkevičius,**

***The Dud Effect*, 2008.**

**16mm to video**

**(CAC)**

Cold War fear of nuclear attacks is revisited by Deimantas Narkevicius, in *The Dud Effect*, staging the firing of a missile by a solitary soldier on the site of a real Soviet launch base installed in Lithuania. The voice of the Russian soldier (who served on a military base in Lithuania in real life) creates an anxious atmosphere in which the execution of such a destructive and unthinkable act becomes possible.

A dud is a bomb that does not explode. During the Cold War category R12 nuclear missiles were stationed in Lithuania, and aimed at the West. Narkevičius combines archive photo material with new film of the now semi-decrepit missile base and its enormous underground silos. The main protagonist, Evgeny Terentiev, is a former officer who served at a military base in Lithuania, like the one shown in the film. He demonstrates the firing of an R12 nuclear missile, following the exact sequence of commands as he recalls it. *The Dud Effect* thus shows a very precise fictional recreation of the firing of a missile, reflecting on the remains of the massive missile base set within the Lithuanian landscape.

**Yelena Popova,  
*One Too Many*, 2018.  
Etching  
(CAC)**

In *One Too Many* Yelena Popova refers to the way in which naturally occurring uranium is used as a fuel in a reactor to artificially create plutonium for nuclear weapons. Through fission in a reactor, Uranium 238 loses a neutron and is transformed into the highly radioactive Plutonium 239. The print overlays the atomic structure of each isotope, and the extra atom can be seen in the centre of the image. The half life of plutonium can last up to 373,000 years, exceeding the history of human civilisation. The image is also the basis for the artist's *Townlets* work, which is displayed in the Energy & Technology Museum.



**Yelena Popova,  
*Visaginas Parquet RMBK-1500, 2020.*  
Sculpture  
(CAC)**

This sculpture is modelled on the design of the Ignalina reactor floor, and inspired by the warm materials of Soviet parquet flooring commonly found throughout Visaginas. Popova grew up in the town of Ozyorsk, one of the Soviet Union's secret nuclear towns, and remembers this wooden flooring in the apartments and public buildings. The mid-century architecture of the town continues to influence Popova's aesthetic style, aligning nuclear science with the modernist project, mixed with personal family memories.

Research for the project was supported by Oksana Denisenko.

**Yelena Popova,  
*Townlet*, 2018,  
foam sculpture  
(ETM)**

***Townlet I and II*, 2019.  
Etching  
(ETM)**

Yelena Popova's *Townlets* (2018–19) is an artwork, a performance, and a game that stages the dynamics of creation and destruction that defines human history. The sculpture-game is an adaptation of the medieval Russian folk game of *Gorodki*, in which players build structures and then attempt to topple them with a wooden puck. The design of the *Townlet* game refers to the visual culture of nuclear technology: when flat-packed, the work resembles the schematic drawing of an atom of plutonium, and its colour scheme is appropriated from the international warning symbol for radiation. The *Townlet* prints propose different layouts for the sculpture, and more clearly allude to the atomic structure of plutonium. For Popova the non-competitive game is important for rethinking social structures of competition that have led the nuclear arms race, transforming the diagram of the most deadly element on earth into something positive and creative.

Museum staff have been invited to create new arrangements of the sculpture and post them on instagram tagged @yelena\_popova

**Yelena Popova,  
*Keepsafe I, and II, 2020.*  
Tapestries  
(CAC)**

***Ripple marked Radiance after Hertha Ayrton,*  
2019.  
Tapestry  
(CAC)**

Popova's tapestries *Keepsafe I and II*, weave propositions for entombing reactor cores in a mausoleum, an architecture of protective shielding and historical preservation. The third tapestry *Ripple marked Radiance (after Hertha Ayrton)*, is an homage to the first female member of the Institute for Electrical Engineers in Britain. Ayrton (1854–1923) was an engineer, physicist, and suffragette, whose essay 'The Electric Arc' secured her admission to the Institute in 1889. The tapestry celebrates the important role that women have made to science and the understanding of electricity.

**Yelena Popova,  
*Wylfa and Sizewell, Suffolk, 2020.*  
Paintings from the *Petrochemical Series*  
(CAC)**

In Britain, Yelena Popova collects earth in the vicinity of nuclear power stations in England to create pigments for her *Petrochemical* series of paintings. Here you can see soil distemper on canvas from *Wylfa, Anglesey* and *Sizewell, Suffolk*. The paintings employ her signature modernist forms influenced by utopian constructivism.

