

## **Nuclear Humanities: An Intensive Workshop**

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Consultation by appointment only.

### **COURSE DESCRIPTION**

A world empty of nuclear weapons eludes us. State-led progress on the road to nuclear abolition has historically been slow, in part because the politico-economic forces driving the modernisation programmes of nuclear weapons states continue unabated. What little hope there remains for achieving a nuclear-weapon-free world must therefore arise out of global civil society. For this, traditional approaches involving trust- and capacity-building initiatives would be enhanced by the alternative insights and understandings about the problem of nuclear harm that can only be derived from the humanities, and in particular environmental philosophy, dialogue, ethics, and the creative arts. This O'Donnell Visiting Educators Program in the Nuclear Humanities—to be held September 24-28—enables participants to explore several such alternative pathways to nuclear disarmament, and to consider the possibility of creating one of their own. Geared towards students in the liberal arts the workshops are intended to supplement existing degree programmes in politics, philosophy, history, art, literature, economics, environmental humanities, religion, physics, film and media, gender, anthropology, non-Western thought, as well as race and ethnicity.

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*“Nuclear explosions are beautiful’, she said. ‘At a distance.’” — [Garbo Laughs](#)*

*“Wherever nuclear events occur, photographers are present. They are there not only to record what happens, but also to assist in the production of what happens.” — [John O'Brian](#)*

*“If ever the world is blown to bits by some superbomb, there will be those who will watch the spectacle to the last minute, without fear, disinterestedly and with detachment. I do not mean that there is lack of interest in this disinterestedness or lack of emotion in this detachment. Quite the contrary. But the self is no longer important to the observer; it is absorbed into the objects with which it is concerned.” — [J. Glenn Gray](#)*

*“Nuclear weaponry depends, more than any weaponry in the past, it seems, upon structures of information and communication, structures of language, including non-vocalizable language, structures of codes and graphic decoding.” — [Jacques Derrida](#)*

## **SUMMARY OF PROGRAM**

The program will take place over five days, with participation in the half-day field trip on Day 4 encouraged, but not expected. The session on Day 3 is open to the public, and commemorates the U.N. International Day for the Total Elimination of Nuclear Weapons.

### **Day 1: History, Law and Politics: Charting old roads**

*13:30-17:00*

*Saturday, September 24, 2016*

*Maxey Building W42, Whitman College, Walla Walla, WA*

### **Day 2: Ethics, Economics and Communication: Exploring Alternative Pathways**

*13:30-17:00*

*Sunday, September 25, 2016*

*Maxey Building W42, Whitman College, Walla Walla, WA*

### **Day 3: Community and Visual Arts: Commemorating Nuclear Fear**

*12:00-17:00 (open to the public)*

*Monday, September 26, 2016*

*Maxey Museum for Man and Nature, Whitman College, Walla Walla, WA*

### **Day 4: Experiential Fieldwork: An anthropology of Hanford B-reactor**

*06:00-13:30 (optional)*

*Tuesday, September 27, 2016*

*B-Reactor Tour HQ, 2000 Logston Boulevard, Richland, WA*

### **Day 5: Critical Thinking: Socialising the Nuclear Humanities**

*17:30-19:30 (food provided)*

*Wednesday, September 28, 2016*

*Glover Alston Center, Whitman College, Walla Walla, WA*

## **TOPIC AND TEXT LIST**

This intensive workshop will take place over five days, with participation in the half-day field trip on Day 4 encouraged, but not expected. The session on Day 3 is open to the public, and commemorates the U.N. International Day for the Total Elimination of Nuclear Weapons.

In 2016 this program was sponsored by the Ashton J. and Virginia Graham O'Donnell Endowed Chair in Global Studies at Whitman College.

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### **Day 1: History, Law and Politics: Charting old roads**

**13:30-17:00**

**Saturday, September 24, 2016**

**Maxey Building W42, Whitman College, Walla Walla, WA**

The program for Day 1 lays the groundwork for all the sessions that follow it. First, we discuss what makes “nuclear weapons” stand apart from other methods and means of harm, and how the production and decommissioning of nuclear weapons never truly leaves the planet “denuclearised” when taken from an ecological point-of-view. Second, participants will be tasked with visualising nuclear harm, thereby equipping themselves with materials to communicate the problem of nuclear pain, suffering and vulnerability to others. Third, we do a crash course in contemporary nuclear politics and policy, with an emphasis on international treaties and agreements limiting their spread and use. Following these three opening sessions, it is expected that participants will be in a better position to research, evaluate and devise alternative pathways to nuclear disarmament of their own.

