Nuclear Citizenship: Mary Kavanagh and Photography as Civil Resistance

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Since the detonation of the Trinity Test in July 1945, the scientific and cultural consequences of weapons-testing in the United States and those consequences' international entanglements have been mapped and visualized by artists working at the intersection between physics and photography. This dissertation outlines photography's broad role in atomic history and subsequent public and cultural critique. Canadian artist-researcher Mary Kavanagh, along with her colleagues in the Atomic Photographers Guild, grapples with the motivations and realities of photography as a visualizing protocol and its later role in the interventionist politics of the United States. This dissertation's accompanying online exhibition, *Weaponized Landscapes: Trinity*, makes public grievances and observations available to a wide domain of nuclear and Atomic-Age scholars, photographers, and artists. This suite recalls the methods enfolded in contemporary landscape photography's history while speculating new, humanitarian futures that feature acute attention to civic complaint and conscientious responsiveness that underpin civic entitlements to space and wellbeing.

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Preface

First, I must thank Mary Kavanagh for her openness to this project and for opening her home and studio to me. I thank those most merciful, Karoline Swiontek and Linda Hicks. I also thank my committee members, Dr. Josh Ellenbogen, Dr. Kirk Savage, Dr. Barbara McCloskey, and Dr. Carla Nappi for their entrepreneurial conviction in my hybrid dissertation project. I must also extend many thanks to Dr. Alison Langmead and Dr. Kate Joranson for the vocabulary they invented and donated to projects like these.

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1.0 Project Introduction

Trinity^3, a videowork by Canadian artist, Mary Kavanagh, starts with a time stamp, a date and time. *July 16, 1945, 5:30 am*. The video starts midway through an explosion. Rendered on black-and-white film and presented as a diptych, the artist offers the viewer two views of the same event, one from seemingly far away, the other, closer and slightly off-center. A mushroom-shaped cloud billows simultaneously through both images, one of them with distinguishable, growing smoke, and the other darker and less discernable, perhaps due to the film's exposure against the blast's luminosity. These are two excerpts from the Trinity Test's archival footage. The explosion's shapes, color, and framing offer less-recognizable footage than the now-familiar icons of the mushroom cloud in popular culture.

Then the two frames of the single blast fade to white, and the films' focus shifts to the foreground, to the medium's synthetic fabric. Anomalies like dust and relics from the processing procedures imprint themselves on the film, and these artifacts from the film's processing call attention to the medium's surface. The artifacts also call attention to the inorganic process through vertical lines that run perpendicular to the natural, geological intercalations in the surrounding landforms, nearly invisible with overexposure. The black-and-white archival film then jumps to digital, rendered in full color. *Trinity*^{3} begins anew, a high-definition, digital segment featuring the background noise and chatter of groups of people. Present-day visitors walk away from the camera in the left channel and toward the camera on the right. Vanishing-point perspective puts the spectator directly in the center, looking out above the tourists and out to the background, a desert landscape in the middle of New Mexico. The tourists walk on the same grounds that seventy years previous, a civilian cadre of scientists tested the first atomic bomb. Next, a series of interviewees

describe their story or memory on one side of the diptych; on the opposite, the archival film rolls as the bomb is prepared, loaded, transported, and mounted on the top of a ramshackle tower at ground zero, the future site of a radioactive hypocenter. Two temporalities reel simultaneously.

This dissertation showcases these two dissociative events, the historic Trinity Test and its cultural fallout, as two landscapes form into one. The centerpiece of this dissertation project is an online exhibition Kavanagh and I have co-curated entitled *Weaponized Landscapes: Trinity*, based on Kavanagh's ongoing project, *Atomic Tourist: Trinity* (2011–), which includes this videowork, video-recorded interviews, and video-stills collected over the course of seven years of her pilgrimages to the site. In these testimonies, she has identified a number of motifs, including military overreach, American exceptionalism, spiritualism, environmentalism, and toxicity effects on the body, among others.

Over seven years, she has traveled from her studio in Lethbridge, Alberta to the Trinity site at White Sands Missile Range located in New Mexico's Jornada del Muerto Desert. There, she has surveyed and filmed more than a hundred of her fellow visitors. From these testimonies, she and I have selected a collection of her photoworks for a unique, online exhibition that showcases her work on *Atomic Tourist* and orients her photoworks within the history of nuclear weapons testing. Together, she and I have selected video interviews, video stills, and the thirty-five-minute *Trinity*^{3} video that overlays contemporary visitors' testimony with archival footage from the first atomic bomb's deployment.

1.1 Mary Kavanagh

A professor and department chair in Art Studio at the University of Lethbridge, Kavanagh (b. 1970) has developed a photographic practice and archive of photographs, artifacts, and interviews in civilian-safe yet restricted militarized areas. She exhibits this archive in art galleries, military museums, and decommissioned airfields, including the Canadian War Museum (Ottawa, ON), the Military Museums (Calgary, AB), and Canada's Cold War Museum (Carp, ON). Her attention to military practice and weapons testing, specifically in nuclear contexts, began in 2010 with artist residencies at the Center for Land Use Interpretation at the decommissioned Wendover Air Base in Utah (2010–11) and at Joint Base Elmendorf-Richardson in Anchorage, Alaska for the Canadian Forces Artists Program (CFAP) (2012–13). Though this was her first project directly focused specifically on landscapes marred by wartime operations, other projects, such as *Seeking Georgia* (2006)[1] and *Alberta Oil Sands Project* (2008–11),[2] draw on the themes that have driven her work into the nuclear. These residencies enabled her to embed herself within areas of military exercise and operations, where she has served as a visitor, audience member, and participant in spaces and operations otherwise inaccessible to the public. Over the course of her career, Kavanagh has created a body of work that investigates the effects of nuclear weapons testing and the embodied experiences of people visiting or living in toxic environments.

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[1] For her work *Seeking Georgia*, Kavanagh completed an artist residency at the Santa Fe Art Institute in New Mexico where she visited significant locations in the artist Georgia O'Keefe's life. The methods she would use and further develop in this project would endure in her later works that concern the nuclear.

[2] For *Alberta Oil Sands Project*, Kavanagh visited Fort Murray in northeastern Alberta, Canada. Here, she took aerial footage of the fort's sites, linking industry with its environmental effects.

As she has described it, her identity as an "unassuming"[3] Canadian woman artist mirrors this civilian-safe area as almost a camouflage – or as Dorothy Lange would put it, a "cloak of invisibility."[4] Historically distinct from a wartime photojournalist's or documentarian's photographic program, hers is a methodology that promotes hands-on and participatory access to military operations and sites. Her residencies have granted her access to exercises such as ordnance disposal, paratrooper training, and emergency protocols. One of these residencies, the CFAP, which is ordinarily reserved for photojournalists, gave her access to a hijacking simulation. Yet, her art practice centers still on traditional techniques practiced by photographers, such as wandering, interviewing, and forging relationships with gatekeepers, who, despite her camera-wielding, may grant her access to protected sites. This traditional approach has suited her well when interviewing tourists on the grounds of the Trinity Memorial in White Sands National Park during its open houses, open only two days a year to the public. As a tourist speaking to other tourists, she is able to meet with the Trinity Site's visitors on terrain with which she and her fellows share different degrees of familiarity. Here, she is able to confer with others' memories, histories, and family stories within the landscape and its military installments.

[3] Unattributed quotations here forward come from my personal correspondence with the artist in person, in videocalls, and in emails.

[4] Dorothy Lange, quoted in *American Ground Zero: The Secret Nuclear War*, by Carole Gallagher (Cambridge: MIT Press, 1993).

1.2 Organization

This dissertation project is divided into two equal and complementary parts. This first part is the online exhibition, *Weaponized Landscapes: Trinity*, that I discuss in more detail in the next section. The second component is a history of photography's use in nuclear weapons testing as it relates to its development as a tool of protest, which I discuss in the 3.0. Following the history outlined in *Nuclear Citizenship* is a critical reflection essay in 4.0 that explains the intellectual and technical decisions made when developing this hybrid-dissertation model.

The first component, 2.0, *Weaponized Landscapes: Trinity*, is an online exhibition hosted at weaponizedlandscapes.com, a website that I have designed and built. This website is the home of the online exhibition of Kavanagh's work, *Atomic Tourist: Trinity*, that I have briefly discussed above. The website's front page includes an exhibition introduction that shares much in common with a physical exhibition's catalogue introduction. This one includes, of course, a note about Kavanagh's work on *Atomic Tourist: Trinity*, but it also enfolds analyses of her larger body of work, especially since her shift to more concentrated thinking about the United States's and Canada's nuclear history. It is also here that I reflect on nuclear history with texts that she has recommended to me over the years. This offers a rounded synthesis of her art practice with a historiography of emerging trends in post-atomic discourse.

The second component, 3.0, of this dissertation project is a longer, contextualizing essay that provides the art historical backbone, through a historical and a theoretical framework, by which I evaluate a domain of photographic practices that focus not only on Kavanagh, but also on the careers of her contemporaries and other photographers from which her work issues. In this chapter I bring to bear the scientific and cultural consequences of weapons-testing in the United States and those consequences' international entanglements since 1946. I outline the broader role

of photography in the history of the first atomic bomb's development and deployment and its later shift in use in documenting and critiquing public opinion on the bomb and its domestic use.

Finally, this dissertation features a reflection essay that reflects on the technical and intellectual decisions that I made in preparation for the dissertation, a note on my relationship with the artist, and an epilogue that describes future projects that I will host on *Weaponized Landscapes*, for which my online exhibition serves as blueprint and issue one.

In short, the task at hand is to review the motivations and realities of photography as a visualizing protocol during the Trinity Test; to link this protocol with Mary Kavanagh's photographic critique of United States interventionist politics that followed the test; and to sketch photographers' shift in focus from modeling the bomb's physical behavior to speculating on new humanitarian futures. The purpose of this hybrid dissertation is to recall the methods that have enabled photographic practices such as these and to make Kavanagh's collection of testimonies readily available to a wide domain of nuclear and Atomic-Age scholars, photographers, and artists.

Methodologically hybrid itself, Kavanagh's artistic practice and the historical practices from which her work issues intercept the political and social aftereffects of Cold War-era, nuclear weapons-related catastrophes in order to formulate new imaginings and directives for living in a "post"-atomic world.

2.0 Online Exhibition, *Weaponized Landscapes: Trinity*

The online exhibition can be found at weaponizedlandscapes.com. It is separated into four parts. The first is the exhibition introduction, simply titled "Introduction," where I outline Mary Kavanagh's work *Atomic Tourist: Trinity* and her other projects that share its themes. The second section, "Interviews," is a small selection of video-recorded interviews with the Trinity Site Memorial's guests. These interviews that she and I have selected represent samples of themes brought forth in visitors' responses and their attitudes toward and motivations for visiting the site. The third section, "Stills," is a collection of the video-recordings' still photographs with excerpts from the visitors' interviews that saliently describe their attitudes and motivations. Displayed in a diptych, the photographs on the left and the text on the right mirror the two-channel format of *Trinity*^{3} (2020), the featured film in Kavanagh's *Atomic Tourist: Trinity* project. The final section plays at full length *Trinity*^{3}, the two-channeled videowork featuring both video-recorded interviews and Los Alamos National Laboratory's archival footage of the assembly of the first atomic bomb, "Little Boy," and its loading and deployment on July 16, 1945, at 5:30 am.

This online exhibition is the first iteration of *Weaponized Landscapes*'s publishing program that features case studies and photographic projects that reckon with militarized landscapes. Though outside the scope of this dissertation, future issues of *Weaponized Landscapes* will concern environmental and humanitarian responses, speculative solutions, and imagined futures that emerge as results of weapons development and testing around the world.

3.0 Contextual Essay

The contextual essay examines the historical developments that underpin the contemporary conditions from which Kavanagh's work issues. These contexts are divided into three sections. The sections, entitled "3.1 Ground Zero," "3.2 The Contract," and "3.3 Applying the Civil Gaze," describe a way of looking at the act of photography as a practice-based investigation of military overreach.

First, in "3.1 Ground Zero," I offer a brief history of photography's use with the first atomic bomb and its second and third iterations deployed in Japan. This is the historical focus from where Kavanagh's and many others' practices emerged. I discuss some of these practices in connection to the Trinity event. I also discuss other artworks, such as Bruce Conner's *Crossroads,* Richard Misrach's *Bravo 20: The Bombing of the American West*, and Carole Gallagher's *American Ground Zero: The Secret Nuclear War*. Each of these taps into the use and construction of an archive wherein the access, retrieval, and application of historical, atomic information can serve a community affected by weapons testing and communities that travel to experience the historical site. The availability and access to this information informs and enables a community's confidence and paths toward self-determination with which they can self-advocate and govern their own lives. I offer a spectrum of artists that do this archival and performative work. The majority of these artists have formed a loose coalition they call the Atomic Photographers Guild, a project founded in 1987 by Robert Del Tredici, Carole Gallagher, and Dan Budnik. The Guild attests to photography's power as an agent of humanitarian change, wherein photography is a necessary civic skill. If photography is a necessary skill in enabling and producing further opportunity for humanitarian aid, then the maintenance and accessibility of an archive is a way of demanding that

aid. In a discussion of the archive's limits and potentials, we begin to understand how photography, when used as a means of airing grievance, mediates a community's self-determination and self-advocacy. This section establishes the historical foundation for the next section, where I argue how citizenship enables and hinders an affected communities' self-advocacy.

Second, in "3.2 The Contract," I discuss what Ariella Azoulay calls the "civil contract of photography." I define nomenclature that legally delineates the terms of public grieving. I highlight the participants in this contract and the relationship between the administration that governs and the community it governs, a relationship implicitly defined in the encounter between the photographer and the sitter who is photographed. The civil contract of photography opens a space of social and political relations that, according to Azoulay, are not traditionally tethered to power structures, and the act of photography is an act that is instead tethered to human responsibility toward the suffering of others especially in fields of violence. I discuss Azoulay's orientation toward grieving others alongside Judith Butler's argument against "victimhood." When we look at photographs of others' suffering, of others' calamities, what is problematic about "suffering from a distance,"[5] and can photography be a broker for harm reduction? I argue here that the act of photography, while indeed an act that lays bare a matrix of political and social relations, must galvanize more active modes of responsibility toward anti-violence activism.

Third, in "3.3 Applying the Civil Gaze," I discuss the responsibility of such an active responsibility: a conscientious viewership of difficult pictures. Does the accumulation of photographs – of encounters between a photographer and the person photographed – culminate in

[5] Judith Butler, "Torture and the Ethics of Photography: Thinking with Sontag," in *Frames of War: When Is Life Grievable?* (London: Verso, 2016), 63.

some evidence or contextual support for communities, activists, and perpetrators, or are all of these grievances lost in passive abdications of active, cultural response? In one optimistic view, photographs are a means of airing grievance and rallying public awareness. In a pessimistic view, Allan Sekula presents the case that documentary photography does not ameliorate suffering; rather it fetishizes suffering and hinders social transformation in collective struggle. In order to formulate an active responsibility toward suffering others, I synthesize Azoulay's civil gaze with Sekula's concerns within Butler's fields of violence toward a politics that imagines a productive civil gaze that might mobilize meaningful response toward harm reduction.

In these sections, I establish a conceptual and historical framework that emphasizes the power of an accessible, photographic resource. My objective is to posit an active regard toward the suffering of others – not simply apprehension, but comprehension – that outlines scales of civil responsibility toward affected communities. When acts of state-sanctioned violence are committed against others in our communities, we, as citizens and participants in the economy of image-making and critique, must be continuously committed to enacting critical practices that minimize harm in ongoing struggle rather than understanding such political frames as absolute principles.

3.1 Ground Zero

My study appraises the bomb's photographic and historical account of both the scientific implementation and micro-cultural significance[6] of the bomb's prototype when the field of physics

[6] Here, "micro-cultural" indicates cultural practices and customs within a very specific area, the Los Alamos "pop-up" community, toward the end of World War II.

and its commercial enterprises reached a critical threshold in the applied, scientific pursuits of the United States. Photography's roles positioned the camera and its portable product, the photograph, as indispensable tools of warfare in the United States, wherein the photographs would enable the dispersion of tacit and tangible visual tools of analysis toward future projects,[7] namely the strategic bombings over Hiroshima and Nagasaki in Japan and Operation Crossroads in the Bikini Islands. The Trinity Test would provide insurance that photography's use in documenting the bomb would assure success for future endeavors in the field of physics and its militaristic enterprises. I lay out the conditions that helped establish photographic protocols used in testing so that I may highlight the conscientious shift to humanitarian and environmentally minded practices that, in turn, aimed to minimize the harm of weapons testing.

3.1.1 The Roles of Photography in the Trinity Test

I begin with a brief history of the Manhattan Project's organization and the Trinity Test's place within it. This history introduces a discussion of photography's two primary roles: to survey potential sites and to model the bomb's ballistics. Photography's first role was helmed by Trinity

[7] The photographs taken at Ground Zero had a specific use in modeling calculations for future ballistics behavior. Speaking on Richard Feynman's "Feynman diagrams," memorizable, pedagogical, and, most significantly, portable "paper tools" that would be immediately recognizable to theoretical physicists, Davis Kaiser writes, "[t]heorists have used calculational tools, […] to mediate between various kinds of representations of the natural world." As paper tools, photographs could then be seen as the merger between conceptual knowledge and material practice. David Kaiser, *Drawing Theories Apart: The Dispersion of Feynman Diagrams in Postwar Physics* (Chicago: University of Chicago Press, 2005), 8–9.

Test Director Kenneth Bainbridge. Bainbridge's post, at once bureaucratic and scientific, mandated a visual survey of potential sites for the Trinity Test for cartographic and topographic use. Photography's second role was to model the behavior of the bomb, graph that behavior, and use those models to predict the prototype's behavior in future deployment. The Manhattan Project's Optics Director, Dr. Julian Mack, and deputy director Berlyn Brixner, a posthumously inducted member of the Atomic Photographers Guild that I discuss later, accepted responsibility for this task. Bainbridge's canvassing campaign collected visual samples of potential land that would host the war's nuclear enterprise.

Kenneth Bainbridge, the director of the Trinity Test, held a PhD in physics from Princeton University and, before the war, was an employee of the Massachusetts Institute of Technology's Radiation Laboratory and the Cavendish Laboratory in Cambridge. At these institutions, he expanded his doctoral research in spectroscopy, the study of matter's interaction with electromagnetic radiation. After the war, he was offered a position at Brookhaven National Laboratory in Upton, New York and later held a teaching position at Harvard University. His work, as well as others' operating in the field, ensured the merger of academic and governmental study in experimental and applied physics.

With these credentials, Bainbridge's post as the director of the Trinity Test included bureaucratic and scientific duties. The first of these for which photography played a part was to survey eight potential sites: Tularosa Valley; Jornada del Muerto Valley; the desert near Rice, California; San Nicolas Island off southern California coast; Grants, New Mexico; Cuba, New

Mexico; sand bars in southern Texas; and San Luis Valley in Colorado.[8] Bainbridge and his small team chose the site based on a few considerations, including its square area, climate, and distance from the coast to thwart threats of coastal attacks. The location needed to be a great distance from other communities as well to ensure secrecy. Bainbridge conducted the initial surveys, the first in May 1944, for the future test site with a small team comprised of the Manhattan Project Director Robert Oppenheimer, Major "Lex" Stevens, and Major Peer de Silva. They set out from Los Alamos Scientific Laboratory in a "small three-quarter-ton weapons carrier," as the photograph's metadata reads, though civilians might recognize this vehicle by its vernacular name, a "jeep."

Traveling with his companions, Bainbridge took pictures of the passing fields along the dirt roads of New Mexico. From the front seat, he took nearly 200 photographs. He captured snapshots of the jeep stuck over a small ridge, men pushing it out of the ridge, and the accompanying soldier changing his shirt after setting the jeep free. He captured the men in full business suits walking ahead on the white sand dunes. He took photographs of the potential homes to which the Army would relocate and of the cattle they would have to buy out if they acquired the land. He took almost 100 pictures of the landscapes interrupted only by mesas and scraggly bush lines. He would take some of these pictures of the landscape from inside the jeep and, given the motion blur in the background, presumably while it was still in drive. In some of them, the camera's reflection is apparent in the jeep's window. Most seem so spontaneous that it appears as though Bainbridge gave little thought to his photography outside of trying to quickly capture a

[8] Unless otherwise noted, the quotations and material in this section on Bainbridge are from the Papers of Kenneth T. Bainbridge, 1873, 1923–1996, HUGFP 152, Harvard University Archives Repository. Cambridge, MA.

landform in the distance. In a large collection like this, it is difficult to discern any method or pattern of scientific consideration Bainbridge followed, outside of impulse.

For Bainbridge, the meticulous scientific method he applied to his professional work as an experimental physicist and his acute attention to mathematical detail did not extend to the preparatory work on the surveys. The photographs he took, regardless of their tasked or candid motivation, appeared indeed to abandon the scientific class of his post. This unique set of photographs seems as if it would fit more seamlessly in a family's vacation album rather than in the official documentation for the largest and one of the most significant scientific endeavors of the twentieth century.[9] His candid impulse stood in high relief against his scientific imperative.

However, his candid landscape photographs were not all together worthless within the scope of this massive undertaking. For example, a photograph of MacDonald Ranch, a structure that would later serve as a base of operations, would serve as landmarking a visual reminder for later use in maps or materials for internal use. In this case, such a photograph would help determine how to navigate, politically and socially, civilians and their property in the event the U.S. government needed to procure the land. Bainbridge wrote that he had at least one official intention for the photographs' cartographical and topographical purpose – that the survey photographs could be used in mapping the area and for visually determining the appropriate location for the project

[9] Of course, it differs from a family's vacation album in one significant way, primarily the absence of posed, human subjects. Bainbridge's undertaking was preceded by the rumored undertaking's reputation, spread through the neighboring communities by word of mouth, and these were the photographs that would demonstrate that. In a note on the lack of people in the landscape photographs, Bainbridge observes, "the word has been broadcast of an approaching meeting, or a warning that Uncle Sam was on the loose again." Ibid.

on a precise scale. It is evident here that Bainbridge recognized the potential of photography in such a large-scale mapping project and its application in at least a cartographic capacity.