**Lisi Raskin,  
*Ignalina Heights*, 2003/2020.  
Promotional material  
(CAC)**

Lisi Raskin's contribution is a small-scale replica of the promotional pavilion she presented at the CAC in 2003 as part of the exhibition *24/7 Wilno-Nueva York: visą parą*. For this exhibition, Raskin has created a new poster for 'Ignalina Heights', a speculative real estate agency that promotes future property on the grounds of the decommissioned Ignalina Nuclear Power Plant. On closer observation Raskin's photograph of the plant captures an ominous swell in the lake used for cooling water for the plant. The spiral of water is reminiscent of Robert Smithson's *Spiral Jetty*, creating a mythology of an invisible landmark. Yet Raskin's landmark can only be sensed by the radionuclides which probably lie in the heavy metals at the bottom of the lake. Back in 2003, Lithuania was not yet a member of the EU but the plan for decommissioning the power plant had been set in place; in 2020, there is still no such real-estate agency nor any residential properties on the site of the plant, yet the INPP is being slowly dismantled, bringing us a step closer to Raskin's satirical vision.

**Nick Crowe & Ian Rawlinson,**

***Courageous*, 2016.**

**Video (7:50 min)**

**(ETM)**

Nick Crowe and Ian Rawlinson filmed aboard the decommissioned British nuclear submarine, HMS Courageous. The Submarine Dismantling Project includes 27 decommissioned nuclear powered submarines and their reactors that are currently laid up in Rosyth in Scotland and Devonport, Plymouth on the Southwest coast of England. HMS Courageous is the only submarine of its class to be preserved as a museum, and is accessible to the public by arrangement with the naval yard. The artists' film explores the submarine as an object or body, moving beyond the familiar historical narratives of functionality and social context. Instead the film captures the unknown 'self' of the submarine, breathing, thinking, listening, a space of being that is difficult to grasp. The film considers the submarine as an emblem of hearing and silence, an icon through which to consider the unknowability of the nuclear.

Director of Photography: Martin Testar. Runner: Paul Hillon. Commissioned by Arts Catalyst. With thanks to Mark Portman, Alan Jones, Devonport Naval Heritage Centre, Submarine Dismantling Project.

**Eglė Rindzevičiūtė,  
*Archive/Simulator, 2020.*  
Foldable text object  
(CAC)**

Rindzevičiūtė's short texts consider the importance of the simulator of the Ignalina reactor control room, as an archive, whose social, political and technical history unfold like origami. The simulator is a twin of the reactor control room, built to train operators, and this project highlights its importance within Lithuanian nuclear heritage. She writes: 'The simulator of Ignalina Nuclear Power Plant's RBMK reactor is not just a piece of equipment that has become irrelevant with the decommissioning of the reactors: it is a form of an archive, a cultural monument that materialises a social attempt to know, predict and temper one of the most complex physical processes in the universe'. On the reverse page, Rindzevičiūtė has compiled an important technical history of the simulator and notes that 'the full scope training simulator of unit 2, the Ignalina RBMK 1500 reactor, was installed in 1997'.

Alongside the text, Rindzevičiūtė presents a live webcam from the simulator, which is housed near to the city of Visaginas. In the background you might see the Finger Pointing Worker, a performance to camera by a worker at Fukushima following the meltdown. Here the loop of remote surveillance intersects between Ignalina and Fukushima across time and space.

**Susan Schuppli,  
*Delay Decay, 2016.*  
Pravda Newspapers on Duratrans, Video  
(CAC)**

Today if you enter the date 26 April 1986 into a search engine it will refer you to the nuclear accident at Chernobyl. But when Susan Schuppli searched for the first public announcement of the accident, she noted a time lag. Her research led her to the microfiche of the Soviet newspapers *Pravda* and *Izvestia*. They reported the major nuclear accident 19 days after it had taken place. Although an orbiting American satellite took night-time images of the reactor explosion and meteorologists and scientists recorded extraordinarily high levels of radioactivity within days of the meltdown in Sweden and Germany, this information was not linked to Chernobyl for almost three weeks since Mikhail Gorbachev and the Central Committee largely withheld news of the disaster. By severely underplaying the gravity of the situation, tragically delaying reports that a substantial nuclear explosion had taken place and downplaying the potential for contamination, a tragedy of far greater consequences ensued. Schuppli's installation comprises a video recording of Gorbachev's television announcement of the event accompanied by 19 front covers of *Pravda* that have been re-photographed for this exhibition to create a new high resolution archive of the time delay between the event and its public acknowledgment and visibility.



