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Radiophobia and Trauma: Examining the Lasting Effects of the Fukushima Nuclear Disaster

Lydiarose Mockensturm

The Fukushima nuclear disaster of March 2011, unlike the earthquake and tsunami leading up to it, was not experienced directly or immediately for many. Its effects were, however, experienced belatedly—in the form of displacement and radiophobia, which have had a significant psychological impact on survivors. Moreover, excessive media coverage of the disaster allowed for it to have a global impact not seen during previous nuclear disasters. Shion Sono's film *The Land of Hope*, released in Japan in October of 2012, helps to illustrate the traumatic nature of a nuclear crisis through issues such as dislocation, media coverage, radiophobia, and distrust of the government.

The Fukushima Daiichi nuclear disaster in March 2011 and the earthquake and tsunami that led up to it have thus far made up the most devastating event in Japan since the atomic bombing of Hiroshima and Nagasaki during World War II (Osawa 189). While the initial damage caused by the earthquake and tsunami was immense, the effects of the nuclear meltdown have been ongoing and significant well outside of Fukushima and even Japan. Furthermore, unlike an earthquake or a tsunami, the effects of the meltdown were not immediately experienced or understood by many but only later, in the form of displacement, radiophobia, and distrust of the government. These belated effects of the nuclear disaster parallel current discourse on trauma theory, which attempts to understand trauma through the lives of those who have experienced it and, thus, continue to experience it well after the initial event. This paper will use trauma theory in an attempt to understand the aftermath of the Fukushima nuclear disaster, applying these ideas to a reading of Shion Sono's 2012 film *The Land of Hope*, while also considering what the implications this reading, along with globalization and new media, may mean for the future of nuclear power.

Nuclear Meltdown

On March 11, 2011, a magnitude-9.0 earthquake sent a tsunami toward Japan's eastern coast, resulting in the meltdown of three nuclear reactors at the Fukushima Daiichi Nuclear Power Plant (Brumfiel 138). When the three operating reactors at the plant overheated—leading to the meltdown—radioactive chemicals began to spread through the air and sea, and within the first 24 hours, the government had already begun reporting news of radiation and radiation readings to the public (Ibid.). Without much, if any, previous knowledge of radiation, such information is certain to cause some amount of panic and irrational fear in the average person who may have been exposed. While both the earthquake and tsunami alone were certainly devastating, the tsunami's effect on the Fukushima Daiichi nuclear plant worsened the disaster situation, adding an increased level of fear near Fukushima, across Japan, and beyond (Ibid.).

Following the nuclear meltdown, the disaster continued for those who survived the earthquake, tsunami, and evacuation. In the days following the explosions at the plant, mistrust of the government and other authorities began with incorrect reports of radiation readings (Brumfiel 139). Furthermore, in order for workers to go into the plant to get the situation under control, the government had no choice but to raise the recommended safety limits for exposure to radiation (Ibid.). Suspicion and fear alone can be traumatic for those who survived the incident, even with evidence that those in Fukushima were relatively safe from harm (Ibid.). The disaster also continued for those in Fukushima who evacuated through the experience of dislocation and the stigma of having come from a contaminated area (Ibid.). Beginning at two kilometers on March 11, the exclusion zone was expanded to a thirty-kilometer radius surrounding the nuclear plant in the weeks following the initial meltdown (Meybatyan 63).

Two years after the Fukushima disaster, in 2013, one study conducted by the University of Tokyo found that most people relied on watching television for information regarding radiation and its consequences on health, a source criticized for lacking scientific basis and for its alarmism (Sugimoto 1). This study collected information from those attending a radiation-health seminar and found that the seminar successfully reduced health-related concerns about radiation, suggesting that it is mostly false information, spread through the media and rumors, that is responsible for much of the lasting fear experienced by those who survived the disaster (Sugimoto 4-5). Extensive media coverage of the disaster has been a cause for concern for children and their exposure to such images, the idea being that these images alone could become a source of trauma (Osawa 188). The concern among those within the field of pediatrics is that children, who are still developing a sense of time, may literally perceive the recorded images as happening in the moment they are seeing it (Osawa 188).