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**13:30-14:15**

### ***What is “nuclear” about nuclear weapons?***

In this introductory session we examine the different forms of “being nuclear” such as extraction, weaponisation, possession, deterrence, and waste. Deliberately, this is delivered in the form of a provocation, rather than a “lecture”. We ask: What is “nuclear” about *nuclear* weapons? Does possession of nuclear weapons constitute “use”?

**14:15-14:30**

***Break***

**14:30-16:00**

***Visualising nuclear harm***

This interactive session has participants engage and assemble visual media. Doing so is intended to prompt critical thinking about nuclear weapons and war, perhaps for the first time.

Participants are tasked with using the internet (and their imaginations) to curate (or create) five images or graphics in response to the following three questions:

1. can you depict the (il)logic of nuclear deterrence? (one image)
2. how do nuclear harms violate bodies and/or biospheres? (one image)
3. what does nuclear pain, suffering and vulnerability look and/or feel like? (three images)

After 45 minutes of saving material to a shared “Nuclear Humanities” folder on Dropbox, the wider group will discuss and evaluate the images selected for how visualising nuclear harm.

Following this session participants will have a more thorough understanding of both the arguments for and against nuclear weapons, as well as their perceived and actual effects. In so doing, each participant will be equipped with materials to communicate the problem of nuclear pain, suffering and vulnerability to others.

**16:00-16:15**

***Break***

**16:15-17:00**

***Can nuclear weapons be “controlled”?***

This session provides participants with a foundational understanding of contemporary nuclear politics and policy, with an emphasis on international treaties and agreements limiting their spread and use. For this, various case studies involving Australia, India, Iran, and the United States are developed, and the nuclear-weapon-free zone concept is introduced for the first time. Crucially, the technical, economic, political, social, legal and moral dimensions are each explored. We ask: is the source of the problem in “Western” morality?

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***Preparatory text/s***

Adam Curtis (dir.), [\*To the Brink of Eternity: Pandora’s Box Episode 2\*](#), BBC, 1992. [45 minutes]

Carol Cohn, '[Sex and death in the rational world of defence intellectuals](#)', *Signs*, Vol.12 No.4, 1987, pp.687–718.

***Alternative text/s***

Jacques Derrida, '[No Apocalypse, Not Now \(Full Speed Ahead, Seven Missiles, Seven Missives\)](#)', *Diacritics*, Vol.14 No.2, 1984, 20-31.

Jim Hershberg, '[Anatomy of a Controversy: Anatoly F. Dobrynin's Meeting with Robert F. Kennedy: Saturday, October 27, 1962](#)', *The Cold War International History Project Bulletin*, Issue 5, Spring 1995.

Masuji Ibuse, *Black Rain*, Kodansha International, 1969.

John F. Kennedy, '[Audio clips from the Kennedy White House](#)', National Security Archive at George Washington University, 2002.

Mori Masaki, *Barefoot Gen: Part One and Two*, Geneon, 1983. [Based on the Manga by Keiji Nakazawa.]

Barack Obama, '[Prague Speech](#)', Hradcany Square, Prague, Czech Republic, April 5, 2009. [[Full text](#)]

Ron Rosenbaum, '[The Human Button](#)', *BBC Radio*, December 2008. [18 minutes]

George P. Schultz, William J. Perry, Kissinger Henry A., and Sam Nunn, '[A world free of nuclear weapons](#)', *Wall Street Journal*, January 4, 2007, and '[Deterrence in the Age of Nuclear Proliferation](#)', *Wall Street Journal*, March 7, 2011.

## **Day 2: Ethics, Economics and Communication: Exploring alternative pathways**

**13:30-17:00**

**Sunday, September 25, 2016**

**Maxey Building W42, Whitman College, Walla Walla, WA**

In Day 2 we explore alternative pathways towards a world empty of nuclear weapons. The three pathways chosen to focus our explorations variously deploy strategies drawn from dialogue, divestment, and the creative arts—although there are others that you are free to explore also (e.g. [gender](#), and [queer studies](#), [the uranium political economy](#), [music](#), etc.). At the beginning of each session smaller groups of participants are provided with “packets” of information that detail particular aspects of a dilemma. 1 hour and 45 minutes is then provided for each smaller group to “respond” to it. As in any jig-saw exercise, as each smaller group reports their findings back to the wider group, the broader puzzle is complete.