Though in the end, Bainbridge's cartographic practice wouldn't matter because the Army was better equipped with the tested and necessary knowledge, technology, transportation, methodology, and management to map the area.[10] Bainbridge's self-elected photographic objective was to take pictures for professional surveying purposes, but the photographs have a more tourist-like quality than one that employs the scientific method. Like a tourist, he would be visiting country he was unfamiliar with including terrain, climate, landforms, animals, and what little architecture there would be.

Overall, given the subject nature of most of the photographs – a jocular soldier triumphing over a ditch and landscapes taken from inside the car behind the window – it might be possible that Bainbridge, perhaps distracted by the novelty of these landscapes, became disillusioned with the photographic accuracy of his subjects and their potential for serving a cartographic directive. He later reflected on the initial survey:

> Starting in April we used everything we could lay hands on as an aid in examining possible site locations. Sectional aeronautical charts, maps of the U.S. Soil Conservation Service, New Mexico Highway Planning Survey, and automobile road maps were pored over. Recent aerial surveys of the Rio Grande area were of

[10] The army's overwhelming triumph over the small team's cartographical efforts was due to extensively tested and successful developments during World War I. For more on these technologies and methodologies, see Allan Sekula, "The Instrumental Image: Steichen at War," in *Photography against the Grain: Essays and Photoworks* (Halifax: The Press of the Nova Scotia College of Art and Design, 1984): 33–52; see also: Paul Virilio, "Cinema Isn't I See, It's I Fly," in *War and Cinema: The Logistics of Perception* (New York: Verso Books, 2009), 15–39.

> some use as were the U.S. Grazing Service maps. An annotation that twenty or thirty acres were needed to support one steer was an indication of attractive barreness [*sic*]."[11]

These tactics, which drew from extensive state familiarity and knowledge of the environment gathered from other industries, proved to be the more appropriate avenue for the Army's cartographic tasks, and Bainbridge's whimsical method of photo-taking proved too capricious and impulsive to constitute a legitimate, scientific enterprise like wartime cartography. While he was tasked with the survey responsibility, his photographs would later serve as not much more than mementos or reminders for future recall.

In the next discussion, I review the motivations and realities of photography as a visualizing protocol during the Trinity Test in order to link this protocol with an example of recent photographic critique of United States interventionist politics. This will provide a sketch of photographers' shift in focus from modeling the bomb's physical behavior and its infrastructural destruction to using environmental- and humanitarian-oriented photography as a methodology that documents and sometimes tracks the longitudinal effects of nuclear weapons testing on individual bodies, communities, and the landscape.

In stark contrast to the first ambulatory and imprecise method, photography's second role was altogether dependent on the scientific method. After the site had been established, and the technical and organizational preparation for the Trinity Test had begun, deputy director of the Optics Division, Berlyn Brixner, and his supervisor, Dr. Julian Mack, developed the technical and

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[11] Kenneth Bainbridge, *Trinity Writings, 1945*, papers of Kenneth T. Bainbridge, 1873, 1923–1996, HUGFP 152, Harvard University Archives Repository.

theoretical method to take thousands of photographs of the Trinity Test. In the spring and early summer of 1945, Brixner's primary task at Los Alamos was to develop a high-speed oscillating mirror camera. This camera operated like a film camera, but at 3.5 million frames per second, and used 170 framing lenses and a mirror rotating at 10,000 rotations per second. It had a twenty-four-inch objective lens, a turbine for the mirrors, and an explosive detonator to trigger the shots.[12] The Photography and Optics Group (in the organizational chart, "Division G-11") developed several types of cameras: "cathode ray oscilloscope cameras, armored still cameras for high-explosive test sites, an armored stereoscopic camera for flash photography of imploding hemispheres, and a cloud chamber stereoscopic system for the betatron cloud chamber"; significantly, they developed a "boresight and photo velocity system for the 20-millimeter gun," where "gun" means "camera."[13] These cameras were modeled after traditional photographic machinery and weapons for weapons testing. And these cameras became increasingly capable of high-speed photographic capture.

In at least one series of tests, Brixner claims they were able to affix a camera with a two-foot telephoto lens to a machinegun turret to better measure and implement ballistic coefficients and aerodynamics. The adaptation of the turret for the purpose of the camera enacts an inverse of Paul Virilio's observation that "a function of the weapon is the function of the eye";[14] here, the eye is the function of the weapon. Paul Virilio writes that during the First World War, the inclusion

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[12] Berlyn Brixner, "A High-Speed Rotating-Mirror Frame Camera," *Journal of the SMPTE* 59 (December 1952): 503–11.

[13] Kenneth Bainbridge, "Weapons Physics Division," in *LAMS-2532, Manhattan District History Project Y The Los Alamos Project*, 1:238.

[14] Paul Virilio, "Cinema Isn't I See, It's I Fly," in War and Cinema: The Logistics of Perception (New York: Verso Books, 2009),

of photographic technology "prefigured a symptomatic shift in target-location and a growing derealization of military engagement."[15] After the Second World War, he writes, a global vision was readily strategized as a new logistics of military perception. The power of imaging technology made feasible a separate military bureau to manage this new visual inventory and set it aside for both propaganda and tactical, strategic initiatives for instructional purposes. Images, then, become ammunition.

Thousands of photographs were to be compiled and translated into graphs that measure the radius, heat, blisters, spikes, and time of ground strike. To do so, the Trinity team's Optics Division set up fifty motion-picture cameras, prototypes modeled after the chronophotographic rifle.[16] These were stationed at different locations around the field's testing area ("S-site"): two groups of cameras north of Zero (the hypocenter), two groups west of Zero, one group at 800 yards from Zero, one group at 10,000 yards from Zero, and one group at 25,000 yards from Zero. An explosive detonator, or "trigger," operated each camera. The mirrors rotated using a turbine, which according to Brixner were not entirely reliable.[17] Despite generating some nonstable film due to some unreliable mechanics, all fifty cameras produced about 100,000 photographs within a few minutes.

Despite some aspects of the rotating mirror not working reliably, in most accounts, the cameras worked as they should. However, some cameras were positioned too close to Zero, and

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[15] Paul Virilio, "Cinema Isn't I See, It's I Fly," in *War and Cinema: The Logistics of Perception* (New York: Verso Books, 2009),

[16] For more on the chronophotographic rifle and its development in the nineteenth century, see: Étienne-Jules Marey, "La photographie du movement," *La Nature*, no. 464 (April 22, 1882): 115–16.

[17] Berlyn Brixner, "Berlyn Brixner's Interview," interview by Yvonne Delamater, *Voices of the Manhattan Project*, February 22, 1992, https://www.manhattanprojectvoices.org/oral-histories/berlyn-brixners-interview.

the shock waves caused excessive light refraction, which resulted in a lack of contrast in the photographic positives. The photographic positives of the blast itself were not as helpful to ballistics engineers when translating the visual evidence back into the math for future ballistic engineering, testing, and deployment. It was, however, the photographic *negatives* that were run through a Moviola projection machine in order to view the detonation event in variable time. The engineers and physicists preferred the negatives because their contrast made the visible features of the explosion more apparent. The translation from photographic positives to negatives, and then from photograph to graphed, mathematical functions, allowed the engineers to graph the necessary features of the blast. Mack coined this method of emitted-light analysis "Space-Time relationships," which were a matrix of two functions, one of x-time by y-velocity and one of x-time by y-distance. For an analysis of the emitted light, Brixner and Mack were able to use "density readings on motion picture negatives," as well as quartz-prism spectrograms, which would have measured emitted light along the electromagnetic spectrum, though there was an ultraviolet-light threshold limitation that corrupted the reading.[18] In short, the photographic negatives, when translated into data points, succeeded in measuring critical ballistic features.

The significance of the camera and its use in the Trinity Test became evident when it helped construct ballistic models for engineers to execute. Communication between the optics and engineering divisions was necessarily collaborative – and sometimes fraught. Brixner said that the optics and spectroscopics engineer Morris Patapoff "didn't like the pictures we were getting and

[18] Los Alamos Field Group, prepared by Berlyn Brixner, "Fastax Photography," in "Crossroads Technical Instrumentation Report Tests A & B," October 15, 1946, memo to technical director. Papers of Kenneth T. Bainbridge, 1873, 1923–1996, HUGFP 152, Harvard University Archives Repository, Cambridge, MA.

said we were getting just optical illusions really, photographing optical illusions."[19] The results from Brixner's camera showed "that the implosion process, which [Patapoff] was studying, was not what [his] boss thought the implosion process should be doing," so Patapoff dismissed the photographs as unhelpful "optical illusions."[20] What this meant was that what the implosion process *was* doing (as demonstrated by the negatives) wasn't compatible with what the implosion process *should be* doing (as demonstrated by the engineers' model).[21] When Brixner's team developed the camera further, their photo-experiments demonstrated that it was the implosion process itself, not the photographic technology, that was at fault. That is, what they thought was the visual-data models' inconsistencies was in fact the ballistic predictions' invalidity. The visual data evidenced in the pictures and their translation into charts was the reliable model.

I have compared Bainbridge's with Brixner and Mack's photographic methods to review the motivations and realities of photography as a visualizing protocol during the Trinity Test. I have done this to lay out the more vernacular, photographic methods as well as the technological

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[19] Ibid.

[20] Ibid.

[21] In another example, Peter Galison quotes E.N. da C. Andrade, a physics historian in the 1920s: "Whatever may be the fate of the theories which have been so inadequately exposed […], whatever modifications of mishaps they may meet, the experimental facts which led to their formation, and those other to whose discovery they in their turn give rise, will remain as definite knowledge to form a lasting ornament to an age otherwise rich in manifold disaster and variety of evil change." Here, Andrade wrote about the cloud chamber's use in the development of the physical sciences. The bubble chamber, developed later in 1960, would use the cloud chamber as model for visualizing the behaviors of electrons, but its development too was aided by thermonuclear test equipment developed at Los Alamos toward the end of the Second World War (4). E.N. da C. Andrade, quoted in Peter Galison, "Cloud Chambers: The Peculiar Genius of British Physics," in *Image and Logic* (Chicago: University of Chicago Press, 1997), 65.

imperatives of the Trinity Test's scientific objectives. Understanding these imperatives, I have set the foundation from which I may sketch a paradigmatic shift in focus from modeling the bomb's physical behavior to its later and immediate humanitarian-oriented focus that documented the effects of nuclear weapons testing on individual bodies, communities, and the landscape. Next, I discuss Yoshito Matsushige's on-the-ground, immediate photographic reaction to the bomb's deployment in Hiroshima, Japan. I claim that his photographic methods illuminate features of social-documentary photography, distinct from the previous, candid and scientific uses of photography in the fields of the bomb. By isolating the more documentary procedures, I reflect on the social conditions and describe practices in which the camera is used as a tool for social transformation, the method from which Kavanagh's and others' practices emerge.

3.1.2 Social Documentary

The success of the Trinity test on July 16, 1945, outside of Alamogordo, New Mexico, led to the bomb's rapid deployment across the world. The United States immediately sent scientists to photograph and measure the environmental damage following the bombings of Hiroshima and Nagasaki on August 6 and 9 of 1945, but their documentation did not extend outside of measuring the short-term and immediate effects of the bomb's deployment. With the exception of five Japanese photographers, one being Yoshito Matsushige (1913–2005), who, like Brixner, was posthumously added to the Atomic Photographer Guild, no photographers, and certainly no American photographers, recorded the *human* cost of the bombs.

Minutes after escaping the blast with his pregnant wife, Hiroshima's *Chugoku Shimbun* journalist, Matsushige fled his home with his hand-held Mimiya viewfinder camera and two rolls of film. Throughout the day, he walked miles around the hypocenter. Though he had on hand

twenty-four possible exposures, Matsushige's on-the-ground photographs included only seven photographs, five of which survived. Two were photographs of his sister and wife's barber shop, which was just over two miles away from the hypocenter; two were photos of the east side of his town's bridge, just two and a half miles away – these were lost; and three more were of city officials applying cooking oil to others' burns.[22]

The first two photographs show floor-to-ceiling wreckage from Matsushige's wife and sister's still-standing shop. In one photograph, his wife looks through the contents of a barber's drawer, in front of the barber's chairs. In another, wooden debris, a door, and a window frame cover the floor, their livelihood lost. In the other photograph, the small room's window frames a view of the outside, where a neighboring fire station has collapsed, unrecognizable and certainly unable to aid the community. The other three surviving pictures were taken from the street and show groups of bandaged city officials applying cooking oil to burn wounds, signing documentation for food vouchers to the affected, and providing other assistance. In these, few faces are at all visible, but what might be tattered clothes or, perhaps, Matsushige writes, remnants of burned skin,[23] are pronounced. That night, he developed his film in a radiated river and hung them on a burned tree.[24] Despite his twenty-four possible exposures, he took seven photographs, and five of those successfully developed, though with visual traces of radiation exposed in the film. He reflects on the photographs he did not take despite his resources in hand:

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[22] Tomomitsu Miyazaki, "The View from Under the Mushroom Cloud: The 'Chugoku Shimbun' Newspaper and the Hiroshima Peace Media Center," *International Review of the Red Cross* 97, no. 899 (2015): 529.

[23] Yoshito Matsushige, "I Couldn't Press the Shutter in Hell," *Hiroshima Peace Memorial Museum*, n.d., http://www.pcf.city.hiroshima.jp/virtual/VirtualMuseum_e/visit_e/testimony_e/testimo04_3.html.

[24] Greg Mitchell, "The Photographer and the Flash," *Progressive* 54, no. 8 (August 1990): 24–26.

> "I'll get a quick picture of this," I told myself. But as I lifted the camera hanging around my neck, I found it impossible to snap the shutter. The scene before me was so gruesome that I merely stood there, paralyzed by the reality of this hell. […] I realized I had to break this paralysis and perform my duty, which was to document this horror on film.[25]

In fact, that he only managed to capture a handful of pictures demonstrates a sensitivity to the individuals, who he felt, would not have wanted their picture taken in such a profound state of distress.[26]

In an interview with nuclear-weapons photographer and fellow Atomic Photographers Guild member, Robert Del Tredici, Matsushige describes a streetcar filled with people in another photograph he did not take:

> It was jammed with people. They were all in normal position, holding onto streetcar straps, sitting down, or standing still, just the way they would have been before the bomb went off. Except that all of them were leaning in the same direction – away from the blast. And they were all burned black, a reddish black, and they were stiff.[27]

Jonathan Schell, in the introduction to Del Tredici's *At Work in the Fields of the Bomb*, writes about how Matsushige described himself as holding his camera up and placing his finger on the

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[25] Yoshito Matsushige, "I Couldn't Press the Shutter in Hell."

[26] "Most people were burned. I thought they would be enraged if someone took a picture," Yoshito Matsushige, qtd. in Mitchell, "The Photographer and the Flash," 24–26.

[27] Yoshito Matsushige, qtd. in Jonathan Schell, "Introduction," in *At Work in the Fields of the Bomb*, by Robert Del Tredici (New York: Harper & Row, 1987), v.

shutter but unable to press it. "Seeking to account for his paralysis, Matsushige explained: 'Before I became a professional cameraman I had been just an ordinary person.'"[28] For Matsushige, the photographs not taken preserve the dignity of the riders. The image then resides only in oral testimony, one where the cause and effect of the bomb's damage shows little difference between pictures: just as in the before image, if we can call it that, a streetcar is filled with people riding early to work; the after-image is told as the same, only the people are no longer living, and they are turned away and burned with black-red ash.

Compared to Matsushige's photographs, the Americans took theirs from a considerable physical and emotional distance. It was from airplanes that they measured the immediate damage. In the months following the twin blasts over Hiroshima and Nagasaki, the only photographs seen by Americans at home were these aerial shots. According to Jiyoon Lee, during the war in the United States, photography was censored and manicured primarily, and unsurprisingly, to bolster the American image within global and national public opinion. Therefore, the ban on foreign photographers for United States newspapers and magazines was a policy that obscured the reality.[29] In fact, in addition to printed and visual censorship, photojournalists were categorically banned from reporting in Hiroshima and Nagasaki; although, there were two exceptions: the first was George Weller from the *Chicago Daily News,* and the second was William L. Lawrence from the War Department's Bureau of Public Relations. Weller's "Nagasaki Bomb Accounts" went unpublished until 2005, but its resurfacing revealed a survey of testimonies and observations from the ground only days after the event. Posing as an Army colonel, Weller gained access to the city

[28] Ibid.

[29] Robert Del Tredici, "Crossing the Line," *Northern Lights* 6, no. 1 (January 1990): 23.

for two-weeks, despite its being on lockdown. There, he included twenty photographs and wrote seventy-five pages on the "wasteland of war." Although he did not observe the bomb's immediate effects, as the hours and days passed, he located people suffering from "disease X," which he would later recognize as radiation sickness.[30] Even with a fraudulent identity, Weller was unable to publish the report, its testimonies, and his photographs because, according to Weller's son who discovered a partial copy of the report, it was denounced and buried by the war press office, specifically by General Douglas MacArthur. At the time, the report was not published, and the testimonies and photographs were lost. Still, his exposé, recalled by his son, on the bomb's damage stood in unambiguous contrast to popular exposure of the same events at the same time,[31] championed by a state-certified reporter and public relations official.

In 1945's remaining months, publications such as *LIFE* and *Time* abetted the war press office's directive to sanitize the bomb's effects and distance their readers from the aftermath. The loudest voice in this effort was William L. Laurence. As a vote of confidence in his ability to execute this directive, the War Department invited Lawrence onto one of the planes that circled over Hiroshima as it deployed on August 6, 1945 shortly after 7 am.[32] In a press release from the

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[30] "Nagasaki Bomb Account Published," *BBC News*, June 20, 2005, http://news.bbc.co.uk/1/hi/world/asia-pacific/4110598.stm.

[31] In large part, the United States's middle class enjoyed magazines like *LIFE* and *Time*, magazines that were targeted to that demographic.

[32] Jiyoon Lee, "A Veiled Truth: The U.S. Censorship of the Atomic Bomb," *Duke East Asia Nexus* 3, no. 1 (2011): 56. Lee begins her essay with a quote from Burchett's September 5, 1945 article "Atomic Plague": "Hiroshima does not look like a bombed city. It looks as if a monster steamroller has passed over it and squashed it out of existence." (54).

War Department's Bureau of Public Relations Press Branch, Laurence described the event and its positive effects.[33] His observations, also taken from the air, demonstrate an attention to atmospheric and terrestrial details. He describes that in the plane, he overheard the banal discussions taking place between the military and scientist observers and the pilot's relief at dawn, which offered reprieve to the aviator for his cabin-bound claustrophobia. Laurence described how his mind:

> soon returns to the mission I am on. Somewhere beyond these vast mountains of white clouds ahead of me there lies Japan, the land of our enemy. In about four hours from now one of its cities, making weapons of war for use against us, will be wiped off the map by the greatest weapon ever made by man. In one-tenth of a millionth of a second, a fraction of time immeasurable by any clock, a whirlwind from the skies will pulverize thousands of its buildings and tens of thousands of its inhabitants.[34]

He makes his conceptual and physical point of view very clear. Despite the expressed banalities of the weather, the terrain, and cabin discomfort, Laurence and his fellow passengers have indeed grasped the physical magnitude of the event, especially having heard reports of the so-called success over Hiroshima. He describes the events in a manner that would bolster public opinion in

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[33] William L. Laurence, a Pulitzer Prize winner, was a science writer for *The New York Times* and Special Consultant to the Manhattan Engineer District. He too refers to the atomic bomb by its codeword: "it is a thing to behold, this *gadget*" [emphasis added]. William L. Laurence, "Eye Witness Account: Atomic Bomb Mission over Nagasaki," the United States War Department, Bureau of Public Relations, Press Branch, Press Release, September 9, 1945, https://www.atomicarchive.com/resources/documents/hiroshima-nagasaki/eyewitness-nagasaki.html.

[34] Ibid.

the United States, starting with the bomb's treatment by its scientists and military handlers. He writes that he watched its assembly and handling before it entered the carrier: "[e]ach target in turn was shown in detailed maps and in aerial photographs. Every detail of the course was rehearsed, navigation, altitude, weather, where to land in emergencies. […] The briefing period ended with a moving prayer by the Chaplain. We then proceeded to the mess hall for the traditional early morning breakfast before departure on a bombing mission."[35] Laurence follows his account of procedural diligence with brief, biographical details of the bomb's stewards to feature their bravery, sacrifice, and patriotic service. In his release, he takes great care in describing the cast of characters in this theater of operations, including the members' young ages, hometowns, and career accomplishments. Take, for example, his description of one of these men: "Major Charles W. Sweeney, twenty-five years old, helmed the B-29 and its payload."[36] It is clear that Laurence thinks highly of the young, military men charged with the task, as these are short, ethos-centered biographies with the intention of humanizing the bomb's stewards.

It is difficult to know how ready the young men were to behold the magnitude from their physical vantage, let alone its conceptual vantage. No doubt excited to play his theatrical role, Laurence's reports to the audience at home describes the setting and motivations, and he foreshadows the impending climax.

Laurence wrote and published other pieces. Headlines such as "U.S. Atomic Bomb Site Belies Tokyo Tales,"[37] which denied radiation-related deaths by describing the deaths as

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[35] Ibid.

[36] Ibid.

[37] William L. Laurence, "U.S. Atomic Bomb Belies Tokyo Tales," *The New York Times*, September 12, 1945.

exaggerated Japanese propaganda. He also accentuated the heroic feats of American industry by reproducing photographs of the bombs taken from airplanes, while downplaying individual and collective tragedy. His point of view is a pronounced example of prototypical, American exceptionalism, one that denies care or discrete attention to those who will soon meet a previously unimaginable and impossibly violent death at the hands of the United States forces.