**Susan Schuppli,  
*Trace Evidence*, 2016.  
Video (53 min)  
(CAC Video Room and ETM)**

*Trace Evidence* investigates how the material evidence of radiation is sensed at remote distances from the release of radioactive isotopes into the biosphere that occurs during a nuclear accident. Exploring the radiological landscapes of Chernobyl (Ukraine), Forsmark (Sweden), and Fukushima (Japan), the film explores an expanded understanding of the material traces of events at an environmental scale. Landscapes and ecological matter are transformed into transmitters of the encoded histories of nuclear events. Through a close technical understanding of events within the landscape, the film uses theoretical and aesthetic domains to trace evidence of airborne contaminants and the technical means by which they are captured, registered and tracked. The film also considers the crucial role that institutions play in making visible such radiological events.

*Trace Evidence* is realised by Schuppli with a soundscape created by Philippe Ciompi. Schuppli's essay 'Trace Evidence: A Nuclear Trilogy' is published in *The Nuclear Culture Source Book*, edited by Ele Carpenter, 2016, p37–42.

**Augustas Serapinas,  
*Yelena and Vera, 2020.*  
Knitwear  
(ETM & CAC)**

This socially engaged project is named after two former workers of the Ignalina Nuclear Power Plant, Yelena and Vera. Having participated in the construction of the plant and taken other jobs at the plant, they are now retired and spend much of their time knitting. They contributed the knitwear worn by the exhibition attendants, rendering them, in the artist's words, as 'somewhat more visible and more part of the exhibition' and referring to the often unacknowledged role of the workforce in any given infrastructure. Serapinas often creates work exploring the inherent invisibility of neighbours. This project addresses an important issue of women's visibility in patriarchal and highly masculine soviet and postsoviet atomic culture.

**Emilija Škarnulytė,  
*Ungrounded Archive*, 2020.  
Video  
(ETM & CAC)**

*Ungrounded Archive*, a film by Emilija Škarnulytė, explores the burial of waste as heritage and waste as knowledge. If archives are the records of our lives, then radioactive waste can be understood as the archival evidence of human activity on the planet because the man-made isotopes will probably outlast longer than the human race itself. The process of burying anthropogenic radionuclides untethers them from their surface location, disconnecting them from their geo-political and cultural context. Then the knowledge of the results of splitting atoms becomes ungrounded in place, and lost in deep geologic strata.

**Himali Singh Soin,  
*Static Range*, 2020.**

**Audio transmission, letter, print  
(ETM)**

*Static Range* is based on a letter from a plutonium-powered spy device to Nanda Devi, meaning 'the goddess of happiness', the patron mountain of the Indian Himalayas. During the cold war in 1965, the CIA collaborated with the Indian Intelligence Bureau to site a nuclear-powered surveillance device on the mountain to intercept Chinese nuclear missile data. The mountain goddess, a temperamental revolutionary, whipped up an immense tempest, and the expedition turned around. The plutonium powered device was stashed on the mountain with the intention of recovering it the following season, however it has yet to be found, and 'could still be ticking somewhere'. Since 1965, the plutonium-powered generator has potentially been leaking radioactivity into the mountain. Mysterious cases of cancer abound in the surrounding villages, and the mountain has since been closed to subsequent expeditions.

In 1978, during the brief period in which the sanctuary was reopened, the artist's father, a mountaineer, trekked there with an expedition that took a photograph of Nanda Devi, which was made into a postage stamp by the Indian Telegraph services. Conflating these public and personal histories, *Static Range* is a letter from the spy device to the mountain imagining that

the film, the stamp, his body, and therefore the artist's body, her words, her letters, were all exposed to radiation, resplendent in the nuclear sublime.

The music, entirely analogue, references overlaps and continuities with the local music of the Kumaon and Garhwal region in which Nanda Devi is located and the Uyghurs from Xinjiang, China, where the Lop Nur nuclear research facility is located, most notably the shared use of paired kettle drums (nagada). The accompanying soundscape is played on these drums, handmade for this project with beaten copper and goat hide in the village of Almora. Following the work's underlying theme of transmission and interception, we may speculate that the American spy device, a giant radio antennae intercepting signals sent by Chinese ballistic missiles to their ground stations for location and coordinates, also picked up snippets of Uyghur rhythms, possibly clandestine expressions of cultural identity of this severely oppressed and censored Muslim minority. It incorporates acoustic faults, interferences and nuclear mutations.