Which alternative pathway(s) to nuclear-free worlds, if any, do *you* want to explore?

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### ***Scenario 1: Inter-communal Dialogue***

You have visited the far-future. The world of the future is empty of nuclear weapons, and from what you saw and heard people are living in relative peace and harmony, not only with each other but also the non-human world. You form the view that this is because the doctrine of nuclear deterrence no longer holds. When you return to the present day you feel strongly about achieving a world empty of nuclear weapons. The question is: how do you enlighten others to your new way of thinking?

#### ***Preparatory text/s***

Shampa Biswas, '[Decolonizing the Nuclear World: Can the Subaltern Speak?](#)', *Nuclear Desire: Power and the Postcolonial Nuclear Order*, University of Minnesota Press, 2014, 171-99.

David Krieger and Richard Falk, '[Introduction](#)', *The Path to Zero: Dialogues on Nuclear Dangers*, Paradigm Publishers, 2012, xv-xvi.

N.A.J. Taylor, Joseph A. Camilleri, and Michael Hamel-Green, '[Dialogue on Middle East Biological, Nuclear, and Chemical Weapons Disarmament Constraints and Opportunities](#)', *Alternatives: Global, Local, Political*, Vol.38 Is.1, 2013, 78–98.

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### ***Scenario 2: Divestment and Engagement***

You have setup a meeting with your bank manager. But when you arrive for the meeting you find the manager standing in the street talking to a good number of people who are picketing the front door. You discover for the first time that your bank is financing nuclear weapons producers, both in the United States and overseas. The question is: what do you do next?

### ***Preparatory text/s***

[‘Responsible Investment Made Easy’](#), Future of Life Institute, 2016.

International Campaign to Abolish Nuclear Weapons (ICAN), [‘Don’t Bank on the Bomb: A Global Report on the Financing of Nuclear Weapons Producers’](#), November 2015, pp.3-12.

N.A.J. Taylor, [‘A rather delicious paradox: Social responsibility and the manufacture of armaments’](#), in Ralph Tench, William Sun and Brian Jones (eds.) *Corporate Social Irresponsibility: A Challenging Concept*, Emerald, U.K.: West Hampshire, November 2012, pp.43-62.

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### ***Scenario 3: Far-Future Communication***

The incoming President announces that s/he has agreed to unilaterally disarm America’s nuclear arsenal. You have been appointed by the federal government to communicate the presence of the resultant (and existing) high-level radioactive nuclear waste into the far-future. You have been made aware that this will involve curating both scientific and aesthetic materials, and that these future beings may not speak the languages or recognise the symbols that are widely-used today (i.e. for radioactivity). The question is: what materials make it onto your final list?

### ***Preparatory text/s***

[‘WIPP Exhibit to 12,000 A.D.’](#), U.S. Department of Energy, 1984.

[‘How will future generations be warned?’](#), U.S. Department of Energy, Carlsbad Field Office, Waste Isolation Pilot Plant, January 2003.

Andrew Moisey, [‘Considering the Desire to Mark Our Buried Nuclear Waste: Into Eternity and the Waste Isolation Pilot Plant’](#), *Qui Parle: Critical Humanities and Social Sciences*, Vol.20 Is.2, 2012, 101-25.

**Day 3: Community and Visual Arts: Commemorating nuclear fear**

**12:00-17:00 (open to the public)**

**Monday, September 26, 2016**

**Maxey Museum for Man and Nature, Whitman College, Walla Walla, WA**

To commemorate the [U.N. International Day for the Total Elimination of Nuclear Weapons](#), three short-films will be screened on-demand that examine the continued pain, suffering and vulnerability of atomic survivor communities in Australia.

A selection of photographic and ceramic works by N.A.J. Taylor will be displayed alongside the screenings. The exhibition, [Nuclear Deferral](#), will remain open from Monday, September 26, through Wednesday, September 28, from 12:00-17:00.