Understanding Trauma Theory

For many people inside and even outside of Fukushima, the nuclear disaster was a traumatic experience, with effects that last to this day. But what does that trauma mean in the everyday lives of the individuals who experience it? What is the nature of trauma, and can it be defined? Moreover, how are people coping, or not coping, with this trauma? These are questions that scholars from various fields have been trying to answer, often looking at survivors of the Holocaust and the atomic bombings of World War II for an understanding. Looking to the American Psychiatric Association's definition of Post-Traumatic Stress Disorder (PTSD), trauma is often described as an event "outside the range of usual human experience," a fact which Cathy

Caruth uses as a starting point (3), although, as Laura S. Brown argues in her essay “Not Outside the Range,” this definition of trauma may, at times, be problematic (Brown 103). This is because of the difficulty in determining if an experience is “normal,” and Brown argues that the frequency of the occurrence of an event does not make it any more or less traumatic (Ibid.).

However, Cathy Caruth, in the introduction to her book *Trauma: Explorations in Memory*, argues that trauma is not defined by the event itself—which “may or may not be catastrophic, and may not traumatize everyone equally” (4). While the events during a nuclear disaster can be seen as traumatic, what Caruth argues is that trauma should be looked at as what an individual experiences *after* the event—its “haunting power” (Ibid.). In this way, the event is not experienced fully at the time, but belatedly, and to be traumatized, according to Caruth, is “precisely to be possessed by an image or event” (4-5). The belatedness of trauma is something which many scholars agree on, as it is seen that the traumatized often return to the event, against their will, through nightmares and flashbacks, a fact which can be seen in the writing of Caruth, Dori Laub, and Shoshana Felman, all of whom are important trauma scholars (Caruth 5; Laub 64, 70; Felman 20). Laub, in his essay, “Truth and Testimony,” relates the belatedness of trauma to Holocaust survivors who have not told their stories (64). It is through testimony, Laub argues, that some of these survivors were able to begin witnessing the event forty year after it had occurred (64). This aspect of trauma, the way in which it can have effects that last the entirety of a survivor’s lifetime, is a relatively widespread understanding and a concern in various fields. Makiko Osawa also refers to the belated nature of trauma when arguing that the media need to be more careful about exposing young children to disaster footage (Osawa 188). Of the effects that

this footage could have on children, Osawa includes nightmares, which are a manifestation of trauma's belatedness and possession described by Caruth (Osawa 189, Caruth 4-5).

While trauma is seen as the possession of the individual by the event, and Dori Laub states that the event will invariably play a role in "who one comes to be, and in how one comes to live one's life," he also argues that testimony is an action towards "repossessing one's life story" (70). Shoshana Felman, in "Education and Crisis," seems to agree with this notion when discussing Albert Camus's *The Plague*, stating that the act of writing—in this case a novel—is "an act of bearing witness to the trauma of survival," an act which Felman then points to as an "unsuspected medium of healing" (20). Furthermore, artistic expression of this nature in literature and in film may also touch on an important aspect of trauma, which Caruth describes as an uncertainty of the truth of traumatic memories (Caruth 6). Again, Laub discusses this question of truth in "Truth and Testimony." Part of his argument about Holocaust survivors who have remained silent about their experience is that, in their silence, they "become victims of a distorted memory" (Laub 64). Susannah Radstone, in her essay "Trauma and Screen Studies: Opening the Debate," articulates that for some scholars, "What trauma cinema demonstrates is traumatic memory's straddling of the categories of 'true' and 'false', 'fantasy' and 'memory', 'documentary' and 'fiction'" (192). In this way, not only do fictionalized accounts of traumatic events act as a form of testimony, but they also illustrate this question of the truth of traumatic memory.

Trauma and Fukushima

Dislocation and Hibakusha

What Caruth refers to as the “haunting power” of trauma is certainly relevant for those who were evacuated from Fukushima and forced to begin new lives elsewhere. Oleg Nasvit, a radioecologist at the National Institute for Strategic Studies in Kiev, Ukraine, has expressed concern for Fukushima evacuees based on his studies of the Chernobyl nuclear accident. According to Nasvit, the dislocation of evacuees in Chernobyl was difficult to cope with and also resulted in their being stigmatized for their exposure to radiation (Brumfiel 140). This is not unlike the experience of the *hibakusha* after the atomic bombings of Hiroshima and Nagasaki during World War II. The term *hibakusha*, literally meaning “explosion-affected people,” in and of itself illustrates the haunting power that the bombings have had on those who survived—they have come to be defined by others by their exposure to radiation. One survivor of the bombing of Hiroshima, Miyoko Matsubara, recalls that in the years following the event, “No one would sit next to me or marry me because of the fear of radiation” (3).