Even after the war's end, the U.S. government and the war press office heavily regulated mass communication circulating within and outside of Japan and the United States. This protocol for public-relations control was the U.S. Occupation Forces' Press Code, "a censorship regime established to review photographs and writing coming out of the defeated country."[38] As a result of the Press Code, these photojournalists were charged with providing visual confirmation of wartime events, documentation that would be reproduced and printed for a national and international audience. These restrictions would set the foundation for news sanitation for practicing photojournalists in later wars. In 1951 the San Francisco Peace Treaty, also known as the Japan Peace Treaty, ended the U.S. occupation of Japan after the war and, so it would seem, alleviated the impulse toward censorship on both sides. However, despite the changes in protocol for information release on the international stage, a domestic program was already formed four

[38] The press's self-effacing mission is still successful, albeit on a smaller scale, to this day. Following the quoted statement above, Del Tredici writes, "'Press Code' censors paid especially close attention to all statements on the bomb, monitoring newspaper accounts, magazine articles, medical science reports, as well as novels, poems, and plays and personal letters mentioning the new weapon. […] The word 'radiation' was deleted from press accounts. Even the existence of the 'Press Code' was censored so effectively that today many people who know about the occupation and postwar modernization of Japan have rarely, if ever, heard about the 'Press Code' and its banning of the Bomb." Robert Del Tredici, "Crossing the Line," 23.

years before that operated under its own protocols. In other words, the protocols of censorship only shifted from one international operating procedure to another domestic one under a new legislative agenda, the Atomic Energy Act.

In 1947 Harry S. Truman's administration and the U.S. Congress passed the Atomic Energy Act that established the Atomic Energy Commission (AEC) which would control atomic energy research and production during peacetime. The goals were to shift energy production from defense and security and to public welfare, an increased standard of living, and free competition in private enterprise, as well as, appropriately, to promote world peace. The government would share research responsibility with the private sector for broadest possible "exploitation."[39] Specifically, this was a

> program for the control of scientific and technical information which permit[ted] the dissemination of such information to encourage scientific progress, and for the sharing on the reciprocal basis of information concerning the practical industrial application of atomic energy as soon as effective and foreseeable safeguards against its use for destructive purposes can be devised.[40]

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[39] After the AEC was founded, five members were appointed by the president and nominated by the senate. They would be compensated $15,000 ($214,676 in 2021 dollars) each year for two to six years and the chair would be compensated $17,500 ($251,405 in 2021 dollars) each year. The members of the commission could not seek any other remuneration. A commissioner was a salaried employee of the state, though this increased financial incentives to be appointed to the post. This being said, the salaried position might have ensured that the AEC, as a public office, could not lobby or be lobbied for or against the office's mission and guidelines. Atomic Energy Act of 1946, Pub. L. No. 79-585, §724, 60, Stat. 755.

[40] Atomic Energy Act of 1946, Pub. L. No. 79-585.

Though the social, economic, and political effects of proliferation were unknown at the time of the public law's drafting, Congress saw the benefits and practicalities of deploying atomic energy on a larger, commercial scale. Despite the uncertainties, Congress was determined to accept the "profound changes" in the U.S.'s "present way of life."[41]

The act does not specify the terms and procedures of information's dissemination toward science's progress, nor does it specify the conditions or methods for information's reciprocal sharing. However, this did introduce inter-departmental expectations for the allocation of information resources between the military, the government, and civilian research efforts as they related to atomic energy use, production, and control. This may have also suggested new PR policies that would have allowed the release of benign but spectacular photographs, bearing little difference from the Press Code's campaigns.

One of these campaigns found purchase in private industry in a series of "Miss Atomic" beauty pageants from 1952 to 1957, hosted by the Sands Hotel in Las Vegas. The beauty pageant coincided with local ballistic tests. Referred to as "Miss A-Bomb" or "Miss Atomic Blast," the queens would share sparkling, cultural significance with some of the most anti-humanitarian and environmentally hazardous series of weapons tests, magnitudes larger than the bomb tested at Los Alamos and the ones deployed over Japan. Don English, one of the photojournalists for the Las Vegas Sun took a picture of Lee Merlin, "Miss Atomic Blast" of 1957. She wore a scant garment made of pulled cotton balls in the shape of a mushroom cloud that visually mirrored the then-famous icon. She posed her arms victoriously, stretching them upward against the background of the now-clear sky while smiling enthusiastically as champion over the poised runners-up.

[41] Ibid.

Regardless of wins or losses, the queens were thereby introduced to high society as debutants and bachelorettes, recruits for reproducing and replicating the nuclear-family agenda.[42] The Miss Atomic photographs and Laurence's written testimony and photographic support served the same purpose with different ingredients.

Artists, on the other hand, cleaved themselves from Congress's and the beauty queens' manicured photographs and sought the source material. Notably, the one of the first artworks to emerge was Bruce Conner's *Crossroads* in 1976, intentionally completed for the United States's bicentennial. Conner was one of the first known artists to work with declassified photographic footage of detonation events, and his was the first to shift photography's focus from measurement and experimental documentation to a more humanitarian endeavor: to use archival video footage toward a photowork for arts audiences. Reinterpreted and placed in the public sphere, the archival footage would shorten the conceptual and, in some ways, the physical distances between the bomb's audience and catastrophe.

Crossroads (1976), is named after Operation Crossroads, the codename for a pair of tests, "Able" and "Baker," over Bikini Atoll. *Crossroads* features Baker's archival video footage. The work itself consisted of a thirty-seven-minute film of twenty-three film segments from Department

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[42] Julia Bryan-Wilson complicates such a heteropatriarchal reading in her discussion of photographer Zoe Strauss, whose photographic practice centers queer readings of atomic tourists. Another of Strauss's photographs, a close up of the head of former radiation plant worker, Charlie Wolf, who underwent brain surgery for a tumor: "pressing her lens close to his head and shooting against a sky-blue background, Strauss makes his injured skin a surrogate landscape." Julia Bryan-Wilson, "Aftermath: Two Queer Artists Respond to Nuclear Spaces," in *Critical Landscapes: Art, Space, and Politics*, eds. Emily Eliza Scott and Kristen Swenson (Berkeley: University of California Press, 2015), 82.

of Defense archival footage,[43] which accompanies a composition scored by Patrick Gleeson and Terry Riley.[44] Using filmic duration and sound as a device, Conner "structures our perceptions," and the sound of the blast is delayed from the visual shockwave, a portrayal of the natural disjunct between image and sound at a distance. The second shot proceeds similarly, but the third surprises us, the sound and picture are simultaneous as if we have been at ground zero. By manipulating the structural relationship of sound to picture, Conner complicates the audience's physical and conceptual distance, bringing us closer and closer to the bomb.[45]

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[43] "In 1974, Conner contacted the U.S. National Archives with a request to access the government's nuclear test footage. As Conner described the project for the Pentagon's perusal, 'There would not be any commentary or dialogue involved. Music and sound effects would accompany the images in a proper and natural manner. The spectacle of the underwater detonation would be the substance of the film production.' To Conner's surprise, he was granted approval, and in characteristically subversive manner, he completed the film to coincide with the American bicentennial." Ross Lipman, "Conservation at a Crossroads: Ross Lipman on the Restoration of a Film by Bruce Conner," *Art Forum* (October 2013): 275.

[44] Lipman, "Conservation at a Crossroads," 273. Conner's work explores the underwater detonation of the Baker test from multiple, synchronous angles from circling airplanes. Present at the event were 500 cameras atop unmanned airplanes, operated by radio wave remote control from a mile or more away. Patrick Hebron, "Both Sides Now: Bruce Conner's 'Crossroads' & Heidi Fasnacht's 'Explosion'," *Bard College Journal of the Moving Image,* no. 1 (Spring 2005): 45–49. For more on World War II-era unmanned aircraft, see: Chelsea Leu, Review of Unmanned Systems of World Wars I and II, by H.R. Everett, "The Secret History of World War II-era Drones," *Wired*, December 15, 2016, https://www.wired.com/2015/12/the-secret-history-of-world-war-ii-era-drones/.

[45] Warren Bass, "The Past Restructured: Bruce Conner and Others," *Journal of the University Film Association* 33, no. 2 (Spring 1981): 19.

3.1.3 After *Crossroads*

Convening a decade after Conner's *Crossroads*, the most focused group of photographers that work with the lasting political, cultural, and physical effects of evolving international nuclear postures and conditions is the Atomic Photographers Guild (APG). The APG is a collective of photographers who portray elements of nuclear and atomic culture. This loosely connected, art-based research group collaborates on exhibitions, screenings, lectures, art books, and publications. Robert Del Tredici and Carole Gallagher started the APG in 1987, motivated primarily by the meltdown at Three Mile Island in Pennsylvania in 1979, though they have said that reactor four's meltdown at the Chernobyl Power Plant in Pryp'yat, Ukraine also prompted their visual studies in nuclear armament, containment, and commercial application. With these events as the primary motivating factors, the APG photographers represent a wide domain of focuses: on landscapes, such as in the work of Peter Goin, Mark Ruwedel, Ursula Schulz-Dornburg; on communities, captured by Carole Gallagher, Patrick Nagatani, Jesse Boylan; on the nuclear production line, in the photos of Robert Del Tredici, Blake Fitzpatrick, Dan Budnik, Nancy Floyd, Barbara Norfleet, and Terry Ownby; and on military preparation, as seen in the work of Paul Shambroom, Berlyn Brixner, James Crnkovich, Gordon Belray, and, finally, Mary Kavanagh.

Of course, this is not the sum of all artists who have worked with nuclear subjects. As nuclear policy continues to destabilize, as if it had ever been stable to begin with, and as climate change brings the planet closer to the brink of irreversible catastrophe (in no small part empowered by nuclear weapons programs and their enabling policies), more and more contemporary artists have begun work at this intersection. However, this section, *After Crossroads* focuses on the photographic lineage that branches through longitudinal, nuclear study on the science and imagined futures afforded by photographic practice. In fact, as one of these artists, An-My Lê, has

written, "the camera is pretext,"[46] a sentiment that does not simply allow for distant study but, rather, on-the-ground study enabled by first-hand access.[47] Therefore, this section attempts to draw these similarly themed, but ultimately different practices together into the lineage shared by Bainbridge, Brixner, Mack, Matsushige, Conner, and ultimately, Kavanagh.

In the previous section, I quoted from the preface to Del Tredici's longitudinal study, *At Work in the Fields of the Bomb*, which features portraits and interviews of blue- and white-collar nuclear plant workers. Published in 1987 by Harper & Row, Del Tredici's study collects well-rounded testimonies of the working conditions of various plants, workers posing safely with plutonium, and well-coiffed executives posing at their desks. Del Tredici's is a photobook that presents a cursory account of the scale of weapons construction after Trinity, Hiroshima and Nagasaki, and Operation Crossroads. Though Del Tredici's work traces the contours of the labor, management, and commercialism in the titular fields, his concentration is less focused on acute catastrophes than on their effects on communities of people.

At the time of publication *At Work in the Fields of the Bomb* in 1987, Carole Gallagher had already been embedded in Utahan and Nevadan communities for her own long-term study. When she co-established the APG with Del Tredici, Gallagher had been working on her self-directed, anthropological study and book *American Ground Zero: The Secret Nuclear War*, an extensive photobook and interview series published in 1993. Spanning ten years, it documents the plight of the Nevadan and Utahan "Downwinders" and their demands for disarmament and reparations

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[46] An-My Lê, quoted in "Art and Protest," directed by Charles Atlas, featuring Alfredo Jaar, An-My Lê, Jenny Holzer, and Nancy Spero, on *Art21: Art in the Twenty-first Century*, aired November 4, 2007, on PBS, https://art21.org/watch/art-in-the-twenty-first-century/s4/protest/.

[47] An-My Lê is indeed one of these artists, whose excellent work sits just on the other side of this dissertation's scope.

resulting from AEC-era nuclear testing and administering. Gallagher takes weapons-testing survivorship as her subject through a method of civic activism that invokes the persistently disregarded legacy of nuclear testing in rural communities – communities once described in a declassified AEC internal memo as a "low-use segment of the population."[48] At every scale, Gallagher confronts the labor, the sacrifice, the politics, and the disaffectedness of rural communities in the actual fields of the bomb. She collected a hundred or so testimonies and portraits over the course of ten years and has made that collection available through a well-known and distributed press, Random House. Gallagher has thus made the communities' grievances visible to popular audiences. *American Ground Zero* is a corpus that painstakingly demonstrates case-by-case how unencumbered nuclear potential has metastasized through military, local and federal government systems, affiliated commercial industries, and affected civilians. *American Ground Zero* is a slow and devastating walk-through of avenues that communities and individuals have taken, and abandoned, their journeys plagued with red tape, bureaucratic wild-goose chases, and classified records of judicial malpractice. Gallagher's portraiture attempts to make the space between the photographer and the photographed a space of reflection on the policies and politics that brought her subjects to their breaking points. In airing their grievances, she reorients the top-down structure of AEC-era administration to reveal real and present consequences of the union between nuclear power and presumed national security. I discuss Gallagher's work in more detail in "3.2 The Contract."

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[48] "I had acquired some recently declassified Atomic Energy Commission documents from the 1950s that were both riveting and disturbing." Gallagher mentions but does not cite this memo in Carole Gallagher, "Nuclear Photography: Making the Invisible Visible," *Bulletin of Atomic Scientists* 69, no. 6 (2013): 43.

While Conner's *Crossroads* enjoyed a memorable, lasting effect on museum audiences and was recently on view at the Carnegie Museum of Art in summer and fall 2020,[49] there are two other artists who are not in the Atomic Photographers Guild that warrant mention. In recent years, Meridel Rubenstein's and Richard Misrach's work have increased in popularity, likely in the wake of various impending climate catastrophes. Though at the time of publishing, Rubenstein's work did not have the wide-ranging, public attention that Conner received when he exhibited *Crossroads*, though, at the time of writing, Rubenstein's work has seen a small resurgence in 2020 and 2021 at the New Mexico Museum of Art.[50]

Working in the late 1980s and into the 1990s, Rubenstein's prominent works involve collage and oral histories woven together into a visual understanding of the social effects of the testing on New Mexican communities that were closely affiliated with Los Alamos, both the town

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[49] Due to the Great Pandemic of 2020, it was not possible to watch the short movie in a small, enclosed, public space at the Carnegie Museum of Art, but the Nevada Museum of Art in Reno exhibited Conner's work during their 2016 "Art + Environment" conference and accompanying exhibition. It is here that we can draw the connection between climate change's catastrophic effects with those of the Nuclear Age. I have written about this elsewhere, Lily Brewer, "'Unsettled': Exhibiting the Greater West," *Contemporaneity* 7 (2018): 113–17.

[50] Rubenstein's work will be exhibited in *Breath Taking* from February 12, 2021 to July 25, 2021 at the New Mexico Museum of Art (NMMA). *Breath Taking* explores this necessary act for living as a "cooperative venture with our landscape." She will exhibit her work in Wordplay from February 8, 2020 to February 21, 2021, also with NMMA, an exhibition that explores the relationship between image and text within photographs of vernacular environment. The museum is a steward of a range of Rubenstein's work, notably the New Mexico Photographic Survey Project (1981–1984), exhibited with others in the online exhibition New Mexico Art: Tells New Mexico History, funded by the National Endowment for the Arts.

and the laboratory. One of these works is an exhibition entitled *Critical Mass* (1989–1993).[51] *Critical Mass* documents the encounter between the Los Alamos scientific community and the San Ildefonso Pueblo in a home at Otowi Bridge. Rubenstein showcases the social story of this congregation through three installations. The first installation consists of a grid of portraits of the members of this combined community taken by Rubenstein and her collaborator, artist Ellen Zweig. In this installation is a collection of photographs taken of artifacts that were unique to the community and to the production of the bomb (e.g., an Awanyu pot, Little Boy's encasement "Jumbo," a corn husk, the "Jezebel" reactor). The photographs' inclusion elevates the members of this community into Los Alamos scientific mythology. The second installation, *If Archimedes*, is a videowork by Rubenstein and her two collaborators, videographers Steina and Woody Vasulka, that sutures Robert Oppenheimer's dichotomy: "My two great loves are physics and desert country; it's a pity they can't be combined."[52] *If Archimedes* is an allusion to the eponymous philosopher's biography, who gave up his theoretical work to help the defense of Syracuse in the third century B.C.E. The video includes heavily manipulated images, ranging from a log cabin, a photograph of the sun, several distorted trees, the photographic emulsion process, and a recurring snake motif. The third installation is *The Meeting*, a collection of artifacts arranged on a table that "assembles a chaos of objects," [53] accompanied by another videowork that "seats" the actors playing some of the foremost agents in the bomb's production, such as Oppenheimer, Enrico

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[51] The term critical mass refers to the smallest amount of fissional material that can sustain a chain reaction.

[52] Meridel Rubenstein and Ellen Zweig, "Critical Mass," in *Belonging: From Los Alamos to Vietnam*, ed. Olga Karras (Los Angeles: St. Ann's Press, 2004), 82.

[53] Lucy R. Lippard, "Philosophical Fallout," in *Belonging: From Los Alamos to Vietnam*, ed. Olga Karras (Los Angeles: St. Ann's Press, 2004), 108.

Fermi, Niels Bohr, and Albert Einstein, on the chairs around the table in a reimagining their communion through materials, artifacts, and configuration. The exhibition was supplemented with Rubenstein's photocollages. These collages depict photographs of the bombs, craters, and natural features of the landscape, arranged in pentagonal, five- to six-feet frames, inviting the visitor to imagine a house or spire. In one of these collages, she composes a work of an EKG printout of a fetus's heartbeat and an infant's right shoe.[54] Rebecca Solnit writes in her exhibition essay that Rubenstein's work, arranged in such a "constellation," connects the celestial patterns we connect in the sky as well as the ones we draw on earth.[55]

Los Angeles-based photographer Richard Misrach also emerged in the late 1980s and early 1990s. His award-winning environmental history and photobook *Bravo 20: The Bombing of the American West* is focused specifically on a small Nevadan community's organizing and protest against the Navy and Air Force's unsanctioned, illegal bombing and unlawful land use in the area from the 1940s through the 1980s.[56] Published by a well-known and distributed press, Johns Hopkins Press, in 1990, *Bravo 20* features Richard Misrach's photography and Myriam Weisang Misrach's environmental history. It is a monograph that features a sixty-four square-mile area of land in northwest Nevada, a region that encompasses the town of Fallon near Nellis Air Force

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[54] The biometrics of breath and a sentimental object are also present in Kavanagh's *Daughters of Uranium* and are exhibited alongside each other.

[55] Rebecca Solnit, "Drawing the Constellations," in *Belonging: From Los Alamos to Vietnam*, ed. Olga Karras (Los Angeles: St. Ann's Press, 2004), 72. Twenty-years later, Kavanagh's work *Atomic Suite* would parallel the multivalency of different media and forms, and *Daughters of Uranium* would take up the social history of the Trinity site, told through videoworks, artifacts, and representations of her breath.

[56] Bravo 20 won the PEN Center West Award in 1991.

Base[57] and a landform known to settlers as Lone Rock and to the Numa and Paiute as Wolf's Head. In her environmental history, Myriam Weisang Misrach outlines the history of violence to the land conducted by the Navy and Air Force, which was unlawfully executed by Congressional legislation and illegally brokered by the Bureau of Land Management (BLM). Richard Misrach's photographic series highlights this violence while framing the mere act of photography as civic activism in the effort to save the sacred landform and preserve public land.[58] The artist worked directly with local activists Richard Bargen and Dick Holmes, staging and photographing sit-ins, hosting town hall meetings, and participating in letter-writing campaigns to congresspeople. In tandem with local protestors' organizing, photography, in the Misraches view, is an exercised partnership with others-in-protest that operates within military-bureaucratic and outside sovereign power in order to challenge that power.

Bravo 20, like many of the practices named here, asserts that photography is a necessary civic skill that critiques and resists governmental power. The exercise of photography is the exercise of civic power. Such photography activates a realignment of social and power relations

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[57] The Atomic Energy Commission established the Nevada Proving Grounds on the Nellis Air Force Gunnery and Bombing Range in southern Nevada. In 1955, the name was changed to the Nevada Test Site. In Nevada alone, the Department of Energy executed a known 928 tests, where over 100 were tested above ground and over 800 below ground. "About the NNSS," *Nevada National Security Site*, accessed October 26, 2018, https://www.nnss.gov/pages/about.html.

[58] For discussion on eco-criticism in landscape art and criticism, see: Ben Tufnell, *In Land: Writings Around Land Art and Its Legacies* (London: Repeater Books, 2018); Peter Sloterdijk, *Terror from the Air* (Los Angeles: Semiotext(e), 2009); Anna-Sophie Springer, ed. *The Word for World is Still Forest* (Berlin: K Verlag, 2015); Emily Eliza Scott and Kirsten J. Swenson, *Critical Landscapes: Art, Space, Politics* (Berkeley: University of California Press, 2015); and James Nibsit, *Ecologies, Environments, and Energy Systems in the 1960s and 1970s* (Cambridge: MIT Press, 2014).

and spaces between the governing and the governed. It was and still is considered unpatriotic to contest the Navy's claims to land, demand repairs to damaged property, or to protest young pilots' joyrides above civilian land – all of which are complaints Fallon's inhabitants leveled against the military. Nevertheless, Misrach and grassroots organizers mobilized their northwestern Nevadan communities through not only photographing, but also occupying the area of land called Bravo 20, empowered by letter-writing campaigns and town hall meetings. By acting on behalf of the land on which they reside, the organizers, including Misrach, claim the area as a public site, which renegotiates its de facto use and later its legal statuses. The collaborative and radical photobook is an environmental history, resistance account and curated collection of Misrach's photographs. It also includes a proposal for a Bravo 20 state park, which they hoped would provide a physical and conceptual blueprint for community-based healing, leisure, and general enjoyment. *Bravo 20* focuses on local groups' organizing to protect the communities and reclaim public land that the government wrongfully claimed belonged to the military. As a markedly 1980s practice with attention to weapons testing and military overreach, Misrach's landscapes endure through artifacts of cold-war-era political architecture that established the chronic-crisis condition that made civic advocacy, through photography, necessary.

It is, in part, due to both the distance from ground zeroes and the ignorance, scorn, and neglect by elected officials to the plights of their electorate that art and documentary photography when framed as civic protest seem ineffective. Rubenstein's *Critical Mass* and the Misraches' *Bravo 20* characterize communities that are harmed by the state's ignorance at best and malfeasance at worst.

There has been little significant change in policy. In fact, the Nuclear Posture Review published by the Office of the Secretary of Defense is consistently updated – the first time in 1994,

then in 2002, 2010, and 2018 – with heightened language that reflects the perceived threat to national security that international armament poses. Furthermore, the United States and other nuclear weapons states have not signed the Comprehensive Nuclear Test Ban Treaty of 1994 (CTBT), which would disallow nuclear armament and testing of any kind within the state's jurisdiction, and work against nuclear armament and testing outside that state's jurisdiction.[59] Proximity to ground zero and other immediate effects of testing and lack of ratified legislation, policy, or treaties make little difference. To be sure, an international de facto détente is not policy, but it produces a perfunctory and uneasy cultural anxiety. The reality of mutually assured destruction reigns as nuclear weapons armament proceeds as a performance of national, military virility.