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**12:00-17:00**

***On-demand film screenings***

[Collisions](#) (2016) [18 minutes] employs virtual reality technology to set up an encounter between the viewer and Nyarri Morgan, of the Martu tribe from remote central Australia. Morgan's first encounter with Western culture was not until the British conducted their nuclear tests in the remote Western Australian Pilbara desert in the 1950s.

[10 Minutes to Midnight](#) (2015) [24 minutes] and [Ngurini \(Searching\)](#) (2015) [20 minutes] are companion short films that explore the aftermath of Britain's atomic testing at Maralinga in South Australia. *10 Minutes to Midnight* integrates original digital artwork, video media, dynamic sound design, and archival footage as a means of evaluating British nuclear colonialism. *Ngurini (Searching)* is a culmination of a community-based arts project with Pitjantjatjara Anangu from Yalata and Oak Valley, who were relocated from traditional lands and the Ooldea Mission from 1952 when Britain commenced its nuclear testing program in South Australia.

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**12:00-17:00**

***Exhibition***

*Nuclear Deferral* is [an exhibition](#) of N.A.J. Taylor's photographic images from inside the world's first nuclear waste repository in remote Finland, which have been variously printed on archival paper and stoneware ceramic. The effect of the works calls into question the temporal enormity of nuclear harms, which routinely exceed 100,000 years. For instance, the Navajo think in terms



of seven generations. Many indigenous Australian cultures, in terms of 100 generations. Yet, the problem of nuclear harm persists for 30,000 generations.

### ***A thought experiment***

Ask yourselves, if you were tasked with commemorating nuclear fear, what would you do? What (if anything) do *you* fear? Where, how, and why would *you* commemorate it? Which materials or voices would *you* call upon, and which would *you* leave out?

Then ask: will *you* organise such an event next year?

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### ***Preparatory text/s***

N.A.J. Taylor, '[Curatorial statement for Nuclear Deferral and Commemorating Nuclear Fear](#)', Maxey Museum, Whitman College, Walla Walla, WA, U.S., September 26-28, 2016.

John O'Brian, '[Introduction: Through a Radioactive Lens](#)' in John O'Brian (ed.) *Camera Atomica: Photographing the Nuclear World*, Black Dog Publishing Limited, 2014, pp.10-19.

### ***Alternative text/s***

Peter Galison and Robb Moss, [Containment](#), Galison and Moss Production, 2015. [1 hour 21 minutes]

Isco Hashimoto (dir.), '[1945-1998](#)', Comprehensive Test Ban Treaty Organisation, *YouTube*, July 6, 2012. [14 minutes]

Michael Madsen (2010) (dir.), [Into Eternity: A Film for the Future](#), Films Transit International, 2010. [1 hour 15 minutes]

Nevil Shute, [On the Beach](#), Ballantine Books, New York: NY, 1957. [The book was made into a film in both [1959](#) and [2000](#), although only the 1959 version is worth appraising.]

Gregory K. Young, [Australian Atomic Confessions](#), New South Wales Film & Television Office, 2005. [50 minutes]

**Day 4: Experiential Fieldwork: An Anthropology of Hanford B-reactor**

***06:00-13:30 (optional)***

***Tuesday, September 27, 2016***

***B-Reactor Tour HQ, 2000 Logston Boulevard, Richland, WA***

Before we can adequately respond to the problem of nuclear harm, it is important we do our best to experience what it looks and feels like. We do this through fieldwork to the Hanford nuclear site located less than 40 miles from Whitman College (for those who can't attend, please take the [virtual tour](#)). Participants will be provided with a briefing pack that juxtaposes the divergent histories offered by various stakeholders, including the U.S. Departments of Energy, National Park Service, Atomic Heritage Foundation and the Consequences of Radiation Exposure Museum.

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***06:00-07:15***

***Depart Whitman College***

***07:15-07:30***

***Register at Hanford Tour HQ***

***07:30-11:30***

***Hanford site visit***

The B Reactor at Hanford was the first, large-scale plutonium production reactor in the world. The reactor produced fissile material for the Trinity test device (the world's first nuclear weapon), as well as the Fat Man bomb that was detonated over Nagasaki.