Two years after the Fukushima disaster, an interview with Jun Shigemura, a counselor for Tokyo Electric Power (Tepco) workers at the Fukushima Daiichi nuclear plant, revealed that Fukushima evacuees have indeed gone through a similar experience (McCurry 792). As Shigemura explained, “The evacuees have lost almost everything—their houses, communities, and jobs, and they don’t know if they will ever be able to return,” adding that some have also experienced discrimination and have stopped telling others where they are from as a result (Ibid.). In this way, evacuees have not only had to cope with the sudden disruption of their normal lives, but also the social stigma of becoming *hibakusha*, just as the survivors of the atomic bombings and Chernobyl.

Media Coverage and Trauma

Japan's media coverage of the Fukushima nuclear disaster mirrors the belatedness of trauma in that the recorded footage shown is from the past and invites viewers to experience it again later, just as a traumatic event is often experienced repeatedly throughout the life of a traumatized individual. This is an increasing concern for those in the field of pediatrics, who fear that children who may not have experienced any major disaster first-hand are being traumatized solely through footage of these events (Osawa 188). Those who may not yet have a clear understanding of time, such as young children, are especially at risk, as Makiko Osawa argues in "Earthquake disaster footage and its effects on children" (Ibid.). Children, she believes, may actually perceive the footage as occurring at the time of their viewing, rather than understanding it as a past event (Ibid.). With the abundance of coverage available via traditional media and online, disaster footage was ubiquitous immediately following the Fukushima meltdown, creating a relatively new aspect of trauma to be examined. Osawa sees this footage on its own as a kind of emotional trauma that results from excessive stimulation, which a child's brain cannot easily cope with (Ibid.).

In the article, "Three Mile Island, Chernobyl, and Fukushima: An Analysis of Traditional and New Media Coverage of Nuclear Accidents and Radiation," S.M. Friedman argues that the Internet and social media have changed the meaning of mass media, considering this new media's roles during the Fukushima nuclear disaster (56). Wikipedia, for instance, provided real-time coverage, with day-to-day accounts of the events and radiation readings, while on Twitter, searches for "#fukushima," "#nuclear," and "#meltdown" allowed for constant updates on videos, articles, and events related to the meltdown (Friedman 56). Interestingly—and seemingly

contradictorily, if one chooses to understand trauma as belated—contemporary media have allowed for immediacy in experiencing the events as they unfold even for those not directly involved. Friedman has argued that the excess and availability of information, particularly via the Internet, including blogs, Facebook, Twitter, and YouTube, have resulted in frequently incorrect information as well as an increase in nuclear phobia (56, 63). Not only does it seem that Friedman is, in this way, agreeing with Osawa's connection between trauma and the media, but the article also provides a concrete illustration of how an individual could possibly be traumatized by an event they did not experience first-hand. While Friedman does not use the same language as Osawa, the implication is that new media allowed for outsiders near and far to witness this catastrophic event almost in real-time, and furthermore, that the overload of information was able to invoke a very real fear in these distant witnesses.

Testimony, Memory, and Truth

The question of truth discussed by Dori Laub and Susannah Radstone may be seen in those with irrational fears of radiation and mistrust of the government following the meltdown. Although their fears may not be entirely based in truth, they are, nevertheless, a source of trauma for those individuals. As previously mentioned, much of the health-related anxieties about radiation exposure are not based on scientific information, but come from the spreading of rumors and sensationalized news reports on television. It makes sense, then, that the study that found this also found that many of the participants' anxieties were eased after attending a radiation health seminar. Understanding this, it can be argued that Osawa's concerns about the effect of the media on children are not all that irrelevant in the adult world, which is expected to think much

more rationally in these disaster situations. Instead, something imaginary—fear from an ungrounded rumor—can be the source of trauma in that world.