3.1.4 Mary Kavanagh and Civil Resistance

It took more than forty years for non-scientific photographers to contend with nuclear issues and even more to draw it into international discussion. Mary Kavanagh plays a crucial role in this developing strand of practice. Her photoworks, which include Los Alamos National

[59] On August 5, 1963, Congress ratified the Limited Test Ban Treaty, discontinuing atmospheric testing. The 800 or more subterranean tests halted when the United States entered the Comprehensive Nuclear Test Ban (CTBT) negotiations on September 24, 1996. As of the September 2018's CTBT Ministerial Meeting, the U.S. has not signed the treaty, and it has not come into effect. According to the Seventh Joint Ministerial Statement in September of 2014, "[a]lthough the Treaty is yet to enter into force, the nuclear test moratorium has become a de facto international norm. However, without the lasting and legally binding effect of entry into force of the Treaty, such a norm remains fragile." "2014: Seventh Joint Ministerial Statement: CTBTO Preparatory Commission," Commission for the Comprehensive Nuclear-Test-Ban Treaty, https://www.ctbto.org/the-treaty/ctbt-ministerial-meetings/2014/.

Laboratory's archival photographs, and installations, exhibited in *Daughters of Uranium* (2019–20), create an archive, one that brings to bear the continued, lived experience in a so-called post-atomic age. A suite of images, videos, and interviews, *Atomic Tourist: Trinity* (2014–) is a photographic research project that explores nuclear tourism based in collective and cultural memory of the testing program in the region. Her work emphasizes individual, disparate travelers' motivations in visiting the Trinity Test Site from all over the continent and world, paying close mind to the internationality of the nuclear. Other projects, such as *Track of Interest: Exercise Vigilant Eagle 13* (2015), *The Expulsion* series (2015), parts of *Atomic Suite*, as well as her currently unpublished and unexhibited works, concern other aspects of weapons preparation and testing. Kavanagh's excursions, residencies, historical and visual studies are all encompassed under her arts-based research project. The term we apply to her investigation, "discursive strata," is a significant line of inquiry into her approach.

The "discursive strata" of the Trinity Site and similar sites are not simply the piece of land and the events enacted on it. Discursive strata engage historical and scientific pursuits and their resulting discussions, studies, and publications within, for example, a sub-discipline like post-atomic studies. *Weaponized Landscapes* and *Nuclear Citizenship*, themselves another intercalation folding within these overlaying experiences, explore how Mary Kavanagh's photographic and research-creation is a civic performance and civil duty, wherein the visitors, photographers, and audiences are participants and question the public histories and memorialization that have enveloped the Trinity Site. Indeed, like all photographers discussed here, Kavanagh's practice is necessarily site-specific, and it focuses on tourists and their motivations to visit the Trinity Site. While she does not focus exclusively on the lived experiences of the site's residents, she interviewed some who were personally affected by radiation, such as a worker at Bikini Atoll and

a scientist at Los Alamos National Laboratory working after the war. Her collection of testimonies and portraits mark the continuation of the shift from modeling ballistics and its infrastructural destruction to using environmental and humanitarian photography that tracks the longitudinal, cultural effects of nuclear weapons testing on individual bodies, communities, and the landscape. The collection and exhibition of the testimonies and portraits identify critical hallmarks employed in social documentary photography. Her documentary photographs and videos focus on the socio-political and environmental effects of testing and reflects how the camera can be used as a tool for social transformation. Her practice is the continuation of a methodology of photographic experimentation and documentation that imagines new spaces of encounter between the photographer and the subject.

As part of this disaster repertoire, Kavanagh helped shape the APG's mission. Together with the other photographers, who represent several countries, Kavanagh, though her collaborative partnership with Peter C. van Wyck, traces the international production line from uranium mining in Canada. Through her partnership with Black Fitzpatrick, she outlines networks of infrastructure throughout the United States and the former U.S.S.R. Through her partnership with Del Tredici, she describes weapons deployment in Japan and Kazakhstan. Other photographers here consider these countries as well as Australia, Ukraine, and the Marshall Islands.[60] Initially guided by

[60] As nuclear weapons and public positions shift in the coming decades, it would be interesting to see the APG feature Pakistani, Indian, Iranian, Chinese, French, Israeli, and English photographers, all from countries with substantial nuclear weapons stores. I use the term "substantial" with a grain of salt as it only takes one atomic or hydrogen bomb to level a quadrant of a city and for the radiation to irradiate the whole planet's atmosphere. Susan Schuppli investigates material evidence of such global radiation in her work in Sonic Acts, "Susan Schuppli: Disappearing Evidence: The Mysterious Case of Uranium-235 and Other Tales," *Vimeo*, 2016, https://vimeo.com/158453728.

concerns of nuclear weapons accumulation, deployment, and containment, they focus on the landscapes and its inhabitants and visitors. In recent years, their scope has grown to include discursive, ethical, and ecological dimensions of primarily nuclear weapons testing but, at times, other testing and deployment as well. All APG photographers use and illuminate historical moments along the timeline of weapons testing since World War II, moments that accumulate into visual representations of invisible radiation and its socio-political, cultural, and environmental impact. Kavanagh's practice emphasizes these featured concerns, while simultaneously serving as their archive as well, most prominently as they bear on landscape, ecology, production lines, and demonstrations of military preparedness.

One of her first curatorial and installation works that deals directly with North American nuclear condition, *Atomic Suite* (2012), is an multimodal installation project that addresses the history of the atomic weapons industry and culture through video projection, seventy-two photographs arranged in a grid, and thirty-two pencil works and paint works on paper – "an archive of historic[al] residue," she describes in an overview for her exhibition at Art Gallery Calgary dated November 17, 2011. During an eight-week residency at The Center for Land Use Interpretation (CLUI), Kavanagh engaged with the physical archive on the land, which is preserved, albeit deteriorating, within the airfield, and she interviewed residents and workers, explored the region, and tracked her movements by collecting soil and rock samples, and military detritus, artifacts that she often includes in her exhibitions. She was granted access to bomb-loading pits, munitions silos and storage facilities, as well as other artifacts of wartime preparation.

Conference paper delivered at the Sonic Acts Academy, February 27, 2016, De Drakke Grond, Amsterdam, The Netherlands.

Her on-site, field study culminated in a multi-faceted investigation into the nuclear and its militarized support.

The videowork that accompanies *Atomic Suite* comes in four movements. Movement I depicts parachute training; II depicts controlled-environment ordnance disposal; III depicts a tumultuous and abstracted view of inside the center of the Enola Gay hangar on the now decommissioned Wendover Air Force Base; and IV is a Japanese Butoh dance with Techan Imai in Hopi, Arizona on the Hopi Reservation. Each movement forefronts questions of labor in military preparedness – and the consequences of warfare.

Thirty-six years after *Crossroads*, the videowork accompanying *Atomic Suite* mirrors the time-delayed feature in Conner's sound and image relationship in *Crossroads*. But in *Atomic Suite*, Kavanagh films the contained explosions used to decommission expired ordnances, which are blown up by United States Marines in a controlled environment. She edits the video of their explosion with a time delay: the resulting moving image appears less like continuous footage and more like stacked, translucent photographs that build to a larger and larger explosion. The stop-motion appearance of the detonation in *Atomic Suite*, like the sound delay in *Crossroads*, is a fabricated phenomenon that curates a nearer vantage point through sound and image in order to shorten the distance between the observer and the event. While the stop motion gives the video a sense of slowing down, she has noted that in the moment of detonation, the explosion indeed traces the contours in real time. However, the caesura manufactures a distancing, a sort of visual Doppler Effect: sound slows down, and time is synthetically extended in the blast's expansion in a stop-motion effect. In this way, it brings the audience closer to the detonation event. For *Crossroads*, the archival footage and the use of the authoritative, governmental archive attempts this closure.

In this way, viewing both *Crossroads* and *Atomic Suite*, we can imagine a conceptual and a physical Ground Zero, a landscape-as-artifact, through visual representation.

In Movement I, in slow motion, United States Marine paratroopers emerge from a C-130, a transport aircraft, in a training demonstration for missions in Iraq, Afghanistan, and Libya. Kavanagh has associated the paratrooper's position in the sky as a position of military might. For Kavanagh, the paratrooper might represent the might of the American military, they might also appear fragile against the immensity of the sky. She had to train her sight, her lens, against a small figure against the vast, blue of the sky. Bearing witness to their training is a simultaneous conjecture between the omnipresence and -potence of the U.S. military and the frailty of the individual within not only the military body, but the landscape as well.[61] There is, perhaps, a two-fold visual effect here between the glorification of armament and the labor it entails, as well as the labor of disclosure and liability of such labor. The movement ends at what would be the beginning, with the paratroopers, in slow motion again, boarding the carrier plane.

Movement II begins with a wide angle shot of the Utah Test and Training Range, and trucks and smaller vehicles exit the frame to the right. The background noise reveals some rustling caused by the wind. An Intercontinental Ballistic Missile (ICBM) Minuteman explodes on the ground, just under two-and-a-half-miles away from Kavanagh. The explosion starts with a small star of light at the center of the shot, and over the course of thirty seconds, this small cluster of white rays convulse and expand, in slow motion, into a plume of dust-colored smoke. Before the smoke, the star's first blast grows but pauses for a moment after six seconds, and again, grows and pauses

[61] An-My Lê also showcases these motifs and themes in her series *Small Wars* (1999–2002), *29 Palms* (2003–2004), and *Events Ashore* (published in 2014).

after three seconds, and then again, grows and pauses, four seconds after that. Each pause contours the expanding blast radius, and each pause posits a plot point to the rate of the explosion's growth. Thirty seconds after the initial star appeared, the detonation releases in real time, marked by a visible shockwave over the ground. About thirty-seconds after the appearance of the initial star, the detonation's shot is heard. Kavanagh allows the audience to see the detonation slowly and deliberately, acoustically accompanied only by a single tone that ends with the crack of the soundwave finally reaching the artist's ears. The cloud of smoke camouflages slowly with the clouds in the sky. Slowing down time allows for Kavanagh to show her viewers this rate of growth, a motif in her work.

Movement III take place inside the Enola Gay hangar, the hangar that housed Boeing B-29 Superfortress Bomber that dropped the first atomic bomb on Hiroshima, Japan. The camera quickly spins clockwise as the room spins counter to that centripetal movement, mirroring the torque (but nowhere near the unimaginable speed) of the cameras developed for the Trinity Test. The high-speed rotating-mirror frame camera, developed by Berlyn Brixner in preparation for the test, would have used a rapid-oscillating mirror to reflect the light input from the lens onto the film. To do this, the objective lens directs the beam of light to the rapidly oscillating mirror, which in turn splits the beam of light along two paths to the final relay lens to form the image on the film plane, a process that produces a series of pictures.[62] Kavanagh's spinning technique mirrors, so to speak, the mechanics used to develop the weapon that the hangar would later house, and the use of digital film might emulate some of the effects made possible by the spinning mirror; a long exposure of steel beams, corrugated walls, and light from the clerestory windows makes blocky

[62] Berlyn Brixner, "A High-Speed Rotating-Mirror Frame Camera," 503.

refractions on the surface of her lens. She has said that her spinning movement was a visceral reaction to the horrors that would precipitate from the Enola Gay hangar, the bomb's first stop before its deployment over Hiroshima. The spinning, she has said, was a dance of grief, of frustration in bearing witness to one of the bomb's temporary homes. Merging the past mechanics and contemporary digitization, Kavanagh plays with photographic mechanics but does not mask how sites of conflict retain aggression. The dizzying movement recalls how photographs taken at those sites today can recall that aggression and her cinematic compulsion to explore the space.

Another discursive stratum influencing the viewer's experience comes in Movement IV. Techan Imai, a Japanese Butoh dancer trained by the famous Ōno Kazuo, performs in a commissioned piece in the Arizonian landscape on the Hopi Reservation there on the sixty-fifth anniversary of the first atomic bomb's foreign deployment on August 6, 2010. The Japanese Butoh (舞踏) dance, ankoku butoh or "dance of darkness," was formed in postwar Japan by Ōno and Tatsumi Hijikata, who responded to Japan's shift from an Imperial power during the Asia-Pacific War, to its defeat in World War II, and then to its status as a U.S.-occupied state.[63] Indeed, it had roots in artistic and performative traditions and therefore also emerged as a response against traditional forms of theatrical expression, specifically the beauty and skill involved in the Noh dance tradition.[64] In part, however, butoh was too a response to the atomic bomb's deployment in Japan, and it articulated a response within the irradiated body, specifically for the bodies of the

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[63] Adam Broinowski, "The Atomic Gaze and Ankoku Butoh in Post-war Japan," in *Reimagining Hiroshima and Nagasaki: Nuclear Humanities in the Post-Cold War*, ed. N.A.J. Taylor and Robert Jacobs (New York: Routledge, 2017), 91.

[64] Note the etymological discussion of 舞踏. Vicki Sanders, "Dancing and the Dark Soul of Japan: An Aesthetic Analysis of 'Butō'," *Asian Theatre Journal* 5, no. 2 (Autumn 1988): 152.

survivors, hibakusha. As part of the larger avant-garde movement in Japan, irregular jerky movements bind the dancer to the ground; his movements are an attempt to ground him as they, in equal measure, try to enable flight. The earth is the physical grounding point for ankoku butoh, the expression of emotions and remembrances, where the body is not moved consciously, but in unchoreographed reaction to place and sensation. In *Atomic Suite*, ankoku butoh is an embodiment of lived histories and collective experiences of hibakusha, and, in placing it at the end as the final word, Kavanagh positions it in unique dialogue with her dizzying and visceral photographic composure in the hangar.

Kavanagh's *Atomic Suite*, still embedded in Western conceptions of classical narrative conventions, closes with the subversion of those conceptions. The film supplies another space for unrecognized grief and abstracted remembrance in order to represent indescribability. When *Atomic Suite*'s videowork is exhibited, *Atomic Suite*'s seventy-two photographs map a vast area of landscape, from Hopi, Arizona to Wendover, Utah and from Nancy Holt's *Sun Tunnels* (1973–76) to Robert Smithson's *Spiral Jetty* (1970). Her photographs depict an equally broad domain of motifs, such as living, decaying, or dying and represent artifacts of former Air Force structures and materials. Evident in almost all of them is some segment of land, horizon, or far-reaching sky.

Indeed, Kavanagh's research-road-trip from Alberta to Utah requires diligent attention to the road, highway exits, and landmarks, and the attention to the road extends to conscientious picture-taking on stable ground. From the perimeter to the center, she charts points along the site's map: warning signs, barracks, a row of Wonder Bread trucks, an interior of an administrative office, neighboring Wendover, Nevada's skyline, and active military workers in training. While, for example, Lewis Baltz of the New Topographics – a loose consortium of United States landscape photographers working in the 1970s – refrained from outright critiquing humankind's

manipulation of the environment and "made quiet comments on the imperfections they observed,"[65] Kavanagh transparently demonstrates a keen social awareness, a foundation of international nuclear politics, and an attentive gaze toward ecological conservation in her photographs.

Kavanagh's residency at the Center for Land Use Interpretation, which took place for six months between 2010 and 2011, provided the platform for *Atomic Suite*. CLUI, based in Culver City, California with an outpost in Wendover, Utah is a research and education organization that is interested in observing and exhibiting built landscapes and the extent of human interaction with the surface of the earth. The institution maintains that it is "dedicated to the increase and diffusion of knowledge about how the nation's lands are apportioned, utilized, and perceived."[66] The center exhibits the geological, geographical, and material histories of land use in the United States. It has exhibited photographs and published and mailed newsletters that depict an array of human-made artifacts of land use, such as uranium disposal cells, bombing ranges, and experimental aircraft crash sites, while demonstrating the impacts of large-scale production and landscape appropriation. Located on the grounds of the Wendover Air Force Base (WAFB) base that housed the Enola Gay, CLUI Wendover is the fulcrum between contemporary art, landscape, and weapons testing and deployment.

A critical feature of CLUI's programming is the Morgan Cowles archive, a collection of thousands of photographs taken from around the United States from members of the center, artists-

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[65] Kim Sichel, "Deadpan Geometries: Postwar Aerial Photography and the American Landscape," in *Reframing the New Topographics*, eds. Greg Foster-Rice and John Rohrbach (Chicago: Columbia College Chicago Press, 2010), 89.

[66] "About," *The Center for Land Use Interpretation*, https://clui.org/.

in-residence, and some photographs donated by the public. Drawing from this archive, many of CLUI's exhibitions arrange photographs of landscapes and nuclear waste infrastructures in the southwest. It is appropriate for Kavanagh to have found community and conceptual validation here. Writer Sarah Kanouse describes CLUI as resisting the "tidy organizations of research, art, education, or tourism";[67] and, if CLUI Wendover is the support at which landscape, weapons, land use, and art meet, then *Atomic Suite* is an anticipated work that emerges from that domain of untidy categories. Kavanagh takes the heart of the site, the air base, as the subject of her work. It is a "discursive and conceptually active" site from which we may understand that the bombing of Hiroshima was not a singular event;[68] rather it was the culmination and subsequent catalyst for a new condition of the armament industry. Kavanagh's thoughtful responsiveness to CLUI's intellectual strategies is evident in her collection of different categories of material witnesses to nuclear events and their legacies.[69] These material witnesses accumulate and accrete to make new spaces that make the effects of the nuclear condition a discursive object, which in turn lends it what she calls discursive visibility. Kavanagh translates different forms of material into a dynamic narrative, one that she continuously transforms in other exhibition spaces.

The photographic portraits, the landscapes, and the archives serve to emphasize the ongoing dialogues between visual forms of knowledge and the public's perception of these sites. They demonstrate the ways in which photography can operate as a means of civic resistance

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[67] Sarah Kanouse, "Touring the Archive, Archiving the Tour: Image, Text, and Expertise with the Center for Land Use Interpretation," *Art Journal* 64, no. 2 (Summer 2005): 79.

[68] Mary Kavanagh, Board of Governors Research Chair Application (2017).

[69] For more on "material witnesses," see: Susan Schuppli, *Material Witness: Media, Forensics, Evidence* (Cambridge: MIT Press, 2020).

against weapons testing and show how photography can be used as a means of providing some sort of visual evidence airing or illuminating a state's wrong-doing. These practices' motivations scrutinize, collect, and exhibit issues pertaining to contested citizenship, landownership, and civilian access within heavily militarized sites. While certainly not the whole picture, these contours of civic complaint through the photographic act re-stimulate questions of civic entitlements to space, place, and being under and after Cold-War-era administering. There are issues of failing health policies, security infringements, and non-transparent military operations. These have deleterious effects on the environment and surrounding communities. Policies of secrecy keep the public at a distance, and artists wielding cameras, no matter the proximity they attain through shrewd and dogged methods, attempt to point at an image of weaponized landscapes that continuously recede into background noise and atmospheric refraction. As explained through the lens of Kavanagh's work, photography's limits and potentials imbue its practice as a mode of mediation wherein the conscientious stewardship of photographic practices and the act of photography itself activates a community's self-determination. Rebecca Solnit, who advocates the power of the landscape, the impulse to photograph it, and the power of anti-war protest, writes, "systems are hard to photograph, but consequences are not."[70] In the sections that follow, my aim is to bring together a history of photographic practices that attempts to photograph both systems and their consequences.

[70] Rebecca Solnit, "The Invisibility Wars," in *Invisible: Covert Operations and Classified Landscapes*, by Trevor Paglen (New York: Aperture, 2010), 10.

3.2 The Contract

This section, "3.2 The Contract," serves as a bridge between "3.1 Ground Zero," and "3.3 The Applied Civil Gaze." It connects the history of the photographic impulse in war-waging and its humanitarian resistance with an actionable schema that attempts to ameliorate the damage caused by such war-waging. As the bridge between these two motivations, the contract – a social and political agreement – acts as a powerful but complicated abstraction that permits dynamic interpretation of identity and certain entitlements within photography.

In "3.1 Ground Zero," I contextualized Mary Kavanagh's work both within the Atomic Photographers Guild (APG) and a faction of photographer-scientists working within the domain of warfare. I surveyed the scientific and cultural history of photography's use in the fields of the bomb and reviewed the motivations and the realities of photography's use in physics and claimed that it operated too candidly as a surveying method and too contradictorily as a modeling method. Finally, I sketched the shift in focus from the laboratory to a humanitarian-oriented photography, and I offered a survey of photographers that draw on photography's exhibition as a means to reactivate civic concerns with processing environmental and communal trauma. With these themes established, I now turn to identify facets of such social documentary photography – photography aimed at instigating some sort of social or moral transformation – because this transformative impulse is distinct from photography used as an instrument in the physics field. To do this, I articulate the potential for socio-political transformation; however, upon whom that potential for transformation falls is the subject of "3.3. Applying the Civil Gaze."

The discussion in this section focuses on the implicit and tacit agreement between agents, hence the "contract," through a close reading of Ariella Azoulay's postulations in *The Civil Contract of Photography*. When applied to the act of photography, the encounter between a

photographer and their sitter is a contract, and one that is up for negotiation. Azoulay's formulation furthers a sort of spatially defined contract that renegotiates the power dynamics regardless of the political status of any of those agents, be they citizens or non-citizens in a certain state. The action of taking a photograph, then, is a political act committed by the sitter, who might wish to air grievance, and the photographer, who wishes to frame the grievance. As an agent too in this speculative space created by the frame, the audience member's act of sincere reinterpretation in the context of war-waging, military overreach, and environmental disaster manifests in a novel, conscientious gaze wherein it is visually and spatially possible to imagine socio-political transformation, discussed thoroughly in the next section, "3.3 Applying the Civil Gaze." Why would Azoulay's subjects-cum-agents need to self-advocate? Before we take up Azoulay's discussion on the contract and its necessary rights to self-advocacy, I briefly take up two examples, one of Carole Gallagher's sitters and one of Kavanagh's.