Rather than being cocooned and locked-away from public view, the facility is open to the public due in recognition of its unique historical importance. Named as a National Historic Landmark in 2008, Hanford went critical (or, started-up) in 1943 and was shut-down at the end of 1946, believing it to be of no more use. Due to Cold War tensions, the reactor was used again from 1948 through to its decommissioning in 1968. Lesser-known still is that the Hanford complex involved the eviction of more than 2000 private landowners and the displacement of native American tribes such as the Wanapum, within 90 days of notice under complete top secrecy. Contamination of the site, as well as its enactment as a National Historic Park, will ensure this displacement persists for the foreseeable future.

Taking a “critical heritage” perspective, the conflicts between contending Hanford narratives are experienced first-hand.

### ***A thought experiment***

You are encouraged to research Hanford whether you are joining the group on the field-trip or not. Please save all materials that you encounter (regardless of whether they are agreeable to you) in our shared “Hanford” Dropbox sub-folder.

To do so, you will be required to determine for yourselves whether the materials you have found constitute “dominant accounts” or more “critical heritage studies”, such as those that examine more candidly the human and ecological consequences of Hanford. You may also reclassify and comment on materials that others have found as you see fit. The difficulty you will encounter in deciding where to save the materials—how you classify them—is what makes this seemingly straight-forward task a particularly vexing thought experiment.

Remember, all forms of knowledge and mediums are welcome, including art and local culture from non-“experts”.

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### ***Preparatory text/s***

[‘Hanford, WA: Manhattan Project National Historical Park’](#), U.S. National Park Service, 2016.

Kate Brown, [‘Downwinders: The noxious legacy of the Hanford nuclear site’](#), *Aeon*, December 3, 2012.

### ***Dominant accounts***

[‘The Hanford Story’](#), U.S. Department of Energy, Office of River Protection, Richland Operations Office, 2014.

[‘Fun Facts’](#), U.S. Department of Energy, Office of River Protection, Richland Operations Office, 2016.

[‘By the Numbers: Hanford Site Cleanup’](#), U.S. Department of Energy, Office of River Protection, Richland Operations Office, 2015.

[‘Tribal Program’](#), U.S. Department of Energy, Office of River Protection, Richland Operations Office, 2016.

[‘Hanford Tours’](#), Atomic Heritage Foundation, 2008-16.

### ***Critical heritage studies***

Tom Bailie, [‘Death Mile Tour’](#), *Consequences of Radioactive Exposure Museum*, February 22, 2016.

Robert Bauman, [‘Teaching Hanford History in the Classroom and in the Field’](#), *The Public Historian*, Vol.29 Vol.4, 2007, 45-55.

Annette Cary, '[Family visits Hanford ranch lost in 1943](#)', *Tri Cities Herald*, May 11, 2009.

Steven Gilbert, Dianne Dickeman, and Nancy Dickeman, [Particles on the Wall](#), 2nd edition, Healthy World Press, Seattle, Washington, September 2012. [The exhibition is currently touring the REACH Museum at Richland, WA.]

**—Special instructions—**

***Registering with the Department of Energy and National Park Service***

**Participants must each [individually register](#) for the Manhattan Project National Historic Park B-Reactor Tour #212 leaving at 07:30. Please note that on this day we will meet at the B-Reactor Tour HQ at 2000 Logston Boulevard, Richland WA.** Please note that seats are strictly limited and controlled by the Department of Energy and the National Park Service. As at August 23, 2016, there were 39 places available which should be more than sufficient for our entire nuclear humanities group.

## **Day 5: Critical Thinking: Socialising the Nuclear Humanities**

***17:30-19:30 (food provided)***

***Wednesday, September 28, 2016***

***Glover Alston Center, Whitman College, Walla Walla, WA***

This final, evening session is designed to enable participants to critically evaluate the program in particular, and the value of the nuclear humanities in general. Please note that participation in this session will take place over a meal, and an openness to self-reflection is strongly encouraged.

Participants will discuss how they might individually and collectively educate others who may be encountering the problem of nuclear harm for the first time, regardless of their own views on this idea of nuclear weapons disarmament. For this, we will discuss how students may deploy strategies explored over the course of the program, including transforming the ordinary classroom into a space of creativity and social change, and either divesting from or engaging with, nuclear weapons producers.

This activity will also provide an opportunity for those who visited Hanford the day prior (or at an earlier time!) to share their experience with the wider group.