One factor that played a part in these irrational fears has roots in the days immediately following the meltdown, along with the distrust of the government that resulted from the chaos and confusion at that time. First, when the government began reporting radiation readings following the explosions—which they began doing within the first twenty-four hours—many of these readings turned out to be incorrect (Brumfiel 139). Another cause of mistrust was the changing recommended safety limits for exposure to radiation. The government did this so that workers would be able to go into the plant and contain the situation, since the site would otherwise have to be evacuated (Ibid.). While these inconsistencies can be logically explained, they have led many to feel that the government is either corrupt or incompetent—either way they cannot be trusted, it would seem to many (Ibid.).

An attempt at “repossessing one’s life story,” as described by Dori Laub in his discussion of testimony, could be the inspiration behind the creation of fictionalized accounts of disasters, such as Shion Sono’s film *The Land of Hope*. Released about a year and a half after the Fukushima incident, the film is a fictional story of a markedly similar nuclear disaster and its effects on the lives of two families, both immediate and in the long-term. Thus, the creation of the film could be seen as an act of belatedly witnessing the event, a step toward the kind of “unsuspected healing” that Laub and Felman see in the act of testimony (Felman 20; Laub 70).

Shion Sono’s *The Land of Hope*

In 2012, roughly a year and a half after the initial events of the Fukushima nuclear disaster, Shion Sono's film, *The Land of Hope*, was released. The film presumably takes place in the near future, following the Fukushima incident, in which a strikingly similar disaster has taken place. In this way, the film may almost be read as a prediction for a future in which nuclear power in Japan continues as it was before Fukushima, leading to more nuclear catastrophes. Furthermore, the film examines in-depth how such a disaster can affect one family, namely the Onos, which consists of a middle-aged farmer, Yasuhiko, and his wife, Chieko, who suffers from dementia, as well as their son and his wife, Yoichi and Izumi. While the initial disaster—an earthquake and tsunami followed by a nuclear meltdown—is briefly illustrated in the film through an earthquake scene lasting only seconds, Sono is interested in the lives of its survivors following the event and the long-term implications of the changes they face (Sono).

In *The Land of Hope*, after the earthquake, the government orders those within twenty kilometers of the power plant to evacuate. The Ono family lives immediately outside of that radius. Although the authorities insist that they are safe from the radiation, Yasuhiko orders Yoichi and Izumi to leave for the safety of their future children. Yasuhiko, however, chooses to stay, fearing that disrupting Chieko's life would cause her too much distress because of her condition. Even when the authorities later tell the Onos that they must evacuate, Yasuhiko refuses, and remains at his home for the remainder of the film, where he and Chieko later pass away. Yoichi and Izumi, although they relocate to an area that they are told is safe from radiation, deal with their own difficulties and anxieties due to their dislocation, particularly when Izumi becomes pregnant and fears for the health of her child (Sono). Throughout the film, the Ono family's ongoing hardships are reminiscent of the current discourse on trauma, through the effects of dislocation, fears of

radiation, media coverage of the disaster, and distrust of the government and other authorities. Similarly, Sono's creation of such a film so intimately connected with a recent, catastrophic event that he witnessed, illuminates discussion on truth and testimony in relation to trauma and its artistic representation.

In an interview with the *Asahi Shimbun*, Sono explained some of his choices and their purpose in the creation of the film, revealing his intentions in creating *The Land of Hope*. For instance, Sono came up with the title for his film after interviewing evacuees and survivors of the Fukushima nuclear disaster, stating, "I meant it ironically from the start. When I was doing the research for this film I found nothing vaguely like hope" (Templado). Furthermore, Sono discusses the fictional prefecture "Nagashima" as a combination of Hiroshima, Nagasaki, and Fukushima prefectures, which have all suffered from nuclear catastrophes. According to Sono, "By creating an imaginary prefecture, I could also make viewers posit the event happening again, in order to make my aims more clear" (Ibid.). Although the director does not explicitly state in the interview what those aims were, it is quite clear that Sono wants viewers to see the hopelessness—or, in other words, the trauma—that resulted from the Fukushima nuclear meltdown, as well as to believe that it could very likely happen again in the near future if there are no changes in the use and safety of nuclear energy.