The full letter and audio is also being streamed for the CC World exhibition at HKW:  
<https://ccworld.hkw.de/static-range/>

**Kota Takeuchi,  
*Evidens.otf*, 2020.  
Photographs  
(ETM)**

Kota Takeuchi worked as a security guard in the designated 'difficult-to-return zone' in Fukushima prefecture during 2019 and 2020. In the summer he heard the voices of the cicada, and in the winter he gazed up at the stars. Every day, from dawn till midnight, he waved a red traffic baton on the street in the town where no one lived. Takeuchi used the glowing LED baton to create a photographic work using light-trail photography, drawing letters in the air and using a slow shutter speed. He then edited the photographic letters into a digital typeface. The newly created font provides the letters and symbols from western keyboards, translating this Japanese nuclear landscape into a western font for international use.

The work is material evidence of performative labour. It is an historical record of an extraordinary moment in time, where a font was created by an unseen performance of a security guard inside the Fukushima exclusion zone.

**Mark Aerial Waller,  
*Midwatch*, 1999/2001.  
Infrared video to DigiBeta (7min)  
(ETM)**

*Midwatch* is set aboard a battleship recently returned from operation Mosaic; the 1956 British nuclear bomb test around Montebello in the Indian Ocean. A mutineer from the tests and a time travelling caterer from Nelson's fleet are trapped in the galley of the ship. A battle of wills ensues between the two, as Nelson's geographic progress to power is set against the nuclear bomb tests of the 1950s; a collision between a barely remembered Imperial omnipotence and a barely understood technology of nuclear manipulation. The claustrophobic film was shot in total darkness using infrared equipment. The characters, played by Steve Evets and Mark E. Smith of the band The Fall, act out their frustrations with each other in a comic rambling exchange, and in the darkness, any sense of ego is removed, allowing a more profoundly intense personality to seep out. Excerpts from Mark Aerial Waller's interview with two veterans of operation mosaic is published in *The Nuclear Culture Source Book*, edited by Ele Carpenter (2016) p110.

**Mark Aerial Waller,**

***Glow Boys*, 1998.**

**16mm film to video (14 min)**

**(CAC Video Room)**

In *Glow Boys* the disaster is brooding, waiting to happen. The film takes place in a British nuclear power plant in the company of contract workers who are also known as 'glow boys'. This term was an in-joke at the Three Mile Island reactor during the clean up operation in the late 1970s. Due to a shortage of contractors the same people would return with new identities. The glow boys or 'sponges' would pick up increasing levels of radiation as well as more pay, leading good but short lives. The film and its companion *Interview with a Nuclear Contract Worker* is based on extensive research, visits to reactors across Britain, and talks with shift workers, locals and nuclear scientists. The musical score is by contemporary atonal composer Paul Clark and includes a specially commissioned musical performance by Mark E. Smith of The Fall.



**Mark Aerial Waller,  
*Interview With a Nuclear Contract Worker,*  
1999.**

**Video (9 min)  
(CAC Video Room)**

The film records an interview with an extra from *Glow Boys*. He weaves a complex narration of his experience on the film set, shifting between his work in the reactor and his analysis of the 'nuclear racket'. Constantly in a state of flux, his conversation shifts from the film time, to the moment of being filmed, to his personal time away from the set. He is a temporal nomad, unconstrained by the controls of temporal designation. 'If you think about it, we are, in some way, more celestial, almost divinely appointed. It couldn't happen without us'.

**Peter Watkins,**

***The Journey*, 1987.**

**16 mm to video (14hr 33min, in 19 Chapters)  
(CAC Video Room)**

*The Journey* was conceived in nineteen chapters, each lasting approximately forty five minutes and concluding with a question mark, designed to be screened by community groups, adult education classes and in small public screenings. Watkins worked collaboratively with activist groups from Sweden, Canada, Australia, New Zealand, Soviet Union, Mexico, Japan, Scotland, Polynesia, Mozambique, Denmark, France, Norway, West Germany and USA, to make the film. *The Journey* is an astonishing epic that succeeds in expanding documentary powers of polemic, reflexivity and inspiration. Support groups debate the peace process, families discuss their fears of nuclear threat and the cost of world hunger, survivors recall the bombings of Hiroshima and Nagasaki while Watkins analyses the role played by mainstream media in normalising conflict. In 1990, Watkins and his collaborator Vida Urbanavicius completed the 339 page *Users' Guide* that proposed ways of utilising *The Journey* as one possible 'model of an alternative future relationship' between the public and mass media.