### ***A thought experiment***

You were born into the nuclear age. What did—and do—you expect of the Nuclear Humanities? Which of these expectations and hopes were met, and which were not? How would *you* communicate the problem of nuclear harm to others, and do intend to do so? Do you agree that alternative forms of knowledge and actions, such as environmental philosophy, dialogue, ethics, and the creative arts, is what is required to move us toward a world empty of nuclear weapons?

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### ***Preparatory text/s***

Bill Geerhart, '[The Atomic Cake Controversy](#)', *CONELRAD*, September 7, 2010.

Ira Helfand, '[Nuclear Famine: Two Billion People at Risk](#)'. A report for the International Physicians for the Prevention of Nuclear War (IPPNW), 2nd edition, November 2013.

### ***Alternative text/s***

Seth D. Baum, David C. Denkenberger, Joshua M. Pearce, Alan Robock, Richelle Winkler, [‘Resilience to global food supply catastrophes’](#), *Environment Systems and Decisions*, Vol. Is. , 2015, 301-13.

Geoff Brumfiel, [‘How To Order Pizza From A Nuclear Command Bunker’](#), *NPR: The Salt*, July 31, 2014.

Carl C. Gamertsfelder, [‘Biomedical Research at Hanford’](#), *Department of Energy Openness: Human Radiation Experiments Oral History Project*, September 1995.

International Red Cross, [‘Climate Effects of Nuclear War and Implications for Global Food Production’](#), Information Note No.2, May 2013.

John W. O’Reilly, [‘Unknown Health Hazards From Fallout’](#) and [‘Monitoring Livestock Exposure’](#), *Department of Energy Openness: Human Radiation Experiments Oral History Project*, September 1995.

Tom Vanderbilt, [‘Blast-Door Art: Cave Paintings of Nuclear Era’](#), *Design Observer*, July 2011.

### **Postscript: Encounters with nuclear space and time**

The following is an excerpt from the Prologue (“Encounters with nuclear space and time”) to the instructor’s doctoral thesis, titled *The Problem of Nuclear Harm: An Ethical Ecology*:

#### **III**

[...] In October 2016, I was invited to design and deliver a course in the emerging interdisciplinary subfield of the Nuclear Humanities to students at a prestigious liberal arts college in the United States. As part of the second day of the course I asked the students to visualise nuclear harm—prompting them to consider what it looks and feels like—in the form of a jig-saw exercise performed on their own and in smaller groups, before regrouping to present what visualisations each group had settled on with the entire class.

Specifically, I asked students to select two images that best depict “the (il)logic[ality] of nuclear deterrence” and “how nuclear harms violate bodies and/or biospheres”, in addition to three images that illustrate “what nuclear pain, suffering and vulnerability looks and/or feels like”. When the class reconvened, each of the groups reported having encountered archival photographic images of atomic survivors—or Hibakusha—of the nuclear attacks on Hiroshima and Nagasaki. These sorts of images confronted an underlying “humanity”, or concern for others, many seemed to say. Although, more interestingly still, most of the smaller groups decided it was not appropriate to share these images, even within class, to other students whom they might reasonably expect had seen the images themselves.

When I probed for reasons as to why, each group’s spokesperson—and also various other individuals—expressed a responsibility for the attacks, either as Americans or as human beings and some felt quite strongly that this burden extended to (re)distributing the images alone. Instead, some groups decided to eschew mimetic representations of the nuclear attacks that graphically depicted human suffering and instead selected artworks, comics or scenes from manga and anime, that in some way stood in for the pain, suffering and vulnerability of the Hibakusha, or atomic survivors (e.g. Group F). Others averted their gaze altogether from depictions of human suffering and towards instead the destruction of built environment, most notably the a-Bomb Dome—or Prefectural Industrial Promotion Hall—that still stands in the Hiroshima Peace Memorial Park today as a marker for human folly and a call for a future peace that we are yet to realise (e.g. Group A).

In response to the presentations, a debate between students ensued about whether the presence or absence of a human being made any difference to what nuclear harm looks and feels like—just as my string of questions had intended for them to do. Without any of the

students expressly acknowledging it, what was at stake appeared to be not merely a battle over the appropriate emotional response, or the limits of responsibility, but a philosophical puzzle concerning the moral status of—and human solidarity with—nonhuman beings and things. As the class adjourned for lunch and the chatter continued down the hall, I reflected upon how unexpectedly effective this experiential and discovery-based pedagogical exercise had been for reaching people with very little nuclear knowledge of any kind. Through visualising nuclear harms my students had grasped how vexing the task of adding ecology to the problem of nuclear harm could be.