Those who sit for Carol Gallagher's portraits, citizens in name but not entitlement to protection, are an example of the importance of legal designations of "citizenship." They were born in the United States, but, being as they're sequestered in a "low-use segment" of United States territory,[71] they're a sample population that, through force of financial and religious circumstances, are prevented from self-advocacy: they are cut off from the rest of the nation geologically, economically, and often religiously. In one such example, one of Gallagher's interviewees, Latrice Johnson, appears alongside a portrait of her son, Layne, a young man with Downs Syndrome who

[71] Carole Gallagher mentions that she had seen this region described as a "low-use segment of the population" in a declassified, internal memo for the Atomic Energy Commission. "Low-use" is an alarming term with respect to "the population," and it may suggest that this region's populace is under-utilized for whatever purpose AEC wanted to enact.

leans back casually against a flagstone wall and poses with a smile between a tall arborvitae and a smaller bush. A tall privacy plant, usually positioned to mark a border between two properties, the bush almost obscures a high-positioned, faded placard that reads "Fallout shelter" beneath a radiation symbol. Signified in the placard against the building's architecture, the state presents itself as a steward of its inhabitants (i.e., they have built this shelter for protection against fallout) and protector against the ills of its own creation (i.e., they have built the shelter for protection against its own testing). In a subtle but not accusatory way, Gallagher draws a line of causation between Layne Johnson's Downs Syndrome and the harm that radiation has caused, but it may be implied in Latrice Johnson's own choice to stage her son's portrait against the structure.

Johnson recalls her struggle for her son's treatment. She had taken Layne to several doctors. She took his plight to lawyers and elected government officials. She received no support, compassion, or aid. In addition to legal and judicial silence, it was imperative to hide and silence her own dissent from the Mormon elders who were leaders in the community. She could only express to Gallagher the desire to turn the Mormon Church's teachings on itself:

> Some people are very immoralistic in their approach to other people. They really love to rule. Joseph Smith [the Church of Latter-Day Saint's founder] said in the *Doctrine and Covenants* that as soon as a person gets a little authority, they rule unrighteous dominion on their fellow man. […] And so I say we have to fight that in every aspect of government, in every aspect of anything.

In fact, "unrighteous dominion" would be suitable, albeit theological, nomenclature for what I have been calling "military overreach." The presence of the state and its so-called protection and the inclusion of her son within Gallagher's photograph implies a connection between the state and her son. Despite Johnson's attempts to advocate for her son to elected officials, to health

professionals, and to local community leaders, the only place her grievances found purchase were within Gallagher's photograph, alongside more than 100 others in a vast portfolio and its distribution as an academic publication.

Kavanagh's presence with a camera at the Trinity Test Site invited a similar encounter. One of her interviews was with an individual, "Tourist A,"[72] who was working at the Department of Defense for the United States government as a technician under the AEC administration and was present during a series of tests. Tourist A expressed a strong desire to tell others their on-the-ground experiences and to relay the effects that testing has had on their life. Like other tourists Kavanagh has interviewed, Tourist A has described the necessity of war and weapons of mass destruction and that their job as a technician was just that – a job, neither significant nor insignificant. This testimony is different, however, in Tourist A's insistence that the bombs deployed in Hiroshima and Nagasaki incurred lasting damage to those cities. Interestingly too, Tourist A was interested in relaying to others what they saw and what they felt during the tests, which they maintain was contrary to public perception. Tourist A's testimony then is an attempt to rectify what they think is a common misconception in the public's concerns about radioactivity, primarily that it was indeed wide-reaching and incredibly harmful and that the authorities were not experienced or prepared enough to reckon with the aftermath.

Out of the hundreds of interviews Kavanagh has collected, Tourist A is an example of the socio-political lilt that intones aspects of social documentary photography. Kavanagh commits

[72] At this time, I will keep details vague and only for background. Kavanagh has not released the content of these transcripts to the public, though she has given me permission to use some videos for *Weaponized Landscapes: Trinity*. She has written up a contract for her interviewees, and her interviewees have signed the release.

Tourist A's portrait to film. The portrait is not candid, though it is not staged either. The portrait does not bear witness to singular human tragedy, though the portrait and testimony are not politically benign either. Kavanagh asks Tourist A a set of prepared, generic questions that lead into a more specific yet conversational back and forth about Tourist A's lived experience during AEC's governance, and Tourist A even invokes the AEC's presence in their lived experience during the tests. Unlike Gallagher's sitters in her social documentary, Tourist A is not posed; rather, they are active and animated in the frame, and they drive the conversation along a seemingly familiar syntax of retellings. Tourist A's dialog is not rehearsed, though it is prepared as if they frequently received questions similar to the ones Kavanagh asked. Like Gallagher's sitters, Tourist A wants to broadcast a message, a testament to their unique experience. It is important to note that Kavanagh did not put out a call for interviews. Her method is to casually invite the memorial's visitors into conversation. Unlike Gallagher's sitters, who knew she was in the area and have invited her into their home with the expectation of answering her questions and consenting to a portrait, Kavanagh's interviewees do not have access to her questions beforehand. Nevertheless, Latrice Johnson's and Tourist A's posturing befits an attentive and conscientious agent in their story's telling.

In these two examples, we can see agents within the photograph's frame, and these agents attempt to renegotiate the terms of their livelihood and rights to exist. It is in this way that Azoulay's political methodology interprets new spaces of encounter between the photographer and their subject, one particularly designed to disclose individual grievances in the public sphere. I then extend this argument by considering Judith Butler's theorization of the photographic subject as a victim – a politically and legally grievable agent – and identify tensions between the distinct, yet interrelated positions of "citizen" and "victim." Working through Azoulay's civil contract and

Butler's grievable agents, I develop an argument that situates Kavanagh and her APG peers within the history of photographic experimentation and documentation as a methodology that describes unique territories of confrontation that the act of photography arbitrates.

3.2.1 Ariella Azoulay's Civil Contract

In *The Civil Contract of Photography*, Ariella Azoulay conceives of a social space wherein the camera and photography's participants are politically reinterpreted toward political transformation. Given this definition, the space of encounter between the photographer, the sitter, and their surrounding conditions (e.g., in a warzone, in a domestic space, in a federally controlled space, and so on) invites reinterpretation. By "reinterpretation," Azoulay means that governed people who consent for their photograph do not sit candidly; rather this reinterpreted space transforms into a space wherein the governed may air grievances about their lived experiences, their living conditions, or their treatment by oppressive operatives. It is then, in this space, that the encounter between the photographer and the photographed creates and is created by a domain of necessarily social and political relations, even if just for a moment, outside traditional power structures that are often tacitly accepted as absolute. Azoulay's case study, the treatment of Palestinians in the state of Israel, is politically provocative, and it is not an example that I take up here. Nevertheless, her framework is toward a speculative space wherein an encounter invites all related parties – the photographer, the sitters, and the audiences all – to reframe themselves not as passive, marginalized individuals but rather as active, dynamic agents politically capable of communal organizing and self-advocacy.

Briefly, Azoulay claims that photography's presence mediates the encounter between these actors. I argue that the relationship between the governor and the governed assumes a new shape

during war preparation, where civilian rights are amended on the fly by means of bureaucratic state-assemblages such as the Bureau of Land Management, the U.S. armed forces (as I described in my brief discussion on Richard Misrach) and the health sector (as I described in my brief discussion on Carole Gallagher). In this view, the government abets the manipulation of its citizens' rights by, for example, issuing Notices of Intent, coercing land acquisition, social engineering, interfering with public needs and essentials, broadcasting written and verbalized propaganda, and so forth. Through the photographic encounter, Azoulay proposes a path to renegotiate these rights toward goals to attract health policy reform, drive military presence out of public lands, demand disarmament and public awareness, among others.

Azoulay claims that the act of photography creates an implicit and tacit contract between the parties involved in the space produced by the photographic encounter. She invokes this contract in her brief discussion of Jean-Jacques Rousseau's social contract. "The civil contract of photography," she writes, "is a social fiction or hypostasized construct in the same sense that Rousseau's social contract was conceived of something that has 'perhaps never been formally set forth' previously, yet that is 'everywhere the same and everywhere tacitly admitted and recognized."[73] In other words, as Rousseau's social contract now enjoys quotidian and almost invisible application, Azoulay invites a civil contract to enjoy a similarly conventional status within social, documentarian photographic practice.

Her contract draws on another intellectual history, that is, she draws on the recognizable patterns of power and exploitation within traditional conceptions of what a contract or a declaration is. She invokes Marquis de Lafayette's *Déclaration des doits de l'homme et le citoyen* (1789) and

[73] Ariella Azoulay, "Introduction," in *The Civil Contract of Photography* (New York: Zone Books, 2008), 26.

Olympe de Gouges's *Déclaration des droits de la femme et de la cityoenne* (1791). Works like these tacitly recognize patterns of social behaviors that precipitate from the conditions arbitrated by political and power relations between individuals and the state. When agents recognize these patterns and declare a stance against them, they negotiate the rights to participate in the political sphere. Thus, for Azoulay, the civil contract of photography is "a form of mutual obligation that precedes the constitution of political sovereignty"[74] that is constructed by the encounter and moderated by the camera. In this sense, the relationship between photographic technology and the encounter it moderates draws up an agreement between these agents. This contract is an exercise in testing the political configurations of power and participation toward renegotiating that power.

Azoulay clarifies that the contract is a figurative and tacit agreement between parties, though it is informed by socio-political and behavioral observation. I further claim that the agreement between these parties is predicated on a person's status within the community. Photography is the practice of framing an event and producing the space that reconfigures political relations, and the presence of the camera moderates or modifies the ways in which individuals are governed, even if just for a moment. Within the frame of photography, those who are photographed, for that moment, exist in a space wherein the political relationships between them and the photographer are reconfigured. The act of photography and the encounter it prompts is a space that invites the subject to exist temporarily outside their oppression. In this formulation, a photograph is one possible manifestation of this encounter that frames a performed action and converts subjects into agents.

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[74] Ibid., 104.

To be an agent within power's realignment is to be what Azoulay calls a "citizen of photography." Her nomenclature of "citizen" and its politicizing status "citizenship" is perhaps a stretched formulation but one that suggests a powerful and political status within the frame, which she proposes is "borderless and open."[75] The agents within the frame are welcomed into a space of political reconfiguration where all presences made by the actors are equitable. In my view, Azoulay's contract, when framed as a renegotiating moment within which agents are citizens of that moment's encounter, is more figurative than actionable, and I maintain that citizenship status within the frame of photography is more symbolic than executable. Nevertheless, this citizenship status potentially enables some actionable claims to power's realignment through the airing of grievances and establishing reasonable expectations for self-advocacy. How are the framed agents able to act upon their utterances within this new alignment? Upon whom does the responsibility toward these agents and their grievances fall? I take up this matter to inquire about the use of the contract of photography in military-operational pictures and portraits and the attending testimonies. Indeed, to be a citizen of a discrete, delineated space is to submit to the governing force's political, power dynamics on a smaller, more equitable scale.

For my use, the civil contract regulates encounters, opens space for injured parties to present their grievances and make visible their injury, and articulates how social and political relations manifest in the realm predetermined by sovereign decision-making. The contract delineates a constructed space of civil relations that is enabled by photography as an event or an act, a photographically reconceptualized and politically renegotiated space that questions photography's political configuration and that reflects on how photography affects modern

[75] Ibid., 93.

sovereignty. Azoulay writes, "[t]he invention of photography was the creation of a new situation in which different people, in different places, can simultaneously use a black box to manufacture an image of their encounter: not an image of *them*, but of the encounter itself."[76] This is to say that photography crafted a new type of observer, one who didn't experience the act of looking solely in a museum space but rather one who experienced the image's journey through new modes of circulation, consumption, and rationalizations. The new observer created a new type of encounter with the image. The new gaze that resulted from the invention, development, and use of photography, what Azoulay terms, "the civil gaze," activates this new space of political relations: the photographer is behind the camera and the subject is before it, but absent from the field here are the invisible, political, social, and economic conditions in which the encounter manifests and the conditions within which the encounter prompts. The space of political relations between what is seen and what is not, who is present and who is not, brings forth that new gaze. When the observer considers not only the relations but the presence and absence of subjects and their interactions, the gaze transforms a static field of vision into one that is dynamic. This means that the photograph, the material product of an inherently social and political encounter, identifies and orients, directs and intends.

3.2.2 Citizenship and the Civil Gaze

It is important now to set some parameters on what is meant by "citizenship." Citizenship is a politically defined term that is necessarily technical when formulating who has what access to

[76] Ibid., 88–89. Emphasis in original.

certain features of governance and its protections. While Azoulay offers a conceptual vantage of what a citizen is entitled to within the confines of a legal framework, she does not illustrate, through example or otherwise, what her definition of citizenship is. Furthermore, I posit that her definitions, though helpful when framing a subject-cum-agent within the frame of a photograph, do not supply an adequate framework through which we can understand multivalent identities within that frame. My discussion then invites a legal definition of citizen and its constituent parts for citizens and non-citizens alike. Therefore, I supplement my discussion of citizens of photography with Shourideh C. Molavi's formulation of complex identities within defined legal frameworks because she most closely shares Azoulay's orientation toward a shared subject.

Molavi details the requisites of citizenship as the intersection of identity and law. Fully articulated citizenship, explains Molavi, is an institution and a "form of social membership used as a basis for claim-making with which comes access to rights," rights that "reflect the self-definition of the particular state order."[77] This definition implies a citizen's right to access to public goods and services and participation in other state institutions. She follows, "[i]ndeed citizenship has emerged as an issue which is central, not only to practical political notions concerning access to health-care systems, educational institutions, public programs, and the welfare state, but also to concepts of legal jurisdiction and social membership."[78] Molavi asks not *what citizenship is*, but rather *what is called citizenship*. As a status, citizenship involves a passive mode of operating within the identity of a citizen (e.g., access to passports, mobility, and entitlements that are

[77] Shourideh C. Molavi, "Liberal Citizenship: Ambiguities and Inconsistencies," in *Stateless Citizenship: The Palestinian-Arab Citizens of Israel* (Chicago: Haymarket, 2013), 25.

[78] Ibid.

inherited through parents, birth location, and naturalization); but as practice, citizenship involves a transformation through active articulation of self-determination and self-identification.

For my purposes, it is not enough to ask what a citizen is, or what citizenship constitutes. The Downwinders are, for the most part, citizens of the United States and should therefore be entitled to the protections that such citizenship affords. However, this is not the case, because their plights are not listened to or not taken seriously. The residents of Fallon, Nevada are, for the most part, citizens of the United States and should be entitled to rights concerning the protection of their livelihood and living conditions. However, this too was not the case in their battle against the Air Force and the Bureau of Land Management to protect their rights. Tourist A is a citizen of the United States and should have been entitled to safe workplace conditions and established and reliable safety protocols. But as with many of Kavanagh's sitters, this was not the case. It is clear here that Azoulay's productive work attempts to frame citizenship as a conceptual but clearly not a necessarily legal practice, wherein the act of photography is a manifestation of labor and action between two or more consenting parties, or, the "first step of making a civil address."[79] Therefore it is in this understanding, along with Molavi's legal understanding, that we can position the photograph, thus politically defined, toward a form of social membership, one that is committed to social and political transformation when the photograph of the aggrieved is framed within the viewer's attention as a means of resisting oppression.

It is in this way that Kavanagh's *Atomic Tourist: Trinity* makes a civil address when she summons disciplines, agents, and materials to the forefront of her work. As an artist, not a photojournalist, Kavanagh's role is not to help shape the military-industrial complex's narrative

[79] Azoulay, *The Civil Contract of Photography*, 143.

from the top down. Rather, her role and the role of her work is to take apart the large and conceptually unmanageable pieces and reposition them within her own frameworks. The top-down structure is reversed: the workers, sites, instruments, discourses, and communities are responsible for the narratives that make up our public opinions of national security and what this security should entail. Furthermore, the increased use of photography as a civic act, made possible through the rapid development of the technology and the means to share the photograph, deterritorialized photography. The spectator could be anywhere in the world. Thus begets the imperative of the audience's responsibility toward speculative and creative critique and toward suffering others. This responsibility lies in the labor of accessing the sites, of entering either an implicit or explicit contract between photographer and sitter, and sharing or not sharing (e.g., Matsushige) the product of that encounter with others.

The act of photography is not simply an act.[80] Azoulay uses this term to delineate a space between the photographer and the photographed. This is an interrelational space, a space that is political and power-dependent. Those who occupy the space of the photographic encounter – the photographer, the subject, and the spectator – are figuratively transformed into citizens in Azoulay's formulation, and as such, assume the rights and responsibilities inherent to this role.

3.2.3 What We Talk about When We Talk about Victims

While the subjects of Kavanagh's and Gallagher's photographs may or may not gain autonomy as "citizens" of the photographic encounter, they do often retain the cultural position of

[80] Susan Sontag, *On Photography* (New York: Picador Press, 2001).

"victim." In the forward to *American Ground Zero*, Keith Schneider describes Gallagher's book as an introduction to "American victims of the atomic bomb" and a gallery of "undecorated casualties of an undeclared war"; and mentioned here, too, is a statement by Congressional investigators that "the greatest irony of our atmospheric nuclear testing program is that the only victims of Unites States nuclear arms since World War II have been our own people."[81] In *Bravo 20*, Myriam Misrach also refers to Nellis's inhabitants as victims. A number of Kavanagh's interviewees have referred to the victims of nuclear testing, and she has referred, both in our conversations and in texts she has recommended to me, how manmade environmental hazards, specifically air quality, has claimed victims. The term "victim" has a high occurrence rate and therefore compelling cultural traction in the interviews and texts I have evaluated here.

However, this is a misappropriation of the term. "Victim," though not as semantically contentious as "citizen," is a specific term used to describe people who suffer from powerful others' abdication of responsibility; for example, a victim of a house fire, a victim of sexual assault, a victim of nuclear fallout, a victim of unsanctioned weapons testing in the middle of the Nevadan desert. To understand how a subject might transform, as I have mentioned, into an agent requires a careful unpacking of this word and how it relates to self-advocacy and self-determination. My discussion here is not to act as arbiter for who can and cannot be called "victim," nor do I refute anyone who has called themselves victims. Though as we can see, it is critical here that I evaluate what constitutes a specific definition of "victim," what a victim is constitutionally allowed, and how our understanding of the term affects a subject's agency. This context is undoubtably distinct

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[81] Keith Schneider, "Forward," in *American Ground Zero: The Secret Nuclear War: The Secret Nuclear War*, by Carole Gallagher (New York: Random House, 1993), xvi.

from that in which Kavanagh, Gallagher, and Misrach work; however, the framework of the photographic subject as victim is theoretically and politically applicable. Moreover, by reading the photographic subject as both a "citizen" and as a "victim," I address issues surrounding the humanity, responsibility, and empowerment of this position, and how "victim" is not suitable nomenclature for the subjects of any of the photographers I have mentioned here.

I start with "victim" and "victimhood" in the vast territory that considers suffering, conflict, and grassroots self-determination. I do not ask to reconsider these terms as if they issue from some dialectic between "victimhood" and "survivorhood," a rhetorical twist influenced by neoliberal trends in renaming things, because I do not recommend the term "survivorhood" either. As is, the term "victim" and its rhetorical pseudo-opposite, "survivor," are sometimes perceived as furthering harm and removing from consideration the ways in which people who are recipients of oppression actively advocate for equitable position outside of that oppression. Though Azoulay frequently deploys "victim," she hedges on the term "survivor," specifically in the context of her studies on rape, which I only bring up briefly here, though one can extend it to other contexts. In Azoulay's discussion on "survivor," a survivor "testif[ies] to an experience of a kind of death that is not, of course, biological death."[82] She follows, further complicating the term,

> in defining themselves as survivors and the experience of rape as a form of nonbiological death, women transform the harm done to them into a nonpunishable crime whose perpetrators are immune, for no one can be accused of causing a metaphorical death. Paradoxically, by associating rape with death, women, who

[82] Ariella Azoulay, *The Civil Contract of Photography*, 63.

were formally put into a state of exception by patriarchal rule are now voluntarily declaring their own exception to the rule.[83]

This is to say that the term "survivor" will not do either. "Victim/victimhood" and "survivor/survivorhood" are simply discursive shorthands for an individual or subset of individuals who are subject to a network of causes, effects, and conditions of individual or collective civil rights abuses. Therefore, in considering pictures of suffering, of conflict, of disaster, the use of the term "victim" is an othering device and "survivor," a rhetorical sleight of hand that removes the subject from an audience that might exert the necessary labor to champion or otherwise share in that encounter.

The term "victim" does have a specific application in Judith Butler's analysis. Butler theorizes victimhood specifically through her analysis of the photographs taken of the detainees at Abu Ghraib, pictures taken by United States soldiers of their abuse of Iraqi detainees. Though it is not a topic I discuss here, I briefly take up but one of her points: that the pictures taken by military police of Abu Ghraib's detainees constitute a politically defined victim, one that is incapable of self-advocacy as their very rights to life have been suspended.[84] Therefore, I will evaluate what constitutes a specific definition of "victim," what such a victim is constitutionally allowed, and how our understanding of the term affects a subject's agency.

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[83] Ibid.

[84] The "Abu Ghraib Scandal" began on January 13, 2004 when whistleblower and Army Specialist Joseph Darby, a representative with the Army's Criminal Investigation Command (CID), collated a file containing 1,325 photographs and ninety-three video files, taken over the course of three months from October to December 2003, of suspected abuse of Iraqi political detainees at Sijn Abū Ghurayb (Abu Ghraib prison).

Butler attempts to draw out the humanity of the "victim" within the logic of narrative representation of the disaster event within the context of the photograph: "[t]he visual trace is surely not the same as the full restitution of the humanity of the victim."[85] That is, the visual product of the photographic encounter is surely not the same as the full articulation of a victim's humanity. The photograph, shown and circulated, shares a public condition under which we feel outrage and construct our own political narratives to incorporate and articulate that outrage. When Butler applies terms that describe an Abu Ghraib detainee's humanity as belonging to the logic of victim narratives, she knows she will fail. There are two opposing logics at play here, that when framed for the public's imagination, highlight only the bad apples, or the deserving or undeserving but nevertheless nameless detainees. For the detainees, the photograph does not restore their humanity. The subjects' right to self-determination was never granted in the first place as the "self" must be constituted as a human and necessary right, a self that crisis conditions exempt.