Please see additional screening notes and essay for *The Journey*, written by Kodwo Eshun.

**Andrew Weir,  
*Pazu-goo Museum Index*, 2019.  
Acrylic coated in polyamide in vitrine  
(ETM)**

**Andrew Weir,  
*Pazu-goo for Deep Storage*, 2018.  
SLA Resin  
(CAC)**

**Andrew Weir,  
*Pazu-goo Double Flight Diagram*, 2020.  
Poster  
(CAC)**

The philosophical challenges of marking radioactive waste sites for future generations are investigated by Andrew Weir through his *Pazu-goo* series. At the CAC the *Pazu-goo Double Flight Diagram* illustrates how this figure of speculative fiction, mutated in collaborative workshops, can be buried in a Geological Repository and be preserved as an indexical reference in a museum collection. Prototypes of these objects are presented in the exhibition: *The Pazu-goo for Deep Storage* shown at the CAC is made from SLA Resin designed to be buried inside a waste container for future archeologists to discover in thousands of years; while the *Pazu-goo Museum Index*, shown at the ETM is made from acrylic and proposed for a museum collection, as an archive of the artwork and the waste it references.

Pazu-goo is the name of a constellation of artworks proposed as future markers for deep geological repository sites for very long-term storage of radioactive waste. The work takes its name from Pazuzu, the Babylonian-Assyrian demon of dust and contagion, combined with 'gooey' reformulation of museum objects that form its composite body. The project is based on the search for cultural forms that can communicate ideas across hundreds of generations. Religious and secular belief systems are a significant part of the debate about nuclear semiotics and how to communicate important knowledge into the deep future. Weir's project creates a thread of digital mutation through replicating the figure of Pazuzu who warns against dangers as intangible as dust and viruses, highlighting the invisibility and mutating force of radiation.

In his essay on 'Deep Decay' Weir writes that the notion of a site marker to indicate the location of underground storage of radioactive waste is 'premised on the strangeness of the idea that waste could just be hidden away in a passive "Earth", separated from an unaffected "humanity"'. In this way the repository marker 'makes the implausible claim of containing a specific site and duration, proposing to mark a barrier that can't really exist'. Weir explains how Pazu-goo is a parasite on local sites 'becoming an "anti-marker"' focusing on 'leakage, non-containment and the speculative potential of future transformations of humans in dynamic

relation and alliance with other entities across scales. This is practised not as metaphor or sign, but through its own performative materiality, drifting from dump to sea, navigating from local sites towards a universal ungrounding current of deep time'. A digital model for 3D printing of Pazu-goo is featured in *The Nuclear Culture Source Book*, edited by Ele Carpenter (2016), p182--3.

Andy Weir. Deep Decay: Into Diachronic Polychromatic Material Fictions. Available at: <https://www.z33.be/artikel/deep-decay/>

***Splitting the Atom* was initiated by Eglė Rindzevičiūtė as a parallel project to the UK Arts and Humanities Research Council networking project 'Nuclear Cultural Heritage: From Knowledge to Practice'. The network's partner project, 'Atomic Heritage Goes Critical', led by Anna Storm, will organise an international scientific conference on histories and cultures of atomic power in Vilnius and Ignalina in 2021.**

**The project has been developed by Virginija Januškevičiūtė and the Contemporary Art Centre in collaboration with the Energy and Technology Museum and the Nuclear Culture Research Group led by Ele Carpenter.**

**The essay 'Splitting the Atom, Creating Trust' by Paul Josephson (Colby College), Tatiana Kasperski (Pompeu Fabra University), Eglė Rindzevičiūtė (Kingston University London), and Andrei Stsiapanau (Vytautas Magnus University) was commissioned as part of the project and published in collaboration with Echogonewrong.com and Artnews.lt.**

**Curators:**

**Ele Carpenter and Virginija Januškevičiūtė**

**Exhibition architecture:**

**Povilas Marozas**

**Graphic design:**

**Vytautas Volbekas**

**For more details about the exhibition and daily film screenings please see the detailed exhibition guide, which you can download from both the Contemporary Art Centre's website ([cac.lt](http://cac.lt)) and the project microsite [splittingtheatom.cc](http://splittingtheatom.cc), as well as the CAC Reading Room.**

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