It was not until the next day, however, as I led a small number of the students on a fieldtrip to Hanford—where they produced the plutonium for the Trinity nuclear weapons test and the Nagasaki device—in the very early hours of the morning that I realised how formative this encounter had been for them too. As we critically evaluated the ways in which the Manhattan Project was memorialized and commemorated by the government-sponsored tour guides, one of the students remarked how there was surprisingly also “very little to see, but everything to feel”.

Within days I was travelling interstate with two colleagues—my sponsor Shampa Biswas and long-time collaborator Stefanie Fishel—to the annual open-day of the Trinity nuclear test site at Alamogordo, in New Mexico. The car trip enlivened the literature I had been reading, as did the opportunity to visit what many were only just beginning to consider the birthplace—or marker—of the Anthropocene.

Located at White Sands Missile Range, a 3200-square mile military facility deep in the New Mexico desert, the site is, to paraphrase Jeffrey Masco (2006), *uncannily*nuclear. Without such knowledges, as that student had remarked a few days before, one would not sense a thing. As we waited to enter the facility in our car we joked about publishing a co-authored piece on our fieldwork as a piece of narrative nuclear politics. We discussed the possibility—and the need—to evaluate what actually experiencing the commemoration and memorialisation of the Manhattan Project for the first time might mean for the production of nuclear knowledges, but also whether the encounter had any bearing on our understanding of the nuclear Anthropocene. After all, the Trinity test was so-called, Carol Cohn (1987, 702) reminds us, because it symbolises ‘the unity of the Father, the Son, and the Holy Spirit—the male forces of Creation’.

Although that piece lays dormant in sketch form, it is clear that we each saw and felt differently. For me, the remarkable and unexpected realisation was that the claims to expertise were mediated through technology—still and motion cameras, as well as Geiger counters. Indeed, Fishel and Biswas seemingly experienced an altogether different Trinity. Fishel averted my gaze to how gendered and racialized the site was, wherein predominately white men speak (from mostly potted histories) and women listen (to a man’s highly contestable expertise). For Biswas,



the trip only confirmed the colonial order to the nuclear age that she had pointed her finger to in her earlier book, *Nuclear Desire*.

Thinking towards our book project under advanced contract with Routledge on the Nuclear Anthropocene, Fishel and I quickly became preoccupied with the encounter between humanity and ecology that continues to take place at the Trinity site. Despite our common goal, here too our perspectives violently differed: whereas Fishel began documenting signs of struggle and other entanglements within the site's bounds, as in where mammals had burrowed their way into the site, my mind drifted outside of the bounds of the site itself towards the mountain peaks and national parks that surround the facility. That is, whereas Fishel asked how the National Parks Service would manage the (re)emergence of life within the chain-linked fence, I wondered how the adjacent sites of conservation and refuge, established prior to the nuclear age, were changed by the event. Through her post-colonial stance, Biswas gently reminded us—though never explicitly—that whilst we each sought to break out of the human frame of our intellectual traditions, we were ultimately caged by our own whiteness.

Several hours later, having seen relatively very little but beginning to talk about feeling a lot, we made our way to our car, and left.

### ***Referenced works***

Shampa Biswas, *Nuclear Desire: Power and the Postcolonial Nuclear Order*, Minneapolis, U.S.: University of Minnesota Press, 2014.

Carol Cohn, 'Sex and Death in the Rational World of Defense Intellectuals'. *Signs*, Vol.12 Is.4, 1987, pp.687–718.

Joseph Masco, *The Nuclear Borderlands: The Manhattan Project in Post-Cold War New Mexico*. Princeton, U.S.: Princeton University Press, 2006.

N.A.J. Taylor, *The Problem of Nuclear Harm: An Ethical Ecology*. Thesis submitted for the degree of Doctor of Philosophy at The University of Queensland, December 2018. Examiners: Emeritus Professor Richard A. Falk (Woodrow Wilson School of Public and International Affairs at Princeton University) and Anthony Burke (UNSW at the Australian Defence Force Academy). No changes/revisions.