The photograph's role in the matter of its subject's humanity is complicated. The photograph does what it does best, which is circulate an image and set up a discourse around itself by which its audiences forge opinions that are often in sync with their already steadfast beliefs. Allan Sekula argues the same when he writes that the role of photography to affect political transformation is lost to bored or well-meaning but distractable classes of bystander. Nevertheless, the photograph is a representative of a constellation of civic and political relations, which Azoulay argues and which I extend to responsibilities as well. Her argument is aligned with Butler's

[85] Judith Butler, "Torture and the Ethics of Photography," in *Frames of War: When is Life Grievable?* (London: Verso, 2009), 78.

construction as she writes that a disaster, specifically a nonexempted disaster like a terrorist attack, tends to politically polarize communities, despite the photographer's intentions.

Butler's "victim" is precisely a legally sanctioned and statutory victim. This victim is a recipient of suspended legal restraints. Under these conditions, the governing and administrative power can reinterpret clauses in international humanitarian law, or rather, treat the law as something that can continuously be reinterpreted (e.g., the laws outlined in the United Nations Security Council's Charter from 1949 and its amendments) to exempt a segment of the population from that law.

We can apply this logic to Gallagher's sitters. As a marginalized group, Utahan and Nevadan Downwinders also operate as legal victims. Downwinders' constitutional right to protest, seek restitution or adequate health care is abated with AEC-era (i.e., "peacetime") bureaucratic obfuscation. Still, their self-determination and collective, constitutional organization against such state power, advocated in Gallagher's portraits and publication, per Butler's terminology, invalidates their status as social or cultural "victims." The Downwinders do indeed speak with Gallagher and consent to a photographic portrait and are therefore self-determined agents with some, albeit troubled, constitutional recourse. Fuller constitutional recourse might include protesting, airing grievances through a new medium, collective organizing, and requesting legal representation – rights that the Downwinders are discouraged from exercising based on their religion and, perhaps, learned helplessness. By pushing back on the term "victim" and its use as a shorthand in spaces where it does not precisely apply, I define suffering others in a linguistic field that better reflects political agency and counters monolithic conceptions of victimhood.

This is not to say that artists do not express an attempt to uphold the dignity of their subjects. As I indicated in "3.1 Ground Zero," Matsushige takes great care in restoring some

dignity, specifically in the decision *not* to take a picture. For him, the photograph not taken preserves the dignity of the riders of a streetcar interrupted by the atomic bombing that morning. The manifestation of that encounter renders no photograph but rather an image perpetuated in oral testimony, the replication of which is verbal not visual. This view produces a sentimental effect rather than a traumatic one because it cognitively attributes personal and cultural meaning into the image rendered in the audience's minds. Matsushige's photographic narrative is also told through selective omission of sensitive detail. When trailing the effects of the bomb on his Hiroshima community, he later reflected, "[m]ost people were burned. I thought they would be enraged if someone took a picture."[86] He observes the possibility of a suffering other, and a one who is living, to decline photographic consent, though the encounter has already been realized. In this way it is the encounter that implied a contract, not consent.

Gallagher's work further demonstrates the consensual contract forged between the photographer and the subject-as-victim. In a rare editorial comment that closes an interview with Alden Roberts, Gallagher writes,

> [o]ne could never be sensitive enough in the delicate situation of asking to photograph a man whose cancer has so obviously eaten him alive […]. He was gracious in granting my request for an image of himself. In forsaking every opportunistic rule of macho photojournalism, I hope I have given him back a portrait that is as generous, if sad, as he is.[87]

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[86] Matsushige quoted in Greg Mitchell, "The Photographer and the Flash," 24–26.

[87] Carole Gallagher, "Diane Nielson," in *American Ground Zero: The Secret Nuclear War*, by Carole Gallagher (New York: Random House, 1993), 204.

Robert's consent to the photograph is an explicit product of the contract forged in their encounter. Gallagher's photographic act and encounter open a space wherein the confrontation between photographer and the photographed elongates time (i.e., through her rare ending editorialship, her request, and his granting of consent), to observe the humanity of another, in this case a suffering other that has agreed to be pictured.

Though Butler deploys the term "victim" predominantly in reference to war crimes[88] and torture,[89] she questions if we can restitute a victim's humanity for a conscientious viewer, through a photograph or the simple inclusion of their name. She notices that the names of the victims are not included in any reproduced pictures or their captions, but the names of the perpetrators are. She asks, do we lament the lack of names? She answers, yes and no. We might think that our norms of humanization require the name and the face, but perhaps the "face" works on us precisely as a shroud, in and through which it is obscured. For those photographed at Abu Ghraib, the cloaked or downturned face and name are not ours to know, and affirming this cognitive limit is a way of affirming the humanity that has escaped the visual control of the photograph. To expose the victim further would be to reiterate the crime or its traumas; the photographic task would extend a full documentation of the acts of the torturer, as well as full documentation of those who exposed, disseminated, and published the scandal – but the task would accomplish all this without intensifying the "exposure" of the victim, either through discursive or visual means.[90]

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[88] Butler, *Frames of War*, 93.

[89] Ibid., 94, 131.

[90] Ibid., 95.

Especially when the sitters have endured suppression (e.g., Gallagher's portraits), catastrophe (e.g., Matsushige's photographs), or ignorance, neglect, or forgetting (e.g., Kavanagh's portraits), it is critical to understand how those in the photographic frame are not victims, because victims are not politically, physically, or culturally allowed to air their grievances or self-advocate. What Kavanagh's portraits and their attending testimonies offer are free, candid, and casual opportunities to voice their motivations to visit a site that still has significant sentimental purchase in their lives. While Kavanagh's sitters are not necessarily aggrieved, Kavanagh has helped establish a methodology that allows for active advocacy in politically charged encounters. This method of photography and its conscientious practice and viewership will in time yield fastidious attention to the grievances and suffering of others.

3.3 Applying the Civil Gaze

Framing subjects who are photographed as "victims" or "citizens" positions them as sufferers of state violence, but the singular act itself does not necessarily empower them to air their grievances regarding this violence. Polarizing nomenclature obfuscates the methods by which a photographer or a photographed agent can seek restitution and self-advocacy within and outside the frame. The task of this section, "3.3 Applying the Civil Gaze," is to evaluate historical conceptions of restitution in documentary and aesthetic photography. If photography is a means of resistance and a critique of agency, I must qualify how documentary and aesthetic practices provide a productive way of thinking about photography and civic responsibility.

Azoulay describes the political system enabled by photography and describes the roles of the actors within it. She writes,

> [t]he ontology of photography that I seek to promote is, in fact, a political ontology – an ontology of the many, operating in public, in motion. It is an ontology bound to the manner in which human beings exist – look, talk, act – with one another and *with objects*.[91]

Photography initiates, performs, or embodies intentional and inadvertent means of resistance against sovereign power, specifically administration and governance. Azoulay constructs a new type of citizenship that equalizes the relationship between the subject and the sovereign. She also crafts a new way of understanding the social contract of photography, one in which the presence of the camera can instigate a new type of encounter. As she writes, "[t]he camera generates events other than the photographs anticipated as coming into being through its mediation, and the latter are not necessarily subject to the full control of the agent who holds the camera."[92] She continues,

> photography always constitutes a potential event, even in the cases where the camera is invisible or when it is not present at all. The absence of a camera in the field of vision of those present does not evacuate the possibility of its being there. […] In some cases, it is not even necessary for the camera to be present in order for it to influence people and to organize the relations between them. The event of photography thus contains within itself the potentially penetrating effect of the camera, that is to say, the possibility of our being located with the range of "vision" of a camera that might potentially record a photograph of us.[93]

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[91] Ariella Azoulay, "Photography," *Mafte-akh* 2 (2011): 71.

[92] Ibid., 70.

[93] Ibid., 74–75.

What she offers here is a conception of photography that does not even require the presence of a camera. Her formulation is stretched thin, but it does demonstrate her powerful belief that the act of photography emerges not from the limits and affordances of the technology but from the inherently political encounter that the camera facilitates. For Azoulay, photography is an event, and the photograph is a byproduct – a visual representation, a metaphorical handshake – of agents attending the encounter.

Conversely, in *Regarding the Pain of Others*, Susan Sontag discusses how photographs alone create the illusion of a consensus and inevitably fall short of a dramatic transformation of, in my study, anti-war politics. In this configuration it might be that the photographic portraits detract from the message bestowed by the accounts, that they invent a sense of consensus that dismisses the message all together, casting aside the grievances: *well, at least* someone *is on the case*. Then the viewers close the book and move onto the next, one with, perhaps, even more deathly lurid images that display more suffering, continuously wanting more and more suffering until the capacity to suffer through pictures at all is somehow exhausted. Sekula's statement mocks this way of thinking: "we understand the extent to which art *redeems* a repressive social order by offering a wholly imaginary transcendence, a false harmony, to docile and isolated spectators,"[94] or outside spectators. Sekula is speaking to isolated spectators that are holding such a book containing such suffering in their hands, as many of Gallagher's and Misrach's audiences here have.

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[94] Allan Sekula, "Dismantling Modernism, Reinventing Documentary (Notes on the Politics of Representation," in *Photography Against the Grain: Essays and Photo Works (1973–1983)* (Halifax: The Press of the Nova Scotia College of Art and Design, 1984), 53.

As well, Butler continues to frame these kinds of pictures by pushing into the realm of the humane. In *Precarious Life: The Power of Mourning and Violence* from 2004, Butler questions: who counts as a person? Whose lives count as lives? What makes for a grievable life? She suggests that the moral authority responsible for the contours of these questions is introduced and sustained within modes of being dispossessed by the state. And in including portraits with their interviews, Gallagher and Kavanagh, for example, offer that the "intensified circulability cannot be affirmed as an unequivocal utopian effect of new visual technology, since the transmutation of ordinary life into the continuation of war is a clear and present risk."[95] The circulability of images within the mass media then "export the perspective of the U.S.," in my examples, "enforcing a sense of 'infinite distance' from zones of war."[96] I develop a new understanding of photographic practice as an inherently political and aesthetic event that is virtually reproducible and circulatable.

3.3.1 Azoulay and a Civil Gaze

In developing this new understanding, I consider Azoulay's critique of the well-worn dichotomy between the aesthetic and the political. She writes that the relationship between them "serves as a predicate in prevalent judgements of taste whose general form is: 'this photograph is (not enough/too) political' or, alternatively, 'this photograph is (not enough/too) aesthetic.'"[97] She acknowledges photographic philosopher Walter Benjamin for institutionalizing the dichotomy.

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[95] Butler, *Frames of War*, vx.

[96] Ibid.

[97] Ariella Azoulay, "Getting Rid of the Distinction between the Aesthetic and the Political," *Theory Culture & Society* 27, no. 7–8 (2010): 242.

She invokes Benjamin's words from "The Work of Art in the Age of Its Technological Reproducibility": humankind's "self-annihilation has reached the point where it can experience its own annihilation as a supreme aesthetic pleasure. *Such is the aestheticizing of politics, as practiced by fascism. Communism replaces by politicizing art*."[98] Rightfully, Azoulay finds that this matrix of judgment limits not only the artwork in question, but also its discourse as it is a matter of taste or preference. Interestingly, and abruptly, she credits Benjamin's "contradiction" as a weapon against fascism – and Azoulay does not accuse Benjamin himself for the nimble haste with which discourse adopted the dichotomy – when he wrote the essay in the years 1936 to 1939. According to Azoulay, Benjamin seeks to reorient the public sphere toward a state or a place of "being-with-others," or connection, in museums, galleries, salons; in other words, sites of cultural, political, and capital power. "The consequences of [attendees'] gazes, words, and deeds," she writes, "reorganize[d] the shared space," where judgment in turn became a social more or expectation between audience, art, and the ruling power.[99] It is in this reorientation that the schism between the political and the aesthetic can close.

To aestheticize and to politicize are verbs, actionable and executional, and these verbs do not have to be oppositional. Azoulay observes, "[s]ince it was formulated up until the end of the recent century, this opposition appeared pertinent," and further states that they "seemed to leave no room for action."[100] To weaponize, another verb that I described as functioning with "nimble haste," was necessary in discursively combatting Nazi ideology. So, in his way of combatting the

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[98] Walter Benjamin, *Walter Benjamin: Selected Writings, Volume 4: 1938–1940*, ed. Michael W. Jennings (Cambridge: Harvard University Press, 2003), 270.

[99] Azoulay, "Getting Rid of the Distinction between the Aesthetic and the Political," 242.

[100] Ibid., 245.

rise of fascism, Benjamin inadvertently split photography into two actions. In Gallagher's work, for instance, the suffering of others is either aestheticized outside the photograph's capacity to offer knowledge to and of the world; or, it is politicized outside the photograph's capacity to capture the attention of certain audiences. In this definition, the "aesthetic" and the "political" are two distinctive traits within each photograph.

A discursive problem arose, one that confined any image within or outside an aesthetic realm. In this context, each photograph is judged on a matter of taste, which varies infinitely in any room with any object. The dichotomy crafts a misunderstanding of the internal set of political relations that I say is inherent within the photograph and its production. Furthermore, the viewer then assumes a uniquely and perhaps undue or overwhelming "role in exposing the image's existing traits" and the photographer responsible for those traits.[101] Azoulay argues that the judge, then, must isolate the work from its surroundings to "suspend the political space that others may be tempted to craft."[102]

She offers a three-part remedy: if we consider all photographs within the aesthetic plane, and if we realize that the production of a photograph itself is an act of many, then we can consider the photograph as a sample of human, social, cultural, technological, scientific, and political relations that went into the act of its making. In terms of the first remedy, she states, "all of these things – expressing the being-together of humans, their political existence – are not visible when the photograph becomes the object of a 'political judgment of taste,'" nor of an "aesthetic judgment of taste." And she further remarks, "the gaze viewing the photograph seeks its object in the act of

[101] Ibid., 250.

[102] Ibid.

the individual photographer alone. The photographed persons took part in the act of photography, just as they did in the telling of what happened to them which accompanied the display of the photographs."[103] As well, she claims first that "any image, even one whose contents are political par excellence, always exist in the aesthetic plane as well."[104] It is here that she emphasizes the photographer is not the sole creator of the photograph. Thus, a photograph is the "space of appearance" that records the encounter between human beings and that encounter is neither concluded nor resolved within the moment of taking the photograph.[105] This is not to say that the photograph is simply a "manifestion" of an event or an encounter but simply that it is not *only* the sum of the encounter. The third and last part of her remedy to the perpetuated, false dichotomy between photography's seemingly competing directives to document as well as to construct, make, or create is that the photograph is not inherently political but that it can realize the potential of its presentation to become political.[106] This is Azoulay's civil realm, where the "gaze is shared by both the citizen and the ruling power."[107] It is not only the photographer that takes the picture, it is also they and the political powers to which they are subject who are photographed.

Sekula's writing in the eighties echoes this claim:

> the recent efforts to elevate photography unequivocally to the status of high art by transforming the photographic print into a privileged commodity, and the photographer, regardless of working context, into an autonomous *auteur* with a

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[103] Ibid., 248.

[104] Ibid., 252.

[105] Ibid.

[106] Ibid., 253.

[107] Ariella Azoulay, *The Civil Contract of Photography* (New York: Verso Books, 2008), 363.

> capacity for genius, have the effect of restoring the "aura," to use Walter Benjamin's term, to a mass-communications technology. […] At the same time, the camera hobbyist, the consumer of leisure technology, is invited to participate in a delimited and therefore illusory and pathetic creativity, in an advertising-induced fantasy of self-authorship fed by power over the image machine and, through it, over its prey.[108]

Azoulay's observations followed Sekula's, albeit his are more stringent and concentrated on budding social documentary practices that aimed to support public awareness and perhaps even to air grievances, which I expand on shortly. And Sekula's observations on modernism's division between mental and manual labor under advanced capitalism airs yet another problem in documentary photography's discourse, one that is supported in an early example of photography's role in polite society. In 1857 Lady Elizabeth Eastlake remarked with polite disdain, "[f]or it is one of the pleasant characteristics of [photography's] pursuit that it unites men of the most diverse lives, habits, and stations, so that whoever enters its ranks finds himself in a kind of republic."[109] Eastlake's well-bred scorn for the working class and its photographic hobbies inflects her essay with an anti-democratic timbre that only appears to praise practitioners' industrialism. Eastlake,

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[108] Sekula, "Dismantling Modernism, Reinventing Documentary Photography," 54.

[109] See: Lady Elizabeth Eastlake, "Photography," *The London Quarterly Review*, no. 101 (April 1857): 442–68. "When before did any motive short of the stimulus of chance or the greed of gain unite in one uncertain and laborious quest the nobleman, the tradesman, the prince of blood royal, the innkeeper, the artist, the manservant, the general officer, the private soldier, the hard-worked member of every learned profession, the gentleman of leisure, the Cambridge wrangler, the man who bears some of the weightiest responsibilities of this country on his shoulder, and, though last, not least, the fair woman whom nothing but her own choice obliges to be more than the fine lady?"

Sekula, and Sontag relegate pictures and the people who look at them to a political and social futility, when in fact, they might have the capacity to politically transform the methods by which we evaluate political discourse when it is instigated in the photographic event and its circulability.

3.3.2 Sekula and the Civil Gaze

Photojournalism and documentary photography, which still enjoy the relational advantages of the aesthetic plane, are still necessary as an act of civic accountability within the democratic space that photography supplies. The act of photography in warzones and along war production lines holds photography as a safekeeper of democratic ideals and a bond of civic duty. Sekula describes the economy of documentary photography, mass circulation, and social capital. He writes, "[d]ocumentary is thought to be art when it transcends its reference to the world, when the work can be regarded, first and foremost, as an act of self-expression on the part of the artist."[110] Documentary photography opens a space where it must remain intact in its context as a social metonym or a metaphoric projection. Here, Sekula has clearly taken issue with the mass-circulation of documentary photo-catalogues, which he describes as "the cool, deadpan mannerism [that] works against the often expressionist liberalism of the find-a-bum school of concerned photography."[111] It would seem that to Sekula, the so-called humanist concern toward suffering others is rather a *concerted distancing*, enabled in mass circulation by the publishing industry, an instrument of the elite to administer do-goodedness and pass the buck of social capital. Though, it is not all intentionally bad: "even photojournalists like to imagine that a good photograph can

[110] Sekula, "Dismantling Modernism, Reinventing Documentary Photography," 58.

[111] Ibid., 61–62.

punch through, overcome its caption and story, on the power of vision alone."[112] Sekula's caustic remarks on what is now, under late capitalism, the neo-liberalization of the image can lead to a place of *what's-the-use*. This what's-the-use attitude of concerned photography, he offers, is the crux of the problem; that is, that virtue-signaling pictures are taken with liberal compassion, or perhaps pity, rather than with a motivated sense of collective struggle. All of photography's actors, including the photographer and the photographed, are subject to ruling power's self-preservation, and viewers would be remiss to wait until the products of that evil fall on them. Perhaps these pictures are indeed taken with compassion, which may assume a virtuous stance against the world's evils, but these "compassionate" pictures must motivate social transformation against the powers that have enabled the photograph in the first place.

Sekula was writing on documentary photography after the heavily televised Vietnam War. To this example, he writes, "American defoliant bombers lay waste to a section of Vietnam again and again, until the viewer knows the sequence's every move in advance."[113] Sekula points to the fact that the conjured images of bombing and the effects of the audience's desensitization precedes the televised image. That is, the audience doesn't need the picture, because the medium itself has trained the viewer to fill in the blanks themselves, a visual caesura. Like Azoulay's traumatic images of rape or Butler's images of detainees, these images create their own modes of transmissions that may outgrow the need for photographic technology in the first place. I repeat Butler's words here: "[t]he critique of the frame is, of course, beset by the problem that the presumptive viewer is 'outside' the frame, over 'here' in a first-world context, and those who are

[112] Ibid., 63.

[113] Ibid., 64.

depicted remain nameless and unknown."[114] This is applicable to the endless, repeating images of American bombers in Vietnam pouring chemical weapons into the jungles to combat guerrillas. The repetition and successful banalization of chemical weapons deployment is memorized and repeated, both on the screen and in the mind, which leads not only to desensitization, as this is the obvious thought, but the lack of need for the image at all for the viewer to imagine the destruction as well.

Photographs that "punch" through the noise of global warfare and its visual mediation should not lead to pity, especially on the communities most burdened by the conflict. Pity is not and should not be the motivation behind the photograph, the photographer, or the encounter at all; rather civil responsibility should, of course, be the motivation.

Susan Schuppli also makes a civic offer in her analysis of the Vietnam War. She writes that during the Vietnam War, two forums emerged, which were the International War Crimes Tribunal (IWCT, 1966–67), convened by Bertrand Russell, and the Agent Orange Tribunal (1978), convened by U.S. veterans. These were not courts of law, because they did not have de jure, legal power. However, they did establish what Schuppli calls a "moral architecture," where evidence and testimonies brought knowledge of the events to the public and gave those affected space to air their grievances in a legitimate, public arena.[115] In fact, according to one sitter on the Agent Orange

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[114] Judith Butler, *Frames of War: When is Life Grievable?* (London: Verso, 2009), 93.

[115] Susan Schuppli, "Toxic Tort," in *Material Witness: Media, Forensics, Evidence* (Cambridge: MIT Press, 2020), [156–166]. When States are unable or unwilling to prosecute, The Security Council will invoke chapter VII of the United Nations Charter, whereby the Council has authority to "determine the threat to peace or breach of the peace, or act of aggression" and determine measures of intervention. The International Criminal Court thereby exercises jurisdiction in a situation where genocide, crimes against humanity, war crimes, or crimes of aggression take place.

Tribunal, "the search for truth we have together pursued has, in the eyes of public opinion, legitimized our existence."[116] In this case, it is itself the pursuit of justice that legitimized the ad hoc Tribunal as an "activist model of accountability" that expanded war crimes' purview from not only genocide but to ecocide as well.[117]

The end of herbicidal warfare in Vietnam is a valuable example of documentary photography's potential impact on human rights violations. It is unwise to throw around terms such as "war crimes," "ecocide," and "genocide," a position Schuppli expounds in her chapter on the infringement of human rights brought on by chemical weapons during the Vietnam War. To justify these terms' use, she explains that in 2005, the Vietnam Association for Victims of Agent Orange filed a lawsuit against more than thirty chemical companies for pesticides used against the Vietnamese National Liberation Front. The case was later dismissed, because in 1975, pesticides used in that capacity were not illegal; it was the "government contract defense" that limited the chemical companies' liability, because the "cocktail" of proprietary chemicals ensured their

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(These are four distinct classes of crime with their own protocols and operations.) See: "How the Court Works," *International Criminal Court*, https://www.icc-cpi.int/about/how-the-court-works/Pages/default.aspx#legalProcess; United Nations, *Charter of the United Nations and Statute of the International Court of Justice* (New York City: United Nations Publishing Office, 2015); Rome Statute of the International Criminal Court (The Hague: International Criminal Court, 2011).

[116] Lelio Basso, quoted in Schuppli, "Toxic Tort," 157.

[117] Schuppli, "Toxic Tort," 157. Like *Bravo 20*, Eyal Weizman offers and environmental history of the Negev, Israel, accompanied by photographs collected and taken by Fazal Sheikh. For more on contested borders, land appropriation, photographic evidence, and oral testimony in the Negev desert in Israel and Palestine, see: Eyal Weisman and Fazal Sheikh, *Conflict Shoreline: Colonization As Climate Change in the Nagev Desert* (Göttingen: Steidl, 2015).

undiscernible provenance.[118] Collecting evidence and testimony, and rallying and collective organizing on behalf of those affected by chemical warfare and its variable forms was able not only to air grievances but also to hold those who perpetrated the events legally and politically accountable. While this may not have been sufficient for prosecution under tort law where it was originally tried, veterans and civilians in Vietnam and the citizens of its country's adversaries were able to project an evidence-based entreaty for military, academic, and industrial culpability.

But Sekula offers another curmudgeonly counterpoint to this conception of photography as evidence, and he asserts that a photograph is not, and cannot be, simply taken for granted as a mere repository of evidence or evidential cues that can speak for itself or whereupon another actor can act as a photograph's voice. In one of his timely examples, he presumably describes a photograph of Patty Hearst, a still taken from a San Francisco Security Pacific Bank's videorecording that puts her on display as a perpetrator in a bank heist. Sekula describes the tension of this still photograph in the context of litigation, where the courtroom is a "battleground of fictions":

> What is it that a photograph points to? A young white woman holds a submachine gun. The gun is handled confidently, aggressively. The gun is almost dropped out of fear. A fugitive heiress. A kidnap victim. An urban guerrilla. A case of brainwashing. A case of rebellion. A case of schizophrenia.[119]

The fiction might be defined based on evidence, but this narrative is more often and necessarily the outcome of a constructed political narrative. However, if the photograph is a civil, political

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[118] Schuppli, "Toxic Tort," 159.

[119] Sekula, "Dismantling Modernism, Reinventing Documentary," 57.

space, and if it can affect our responsiveness, mark our civic responsibility toward suffering others, and reframe our political negotiation of these responsibilities it can still be, therefore, the agent of political or social motivation, not of pity. The photograph reminds us of a space of encounter, a space wherein violences took place and are in requisite need of active critique. "We must counterpose an active resistance," Sekula writes, to economic and cultural power and arrogance, one that is toward a "socialist transformation," or at least, I claim, to an understanding of the deeply social and political relations present in the act of photography and its orientation toward collective struggle toward harm reduction. This in turn will negotiate the political roles and responsibilities facing armed nations today. "Contemporary conflict," Schuppli writes, "does not happen without images."[120] She, like Sekula in the 1970s and 1980s and Eyal Weizman in 2014, calls for a transformative politics that begins with material issues.

The aims of the artists, their objects, and the beholders' responsibility have agency in their respective fields, though there must be a conceptual framework for understanding how that agency affects change in an ever-evolving and self-perpetuating practice of war-waging. The artist continues to do the work and to provide speculative and creative ways of demonstrating the use of photography as a means of resistance, just as the technology has been taken to task in the development of the weapons and the deployment they aim to resist. The photograph has agency, though it is a limited agency in a political domain that ranges from the overly patriotic to the apathetic.

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[120] Susan Schuppli, Tom Tlalim, and Natasha Hoare, "In Conversation," in *Art in the Age of… Asymmetrical Warfare*, ed. Witte de With (Rotterdam: Witte de With Center for Contemporary Art, 2015–2016), 151. *Art in the Age of Asymmetrical Warfare* was the last exhibition in a year-long program called *Art in the Age of….* The exhibition examined the "the uneven nature of the hybrid battlefield."

3.3.3 Troubled Successes

War is a fact of the past, present, and future. The goals of the photographic and artistic projects that I examine here is to render that very photographic practice obsolete – the photographs photographers take are to establish the necessary and sufficient conditions for such images to never be pictured again. However, the photograph's agency is limited. It cannot realize its own obsolescence. The war machine and its perpetual reinterpretation frustrates the photograph's obsolescence. How can conscientious observers put the photographers' critique to work? These photographic practices and the artists' critiques are *successful*. Though how the photograph acts and how it yields others' actions through its circulation cannot be known for certain. The effects of its narrativization is unpredictable.

Successful critique can be defined in many ways. First, the photographic practice can elicit tangible change. For example, the photographs taken at Abu Ghraib led to the new standard operating procedure defined in Directive 8100 that cameras were not allowed in Afghanistan detention centers, that is, the photographs had an effect that led to legal, material consequence. (Of course, this success, as I define it, is transaction between cause and effect. This was not at all a solution toward the prevention of future mistreatment.) Second, a photographic practice's success can be defined in small goals that affect a community. For example, Richard Misrach's attention to Bravo 20's grassroots organization led to the legal conclusion that Bravo 20 was illegally acquired land that was thus returned to the community and made a new national park. (Of course, though this success, as I define it, did not legally return the land to the Nations that stewarded the land before the land's settlement by Americans or remedy the decades of environmental havoc visited on them or the settlers.) Third, the photographic practice is a success because it brings the grievances of others to an audience outside of those who are suffering. For example, Gallagher's

American Ground Zero simply, albeit painstakingly, told the stories of those who are suffering and caused a scientist to fall to his knees and weep. (Of course, though this success, as I define it, did not undo, amend, or alleviate the damage he and his team of weapons developers wrought.) Lastly, these photographic practices are a success because they lend themselves to an anti-war ethics that substantiates and perpetuates their own critique. For example, Kavanagh's critique of weapons development and its detrimental environmental effects adds another layer of scholarship and visual analysis of the lasting effects of war preparation and war waging. (Of course, though this success, as I define it, does not stop the development of more and more sophisticated weapons and their use in war.)

When a non-suffering person experiences a situated, socially, and politically weaponized landscape, it is the responsibility of a conscientious viewer to take up the mantle of civic responsibility toward the suffering other. Though, conscientious viewership is the first success in each of these instances, but it is not the solution. The photographers are doing the work in anticipation of a relay handoff to audiences that reinterpret that critique into further development. Furthermore, moral frameworks and rulesets for war-waging, for example, those established by the United Nations Security Council after the Second World War, indeed established a more principled war ethos in the practice of war. (Of course, though this success, as I define it, allowed war-waging *conventions*, which are certainly not preventative.[121]) A conscientious viewership and

[121] I wrote this sentence April 4, 2022, one day after Russian troops withdrew from Kyiv Oblast, Ukraine, including Chernihiv, including Bucha, and Kharkiv. What most news outlets initially celebrated as a Ukrainian triumph, the withdrawal very quickly revealed mass graves, handcuffed and executed civilians, raped and massacred children and women, and other evidence of illegal war-waging and international humanitarian law violations. There are more than 2,000 incidences of human rights and international war violations in the war's first forty days. "Ukraine: Apparent

the civil gaze it affords allows us to think of events – and the success of protest against the power structures that enabled those events – not as isolated incidents but as products of continuously evolving wartime preparations.

3.4 Conclusion

In an October 2019 research trip, Mary Kavanagh and Peter van Wyck toured the Canadian Forces Base (CFB), Suffield in Alberta. As tourists, they viewed the facilities, proving grounds, and the nuclear test site, including Watching Hill where 500-ton TNT Operation Snowball and Prairie Flats occurred in the 1960s. Kavanagh writes that in addition to nuclear test mockups, the operations were also staged to test Canada's viability as an international player in NATO's weapons-testing campaign. One of the more entertaining and laughable aspects of the visit was a radiation clean up simulation. In a melodramatic performance, soldiers emulated the gestures and enunciations of pain and subsequent causalities of a hypothetical disaster.

This tour is one of her many experiences that are outside the visual domains of both ordinary citizens and Kavanagh's audience. One of An-My Lê's maxims is, "a tax-paying citizen should have access to a military station."[122] Though she was denied photojournalist access for the

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War Crimes in Russia-Controlled Areas: Summary Executions, Other Grave Abuses by Russian Forces," *Human Rights Watch*, April 3, 2022, https://www.hrw.org/news/2022/04/03/ukraine-apparent-war-crimes-russia-controlled-areas.

[122] An-My Lê, "Protest," *Art21*, February 8, 2011, https://art21.org/watch/art-in-the-twenty-first-century/s4/an-my-le-in-protest-segment/.

War in Afghanistan, Lê, too, has often been granted access to other military sites, sites that are off-limits to ordinary citizens. (She once said gaining access was as easy as picking up a phone to call and ask.[123]) Kavanagh and Lê both bring these restricted zones into political and public spheres, where ordinary citizens may view the structures that comprise the "safety nets" against foreign and domestic adversaries.

Weaponized Landscapes: Trinity is the first in a series of portfolios that contend with the relationship between national security, the contested landscapes that support those industries, and the confrontation between photographers, their subjects, and their sovereign power. These relationships are discursive and political. This said, *Weaponized Landscape*'s inaugural issue, *Trinity*, is a web-based resource that features the Trinity test site's visitors since 2014. Kavanagh and I have collaborated to produce an exhibition and framed archive of her work on *Atomic Tourist: Trinity*. We judiciously selected a collection of her video interviews, and I historically contextualized them. "You reframe things," she has said to me, "and you carry the frame with you." Consisting of eight videos, eight stills, and her dual-channel work, *Atomic Tourist: Trinity*, *Weaponized Landscapes: Trinity* is an online exhibition and blueprint for a collection of case studies that attempt to define conscientious, active gazes. I previously quoted Rebecca Solnit: "[s]ystems are hard to photograph, but consequences are not." *Weaponized Landscapes: Trinity* brings together Kavanagh's work, the works of her peers and contemporaries, and the context from which those representations, however disjointed, emerge. "This is a long and complex route," Kavanagh says, in part material, topographical, archival, and memorial.[124]

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[123] Ibid.

[124] Mary Kavanagh, Board of Governors Research Chair Application, (2017), 6.

The Trinity site and its memorial requires deliberate attention and imagination. The makeshift gallery space along the perimeter bids visitors to imagine the blast upon its original landscape. The site's volunteers mounted the pictures on the fence. This process is a physical as well as creative labor; similarly, making the trek, looking at the photographs, and imagining the black-and-white photographs' events and reinserting those events into the landscape is physical and cognitive labor. Some of Kavanagh's interviewees are ready for that labor. Some use the site as a place of spiritual meditation on a sublime event, imagining that event on the empty land – *terra nullius* – inserting their own experiences, and casting aside decades-held attitudes that inform their motives for traveling there in the first place. The site and its historical backdrop demand physical, emotional, and cognitive labor, labors informed by motives, memories, and individual and collective experiences.

These are the effects of extended and conscientious studies into the nuclear, and the photographic practices I have discussed require mobility and often come with some sort of danger. Artists draw on historical, photographic methods, such as those developed by the New Topographics and their road trips throughout the landscape toward industrial parks and new suburban developments. Atomic Photographer Guild member, Peter Goin, submitted himself to radiation at the Burial Gardens at the plutonium finishing facility in the Pacific Islands, where he noticed his "guide did not leave the vehicle" out of fear of contamination. Despite his proximity to his guide's truck, "I called to him, asking if everything was all right, and he responded that I shouldn't touch anything. […] I went ahead and made the photograph. It took me about ten minutes," about nine minutes longer than a "safe" extent of time.[125] Carole Gallagher has made a

[125] Peter Goin, quoted in T. Bamburger, "'The Bomb through Two Lenses," *Progressive* 56, no. 3 (March 1992): 38.

similar excursion where she endured ten years of physical, emotional, and cognitive labor. She sustained herself until her savings ran out and while her funding applications were declined; she was hospitalized for the effects of starvation; she relied on uncertain hospitality from religious landlords and harassing hosts who mistrusted her project; she often walked the miles to her interviews when unable to afford gas. Richard Misrach has also made such an excursion and extended political and emotional labor to grassroots organizing in Fallon, Nevada. The writer Rebecca Solnit, whose early writings reflect on protesting nuclear warheads, was arrested in the 1980s for protesting the testing and use of weapons at the Nevada Test Site. When she returned to the protestors' camp, on foot, she found Misrach, in the desert,

> walking an equally straight line south. He was unmistakable at a distance, for he was carrying his view camera – a mahogany box the size of a small TV on a tripod as tall as he was. […] He was himself burned brown and more at home in the desert than anyone else not born to it I knew. He explored remote and forbidden areas for weeks in his van and would walk around all day under a broiling sun hatless, in an undershirt. […] Finally Richard told me that I had to go because the light was perfect.[126]

Traipsing through an arid or semi-arid landscape, with the clothes and sun on his back, and heavy equipment about his size; this is certainly labor, or maybe atonement. Wielding a large camera, like the ones wielded by his nineteenth-century, survey-employed forebearers, he tasked himself with a Sisyphean assignment, enduring taxing conditions – for a person out of place – to detail and

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[126] Rebecca Solnit, *Savage Dreams: A Journey into the Hidden Wars of the American West* (Berkeley: University of California Press, 1994), 39.

uncover environmental politics. Appropriately, Misrach's projects are called cantos, after Dante's in Hell, Purgatory, and Paradise. Misrach, likewise, labors through the first two spaces to attain some kind of arcadian, environmental equilibrium. He does this again and again.

Kavanagh might not have asked for her subjects' incentives for making the journey if she had not made similar ones herself. In 2011, when she first visited the decommissioned Wendover Air Force Base, in Utah, she drove from Alberta. This trek alone requires deliberate attention to road conditions as well as mechanical and personal upkeep. After over twenty more hours on the road alone, she found herself at the Center for Land Use Interpretation site. She was a little dazed from the drive when a police officer knocked on her car window, startling her, her body still humming from the car's hydraulics and responding to the road's friction.

I too have conducted two research-road-trips to the west along Interstate 10 from Houston, Texas to Los Angeles California, and the second trip included a twenty-four-hour detour from Las Vegas to Reno before I returned to Los Angeles. That second trip lasted from mid-June and mercifully ended in mid-August. If one were to map the excursion, they would see a fragment of those eight weeks in the form of a 2,500-mile line. I stopped in cities and towns along the way, visiting exhibitions, researchers, curators, and artists. Planning the trip was arduous. Museums are closed on Mondays or Tuesdays, and the route involved construction convoys, dust storms, and highways that do not offer gas, lodging, or rest services for more than 100 miles at a time. Time on the road was totalizing solitude; the road's hums simulated a sensory deprivation tank on wheels and the static, an anechoic chamber. I refrained from listening to music so I could pay attention to humming and bumping of the road.

Kavanagh exhibits archival material and reveals to arts audiences sites laden with following-orders protocols and operational siloing. She does not participate in restricting or sealing

off the photographic gaze; rather, she is the interlocutor between unavailable sites and the public that they are said to serve. Her friend and APG colleague, Robert Del Tredici, writes that secrecy and security depend on the adage, *the left hand doesn't know what the right is doing*. Essentially, he extends the relationship between weapons-production industries to that between those industries and the public. Kavanagh's work could be seen as the handshake.

If a photographer publishes a suite of grievances on behalf of a community, like Misrach and Gallagher do, whose responsibility is it to take visual and oral testimony and translate, transform, or transmit that testimony into a shared, social or even legal responsibility? If we are at our most basic level of existence "intended toward others," as Butler hypothesizes, does photography of disaster *act on* that intention? There is little good in airing human rights grievances and activating those grievances through storytelling when there is no sustained attention or actionable responsibility after the photographs are taken, reproduced, and published in bite-sized narratives.

Kavanagh did not develop "discursive strata" necessarily as an activist methodology. Her acute ability as a researcher and visual artist, however, demonstrates a commitment to on-the-ground research and to the interlocking people, histories, and politics that make up her methodology. This methodology, in turn, can be interpreted as a method of activism. The intention itself to the workers and travelers in fields of violence or of former violence activates conscientious observation of the effects of weapons testing and violence. Thus, artistic intervention enables a critique of photography's role in anti-war politics, and, in some labored cases, might activate a civic gaze wherein photographic practices are seen as necessary political duties toward conscientious viewership.

4.0 Reflection Essay

This dissertation has examined photography's application to contested citizenship, landownership, and civilian access within militarized sites in the United States. My analyses contoured civic complaint against weapons testing, especially nuclear weapons testing, in this region. I restimulate questions of civic entitlements to space, place, and being under and after Cold-War-era administering. I address issues of failing health policies, security infringements, and non-transparent military operations. Following the career of Canadian artist and photographer, Mary Kavanagh, I specifically survey the history of nuclear weapons testing during and after the Manhattan Project's Trinity Test, a massive scientific-industrial pursuit sanctioned during the Second World War.

The work of Kavanagh and her network of atomic photographers concern the deleterious effects on the environment and surrounding communities constituted by the United States Army and its wartime enterprises during World War II. Her compatriots in the Atomic Photographers Guild represent a loose consortium of independently and formally trained photographers that reckon with the fallout of nuclear matters throughout the world. At the time of writing, the APG's website, atomicphotographers.com, showcases selected works from thirty-nine photographers from Australia, Canada, Czech Republic, Germany, India, Japan, Ukraine, and United States. These works study the global issues pertaining to atomic weapons development and deployment, nuclear-era architectures and infrastructures, the environmental and health-related aftereffects of such testing, the science of atomic weapons, and, significantly, the protest of the use of nuclear weapons and energy. These collaborations, in turn, are expressed through exhibitions, artist books, archives, and other repositories. Bearing in mind the multivalence of their collaboration in public-

facing demonstrations, I evaluate Kavanagh's and others' work on the premise that the artists of the APG are active participants in protest and resistance against nuclear armament and proliferation and that they are critics of nuclear culture. The APG's mission is to bring together these artists and motivate collaboration toward a conscientious viewership, one in which their objectives are rendered obsolete in response to a critical mass of widescale critique and protest. Their votes against proliferation motivate my dissertation project, and this project builds on the themes Kavanagh has isolated in her work, which I contextualize within a broader intellectual framework.

I proposed a web-based, public-facing, scholarly resource, *Weaponized Landscapes: Trinity*, that features unique testimonies that articulate the prevalent difficulties and rare triumphs in protesting and airing grievance. Scholars in post-atomic studies, such as Dr. Lindsey Freeman and Kavanagh herself, have responded to *Weaponized Landscapes* with excitement and interest because the site showcases Kavanagh's unique themes through her hundred-strong collection of testimonies that have broad application for others. These themes – military overreach, American exceptionalism, spiritualism, environmentalism, and the effects of toxicity on the body – feature prominently in the interviews she has conducted with the Trinity Site's visitors for her durational work, *Atomic Tourist: Trinity* (2014–).

As I have mentioned before, Kavanagh and I have produced a selective, digital archive and exhibition of this long-term, photographic research project. Within the website, I include an introduction page and a selection from Kavanagh's thousands of photographs, hundreds of archival photographs and video footage, and hundreds of interviews organized. These curatorial decisions culminate in an easily accessible resource for a wide range of scholars and audiences interested in atomic, regional, climate, and health policy studies. In focusing on how postwar weapons testing

policies affect the southwestern landscape and its communities, Kavanagh's *Atomic Tourist: Trinity* brings the semi-restricted site into the public sphere to shift public perception of atomic tourism and the Unites States nuclear program's memorialization and politicization. This work is a currently unpublished film and photographic research project that explores nuclear tourism based in collective and cultural memory of the testing program in the region. Her work witnesses individual, disparate travelers' experiences at the Trinity Site and their motivations in visiting from all over the continent and world, attending to the international ubiquity of the nuclear. Within video interviews, stills, and photographs, visitors shared anecdotes about childhood duck-and-cover classroom drills, life-long fears of fallout, nuclear site working conditions, and other personal Cold War-era experiences. The purpose of *Weaponized Landscapes: Trinity* and its future publication program is to frame this media within a broader context that I extrapolate from Kavanagh's themes and methods.

As a feature of the larger dissertation project, this reflection statement outlines the intellectual and technical decisions I have made throughout the course of this project. It also draws on my relationship with the artist Mary Kavanagh over the course of our years working together. After explaining these decisions and their challenges as well as the relationship with the artist, I will lay out a proposal for future, iterative issues for which this dissertation serves as blueprint.

4.1 Intellectual Decisions

I have made intellectual choices during this project with the intention to collect a handful of Kavanagh's works and place them into a new light. In doing so, I have interrogated more closely the themes that she has herself has identified in her work. She has shared with me her influences;

for example, Ele Carpenter's edited collection *The Nuclear Culture Sourcebook* (2016), Claudette Lauzon and John O'Brian's edited collection *Through Post-Atomic Eyes* (2020), Joseph Masco's *The Nuclear Borderlands: The Manhattan Project in Post-Cold-War New Mexico* (2006), Mariko Nagai's poetry collection *Irradiated Cities* (2017), Peter Sloterdijk's *Terror from the Air* (2009), and recent fellow APG member Peter C. van Wyck's *The Highway of the Atom* (2010). I draw from this bibliography as I frame her work within broader, post-atomic discourse. From the perspective of post-atomic studies, as evidenced through these texts, it becomes possible to imagine a world in which artworks are seen as objects of resistance to war-waging and military overreach. These texts reach toward to the speculative future posed by photographs and their exhibitions.

In this spirit, in the introduction to *Weaponized Landscapes: Trinity*, I have contextualized Kavanagh's photoworks back into her own reading as well as further into *Nuclear Citizenship's* intellectual framework. Working together, we have selected the works. Additionally, she has collected, shot, and edited the pieces, and she has recommended to me the literature that informs her work, as stated above. To close this feedback loop and to fuel new discourse partially outside an academic setting, I have read her work alongside the literature she herself has read, and I fit it into a larger intellectual history of photography and its use in the Trinity Project and other forms of warfare. In short, an online exhibition is a curated, sustained, and critical publication that conscientiously engages with the discursive layers from which it emerged.

Atomic Tourist and its recontextualization in *Weaponized Landscapes* are research and exhibition projects that record and explore the complex range of personal experience unique to this site and the narratives that overlay the physical space. For Kavanagh, she describes *Atomic Tourist* as a "deep mapping" of the Trinity Site, a spatial humanities concept that interlaces the

disciplines of biography, history, narrative, archaeology, geology, and science. *Weaponized Landscapes* is another intercalation in the Trinity Site's deep mapping, an attempt to precipitate renewed scholarly discourse and to bring forth a refreshed public face to concerns about nuclear weapons testing, armament, and the disputes circling therein. The practice of deep mapping, when brought together with our own methodologies, overlays personal perceptions and interpretations of space on the existing discourses on the Trinity Site and other landscapes. This overlaying is what Kavanagh terms "discursive strata." Collaborative methods, durational expeditions, and multimodal expression of visual, research findings are at the heart of the discursive strata that frames this archive.

My decision to make *Weaponized Landscapes: Trinity* an exhibition, which supplies Kavanagh's perspective and civil critique of post-World War II scientific and civil photographic practices, furnishes my historical and theoretical context from which her work occasions. The exhibition explores how Kavanagh's photographic practice and research-creation is a durational, civil performance, wherein the visitors, photographer, and audience are participants in the discourses specific to this site. Individual, institutional, and literary actors are at play. Kavanagh's photoworks include Los Alamos National Laboratory's archival photographs as well as her own personal photographs from her family albums and archives. Her installations, such as *Atomic Suite* (2012) and *Daughters of Uranium* (2019–2020), create an archive, one that brings to bear the continued, lived experience in a so-called post-atomic age.

My decision to make this resource public is informed by my work with open access press, punctum books, where I have been associate editor for three years. On the importance and even necessity of open access, punctum's founder and co-director, Eileen Fradenburg Joy has written,

> it ought to be the role of the public research university – and by extension, of its platforms for disseminating research results – not to regulate and officiate thought, while also subjecting its potential publication to market and disciplinary conditions, but rather to create the hospitable open conditions for its creative emergence, beyond what we think we know, in whatever forms it might take.[127]

Open access (OA) is simply the removal of price and permission barriers to research. Prompted by the inflation of journal subscription costs to libraries (300% since 1987[128]) and the rise of the internet as an educational tool, open access's singular mission is to make scholarship available to all, from tenured professors to independent scholars, and to laypersons. At its core, OA is a public good. Within OA debates, OA is often on the defense against critics who are steeled against readily accessible information and its unknowable effects on prestige publishing and its ramifications in the academic job market. These concerns can immediately be laid to rest when the critic understands that when everyone has access to scholarship, it is not only the tenured academics that benefit, but independent scholars as well. Admittedly, uncertainty still exists.

Martin Eve, a punctum books author, observes that authors' work, which is defined by their topics, genres, purposes, incentives, and institutional circumstances, rely on publishing for its "prestige value," or academic symbolic capital,[129] and very rarely for financial gain. This then creates a library budget crisis *and* a supply-side crisis for researchers to publish their work, on

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[127] Eileen Fradenburg Joy, "A Vision Statement for Thinking, Writing, and Publishing Otherwise in the University without Condition," *punctum books*, January 18, 2022, https://punctumbooks.pubpub.org/pub/wvdihnnt/release/4.

[128] Martin Paul Eve, *Open Access and the Humanities: Contexts: Controversies and the Future* (Cambridge: Cambridge University Press, 2014).

[129] Ibid., 13.

which securing academic posts is dependent. Academics supply in most cases sub-field-specific and sometimes esoteric work instead of popular, utilitarian work, which, Eve writes, is a an unfortunately "callous" way of viewing the problem,[130] but it is a way of understanding the commodification of scholarship within the broader, trade, academic, and para-academic marketplace. Nevertheless, such specific fields and subfields generate ever-increasing competition, and then submission to prestige journals increases, and libraries, in the interest of supporting work that is relevant to necessary scholarship, must subscribe to (or buy back in many cases) this quality research. Rejections from prestige journals then flood "mid-range" publications that libraries will want to subscribe to as well but might not be able to. This then percolates according to flows and ebbs in trade markets as well as academic job markets, which increases competition for academic posts which are dependent on prestige publications.

Peter Stuber brings together several often "bad-faith" arguments against OA. He insists that OA is not an attempt to bypass peer review, an attempt to reform, violate, or abolish copyright, an attempt to reduce authors' rights, an attempt to deprive royalty-earning authors of income, an attempt to deny the reality of costs, an attempt to reduce authors' rights, nor it is an attempt to bring access only to lay readers.[131] In his twenty years on writing about OA, Peter Stubler writes that OA is an "access revolution" that follows, among other things, journal subscription policies and crises. There is little to no difference between copyright policy toll-access (i.e., conventional publishing models) and OA because OA for scholarship still depends on copyright-holder consent

[130] Ibid., 14–15.

[131] Peter Stuber, *Open Access* (Cambridge: MIT Press, 2019). Stubler contests the arguments against popular and ill-informed arguments against open access.

in both instances. OA still incurs production costs and depends on authorial decisions to exercise more rights or control over their work; in fact, in most cases, this is a structure already embedded in toll-access publishing. And according to Stuber, authorial attribution is still absolutely paramount, more now than it has ever been.

Decidedly, OA is an attempt to promote the interests of research, researchers, and research institutions, free from financial and access barriers. The decision to make *Weaponized Landscapes* an online publication is inherently OA because I have chosen, with the artist Mary Kavanagh, to make our research and resource available to all with barrier-free access. While acknowledging that not all barriers are lifted – of course, a visual project that might inhibit readership for some – *Weaponized Landscapes* is an attempt to make scholarship and artworks as widely available as possible, in the hopes of generating conscientious viewership, a tenet integral to its mission.

4.2 Technical Decisions

I made practical technical decisions for *Weaponized Landscapes: Trinity*. The technical decision to use WordPress (WP) was based on, first, my familiarity with the Content Management System (CMS); two, the ease of use and its support; three, for professionalizing and access reasons; and four, the foundation of an ongoing research project that extends outside the single topic of the Trinity Site and its historical entanglements. I outline here the technical skills necessary to develop an online journal platform and its challenges.

First, WP is traditionally a blogging platform, so the back-end interface performs more like a word processor. WP has more reliable function in word-heavy texts than other CMSs, but as online development and performance improves, the difference is increasingly negligible between

systems. While champions of OA might shake their head at my use of proprietary software, in future issues I intend to migrate the site to an open-source CMS, Pubpub.

Second, like other free and for-pay CMSs, such as Wix, Drupal, and SquareSpace, WordPress.org offers professional-looking sites. Users can buy their own unique domain that does not include a domainname.*wordpress.com* tag. However, a web-hosting service, such as Reclaimhost or Dreamhost, will allow the user to download WP more consistently, readily and significantly with more support than other CMSs. WP has been a long-time option for use and download. Therefore, the WP site is easier to manage from the backend should the user's mission require a more technologically personalized code-editing routine. For example, there are more options to tweak HTML (site structure) or CSS (site style) without WP intervention. Importantly, there is more support from the host, should the user massively devastate the code or the site's functionality. And in 2021, a resource with availability online simply makes it more accessible to users than those behind paywalls or within library or specialized repositories. Online availability lowers the barriers to entry for the maker-curator and the audience as well as future contributors and maker-curators.

Third, I proposed a public-facing exhibition and publication because it would help develop professionalizing experience in managerial editing and web design and management. In the last six years in History of Art and Architecture, I have supplemented my research program with digital publishing and project-based web managing. From 2015–16, I was a research associate for the University of Pittsburgh's Visual Media Workshop's *Itinera* (itinera.pitt.edu) and the architect behind the best practices and workflow website https://sites.haa.pitt.edu/itineraguide/. In 2016, I was the Project and Web Manager and Editor of coevality.com, an online resource for Terry Smith's course "Coeval Connectivity in Contemporary Conditions," which is still under my

conservatorship. During summer 2017, I was the web manager for larbpublab.com, the *Los Angeles Review of Books* and University of Southern California's Publishing Laboratory that released its fourth issue in fall 2021. In 2017, I was the founder and editor-in-chief for my environmental arts and humanities digital journal *Sedimenta* at sedimenta.org, a component of my comprehensive exams. Since February 2019, I have been Associate Editor for open access para-academic press punctum books. As of November 2021, I am a contract copyeditor for the para-academic press Zone Books, which specializes in art history. *Weaponized Landscapes* is a continuation of this experience and a vote for future projects.

Four, I selected WP as a platform for *Weaponized Landscapes: Trinity* because it will serve as the conceptual and digital foundation for a larger project for which *Trinity* acts as blueprint. WP exhibits stronger, enduring performance in long-term projects. Though WP is not a task manager – like open-source software Editoria that deals with top-to-bottom production of book projects – WP is a compromise between short-term, small-scale projects (e.g., single-service websites that exhibit information for a temporary event) and long-term expansive projects (e.g., a workflow for completing, editing, and publishing entire manuscripts). Because my mission for *Weaponized Landscapes* is a broader and more capacious research project, at this time, WP is for now simply the best compromise among systems that can handle long-term, iterative research and publishing projects. Below, I discuss the future projects that will be conceptually and physically supported by *Weaponized Landscapes* and its WP platform.

Because WP functions as a word processor, I needed to use basic, yet effective web development skills. However, to make *Weaponized Landscapes* visually distinct from other websites using the same, basic theme, I needed HTML and CSS skills for legible design purposes. For a cleaner and clearer index page – the page on *Weaponized Landscapes* that homes Kavanagh's

work within an easy, interactive public-facing interface – clear, structural interventions were necessary. For example, I used an HTML insertion to clearly divide one section from another when the backend editor would not suffice. HTML, like any other markup language, requires diligent and consistent learning and practice for executable aptitude. To learn how to write and edit HTML, I used the University of Pittsburgh's LinkedIn Learning/LYNDA program to receive certification in HTML and CSS Essential Training, Advanced WordPress Development, and Half-Stack Development.[132] I have also completed some modules in full-stack development, PHP Essential Training, PHP with MySQL Essential Training, and JavaScript Essential Training. Despite as accessing tools like LinkedIn Learning/LYNDA with ease, I faced significant challenges when implementing these tools in my dissertation project.

4.2.1 Issue I: Time and Practice

Learning tools that fall outside a traditional dissertation project simply takes time. Though the modules' runtimes are anywhere from an hour and a half to six hours, their practice takes incalculably longer. Inevitably, failing, which is an essential step (or flight of steps) in the process, takes even more time. Implementing these new skills for practice is difficult. CodeAcademy is an online resource that guides users through practice code and implementation. Here, the user can learn the tool and complete practice modules. However, these practice spaces are rarely if ever tuned to the user's specific project-based needs. Therefore, to merge the practice space with the

[132] Half-stack refers to either back-end or front-end development, usually front-end. Front-end half-stack then refers to developing the public-facing interface for your website. Full-stack refers to both front-end (output) and back-end (input) development.

project-based space, users often set up a "development environment," which allows them to test out new code for a website before deploying (i.e., making live) the site. To set up a development environment for *Weaponized Landscapes*, I had to learn other skills outside of HTML, CSS, web development, and half-stack development. I had to learn how to set up the development environment, which required knowledge about establishing your computer as its own server. In order to do this, I had to learn how to use MAMP, Apache (network), MySQL (database), and PHP (scripting language) for Mac. This then required some operational knowledge in each, Apache, MySQL, and PHP. Then, to not destroy my purchased theme, I had to learn how to create a WP-specific feature, "child theme," which is a theme that inherits the functionality of the parent theme (i.e., the theme I bought) that can be modified without altering the original code. Once this space is created, then the user can modify a copy of the original code and make deployment decisions in the lead up to the site's deployment.

4.2.2 Issue II: Skill Toggling

After the user learns, practices, and implements these skills, they must return to the historical and methodological questions for which they are getting a PhD in the first place. In the beginning, I scheduled the intellectual labor in the morning and the technical labor in the afternoon and evening. This proved ineffective because daily toggling between the two skills was mentally arduous. Like trying to research and write at the same time, learning the skills and implementing them simultaneously was confusing, and it was easy to lose my place in the overall research plan. Instead, I was more successful in alternating between a month of intellectual tasks and a week of technical tasks, with a reorienting day or two to the tasks at hand. I found that while creating

executable benchmarks according to an action plan was more efficient, completing both sets of tasks slowed down the process.

After the user implements for the technical and research skills, they must communicate and translate those decisions and to audiences that might not be versed in the technical skills. Learning to communicate and translate while completing the requirements of the PhD came with a significant learning curve. For example, my dissertation's prospectus included the intellectual package requisite of a traditional dissertation, but it also included a technical prospectus that required the time, research, and action plan of another prospectus. The completion of a digital, online component requires the same intellectual labor of a traditional dissertation with the added baggage of understanding one's own technical limitations and uncertainty – it is difficult to know what one doesn't know and how to communicate this. For instance, my dissertation's prospectus could have included an action plan that included refamiliarizing myself with HTML and CSS and WP's *incessant* updates, but that action plan could not have included learning how to establish a developmental environment or a child theme because. Despite my web designing and managing skills, I was not able to foresee that I would need certain, specific skills. Lastly, though CodeAcademy and LinkedIn Learning/LYNDA modules are free with matriculation to student users, building a website with their aid incurred cost. Though some themes are free, they were not attuned to my specific project. The price of WP "widgets" ("applications," such as anything from a Twitter feed to anti-spam software) can incur cost. As well, to minimize the back and forth from the user to the host, extra editing software (e.g., WordPress Bakery Editor) that provides HTML and CSS shortcuts incurred cost. Any other add-ons, such contact forms, social profile links, maps, archives, and so forth can incur costs as well. As I articulated above, OA publishing still incurs

costs, such as renting space on a server, downloading software, and designing and deploying a website.

4.3 Relationship with the Artist

I have traveled to Kavanagh's Lethbridge, Alberta studio to research and develop technical planning and execution. We defined the scope of the project, its duration, audiences, intellectual and technical priorities, responsibilities, and sustainable action plans from its development to its afterlife on the web.

The friendly and collegiate nature of our relationship will hold open the door to forthcoming issues of *Weaponized Landscapes*, Kavanagh's future exhibitions, and photobooks. Future issues will operate as a series of topics guided by an editorial board that specializes in regional, thematic, and topics discussed throughout the issues. Kavanagh might still have a hand in further issues as an artist-expert in the field with a robust publishing history. She also has requested some of my input as she moves forward in her curatorial process. She has offered me space in a future exhibition catalog as her work with *Atomic Suite*, *Atomic Tourist*, and *Daughters of Uranium* progress into upcoming projects.

4.4 Epilogue: Further Expansion of *Weaponized Landscapes*

The following prospectuses are flexible, intellectual briefs that outlines future issues of *Weaponized Landscapes*. Like *Weaponized Landscapes: Trinity* that focused on Kavanagh's

photoworks, each issue will focus on a single artist's work in a specific region and the way in which the work is dispersed (through what media), expressed (through what channels), or collected (through what repositories, collections, or archives).

The issue, *Weaponized Landscapes: Museum Insel Hombroich*, concerns the eponymous museum in Neuss, Germany and a previous artist-in-residence, Ursula Schulz-Dornburg (b. Berlin, 1938), who is a member of the Atomic Photographers Guild. The museum's collection is famously housed in a former NATO (North Atlantic Treaty Organization) station outside of Neuss, Germany. Opened in the same year that Del Tredici, Gallagher, and Fogel founded the APG, Museum Insel Hombroich (MIH) was founded to join the landscape with the built environment. A team of art-collector Karl-Heinrich Müller, installer Gotthard Graubner, sculptor Erwin Heerich, and landscape architect Bernhard Korte conceived and designed the grounds and new buildings, and preserved the old, NATO-era buildings in order to house Müller's extensive art collection.

Some aspects of the MIH, such as the focus on the landscape and art's intervention, is consistent with *Weaponized Landscape*'s vision. However, instead of trying to hide the militarized, environmental landscape, *Weaponized Landscapes* wishes to unearth the history while preserving the dignity of the institution's message. I will feature two avenues for this issue. One is the history of the MIH and its linkages with NATO during the Cold War. The second focus is contextualizing the work of one of the museum's prominent photographers, German artist Ursula Schulz-Dornburg within that history. Schulz-Dornburg is one of the photographers there that has been involved in MIH's programing. The three-way connection between Schulz-Dornburg, NATO, and the APG is a natural extension from my current research, as outlined in this dissertation project.

The APG recounts Schulz-Dornburg's work. They explain that she "has travelled from the secret village of Kurchatov, Kazakhstan to the Hejaz railway in Saudi Arabia, from Kronstadt,

Russia to Armenia and the border of Georgia and Azerbaijan to Iraq and Syria, in order to photograph the intertwining relationship between industrial and architectural structures, landscapes, and humans. Her work captures the historical and political importance of architecture and its destruction within the last century. Schulz-Dornburg's work is a critical exploration of the construction of power and its impermanence." To address her other works, especially the ones featured on the APG website, one focus of this issue will be on Schulz-Dornburg's representations of Semipalatinsk nuclear test sites in Kazakhstan and the durational aspects that are showcased within those works. Her photographs align in a dead-pan, industrial style, in the lineage of photographers Bernd and Hilla Becher; only instead of water towers, cereal mills, and warehouses, her photographs consider irradiated and dilapidated structures in black-and-white analog and digital film.

This issue will also consider Schulz-Dornburg's relationship to the Museum Insel Hombroich. Her series, *Sonnestand* (1991), enjoys permanent installment in one of the Drei Kapellen in Kirkeby Field, in between the museum proper and the Raketenstation.[133] The exhibition, *Ursula Schulz-Dornburg* (9 September–9 December 2018), featured her works on precarious architectures around which communities shape their collective identity. Her impulse, to "archive these places," is consistent with *Weaponized Architecture*'s perspective and the mission of Museum Insel Hombroich.

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[133] *Sonnestand*, which means "position of the sun," is about the relationship between light and architecture along the hermitage route from Barcelona, Spain to Santiago, Chile. Like Kavanagh, she arranges the series of photographs in a grid.

My research on this topic began during my completion of the New England Regional Fellowship Consortium fellowship in summer 2019. At Dartmouth College, Dr. Morgan Swan graciously scanned and emailed me the Papers of Shepard Stone who collected materials relating to the presence of American and NATO forces in West Germany after World War II. Specifically, I researched first-hand accounts of civilian grievances made against German and NATO officers in West Germany in the 1950s. Because of this research, I can continue research on weaponized landscapes around the world and the modes of operation through which civilians are able to protest against military overreach. I will continue novel research on the former NATO station, a contested site, and West Germans citizens' resistance to United States imperialism in the region during the Cold War.

Weaponized Landscapes's next issue would be a collaboration with Brigitte van der Sande, one of the curators of *See You in The Hague!* (*SYiTH!*, September 2013–December 2021). *See You in The Hague!*, a threatening yet convivial provocation, was an eight-year-long exhibition at Stroom den Haag and other locations in the Netherlander city that boasts itself as the City of International Peace and Law. Stroom den Haag hosts a hybrid program of workshops, exhibitions, and discussions on topics of international law and relations with cultural and political premises. Exhibited works forefront national and international security issues, such as hybrid warfare, conflict, state surveillance, and far-right populism, among others. It is a multifaceted, multi-scalar, multicultural program that reflects complicated and overwhelming narratives to an international arts public with an emphasis on the city's identity as an international arbiter of justice.

In *Nuclear Citizenship,* I discuss one of the *SYiTH!* artists, Susan Schuppli, an artist-researcher like Kavanagh. In addition to her other qualifications, Schuppli, is a reader at Goldsmith's Forensic Architecture, a research agency that investigates how material (e.g.,

documents, photographs, videos, among other media), when framed as testimony, demonstrates competency in exposing political violence and state surveillance. Schuppli's work is an immersive, archival exercise ranging from banal to alarming to disturbing imagery. The work on display during *SYiTH!*, "Evidence on Trial" (2014), was a narrative of evidence extrapolated from almost ten million documents, objects, photographs, video and audio recording, aerial footage, architectural models, and charred timber and rocks found in and around Izbica in the former Yugoslavia. These materials were accumulated in preparation for the International Criminal Tribunal for the Former Yugoslavia (ICTY), an ad hoc court established by the United Nations Security Council in 1993 to investigate war crimes during the Yugoslav Wars. *SYiTH!*'s programming occurred while the tribunal was still in session. Schuppli's work features amateur video taken and donated by a Bosnian inhabitant for purposes of identifying rows of Izbica's deceased after the massacre in Kosovo in July 1995. In reconfiguring, reinterpreting, and translating the pieces of evidence prepared for the trial for an arts audience, she investigates what is admissible and inadmissible as evidence in due process. This issue will explore the question: what evidence is material in this context? How do photographic practices and exhibition aid in that endeavor?

Schuppli's art-based research program focuses on defining objects and artifacts as "material witnesses," materials that "disclose the procedures and practices that convey testimony and artifacts into matters of legal evidence capable of presiding over questions of public truth."[134] Furthermore, material witnesses explore "the evidential role of matter as registering external

[134] Susan Schuppli, "Entering Evidence: Cross-Examining the Court Records of the ICTY," in *Forensis: The Architecture of Public Truth*, ed. Forensic Architecture (Berlin: Sternberg Press, 2014), 280.

events as well as exposing the practices and procedures that enable such matter to bear witness."[135] She frames her projects to include wide domains of material and media. Thus, her research is guided by the following lines of inquiry: how material registers trace evidence of violence through photography, video, blood, and carbon and how that evidence is translated and transmuted through the mechanisms of the courtroom.

In this issue, I consider international modes of due process. I examine how those modes produce an interdisciplinary moral architecture that mimics the due process from which the material witness issues to possibly repel possibilities of future human rights violations. In some cases, photography can indeed offer an effective anti-conflict politics, one that may activate conscientious viewership that realizes social transformation, where photography does indeed emerge as a necessary civil right, responsibility, and duty.

[135] Susan Schuppli, "Opening Statements," in *Material Witness: Media, Forensics, Witness* (Cambridge: MIT Press, 2020), 3.

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