Testimony and Truth

The act of testimony in literature and film may be seen as further complicating our understanding of truth in traumatic memory. Again, Radstone argues that trauma cinema illustrates traumatic memory's "straddling" of true and false, documentary and fiction. *The Land of Hope*, so real in

its similarity to the recent disaster, yet also fictional, does exactly that. In the film, the events of the nuclear disaster are almost identical to the Fukushima incident. Following a powerful earthquake, there is a tsunami and then an explosion at a nuclear power plant, resulting in the evacuation of those living in a close proximity to the plant. References made to the Fukushima disaster in the film also indicate the similarities between the events, seeming to suggest that, although this event is happening later, it is intentionally meant to be reminiscent of Fukushima. During evacuation, one character says that they will not be returning home, his main point being, “Remember what happened with Fukushima?” (Sono). In this way, the film mirrors the Fukushima disaster, with the major difference only being the time and the place of the traumatic event. This causes one to question how much of the film can be seen as an act of remembering the Fukushima disaster, or to what extent it is “true” or merely fiction.

In *The Land of Hope*, the character Izumi illustrates the question of truth related to health-related anxieties through the “invisible war” she believes to be having in protecting herself from radiation. Izumi’s extreme fear of radiation, referred to as radiophobia, begins shortly after she and Yoichi relocate to another city because of the radiation. Here, she discovers that she has become pregnant, and decides that she will do anything she can to protect the child from radiation. Initially, Izumi believes they are safe now that they have left their hometown, but a young mother who is also pregnant reveals to her that cesium, a radioactive chemical, was found in her breast milk. This revelation incites panic in Izumi, which rapidly develops into a full-blown phobia. Upon leaving the doctor’s office that day, Izumi stops to pick up a few surgical masks in an attempt to protect herself from the radiation. Soon after, Izumi also covers an entire room in her apartment with plastic to shield it from radiation and also begins to wear a full

bodysuit, and convinces Yoichi to do the same in order to protect their unborn child. While everyone else in the city quickly moves on with their normal lives, Izumi will do what she can to protect her baby, even in the face of criticism, believing that there is a danger in ignoring the radiation just because you cannot see it. With this realization, Izumi describes a war with radiation: “This is an invisible war! Invisible bullets and missiles are around us!” (Sono).

While Izumi is right in describing herself as being in an invisible war with radiation, the war is also invisible for another reason: the reality of this war is up for question. Just as the study conducted by the University of Tokyo found that most health-related anxieties after the Fukushima nuclear disaster resulted from rumors, Izumi’s phobia also begins with a rumor. The woman in the waiting room tells Izumi only that cesium was found in her milk and that their children are not safe. Izumi takes this woman’s word for it and determines that any amount of cesium is dangerous for her baby without further investigation (Sono). In reality, though, experts know that some exposure to radiation is safe, and, in the case of the Fukushima, evacuation protected its residents from any dangerous doses of radiation (Brumfiel 139). Whether or not her fears are based in truth, however, the effects are very real. Izumi, who seems relatively unaffected by the nuclear disaster at first, does not seem to be experiencing any kind of trauma until this fear is instilled in her. Once it begins, though, the fear follows her everywhere as an obsession, the effects of the nuclear disaster reaching Izumi belatedly, months after the event initially occurred.

Similarly, other characters in the film more directly criticize the government’s actions during the disaster. Yasuhiko and Yoichi, for instance, are especially irate when the authorities set up the

twenty-kilometer radius around the plant, which happens to end right outside of their home. The authorities set up a barrier right between Yasuhiko's home and his neighbors', which causes Yoichi to question, "This half is okay and that half is not?" (Sono). In the same scene, Yasuhiko becomes frustrated with the lack of information being shared with the public. Yasuhiko, who suspects that something has happened at the nuclear plant, asks one of the workers if it has been damaged, to which he responds that they do not know yet. Outraged, Yasuhiko begins questioning the workers, asking, "Why are we evacuating then?" and "Why are you wearing this then?" indicating their protective full-body suits (Ibid.). Even Izumi, at this point, begins yelling at one of the workers, saying, "It's air. You can't stop it from flowing in" (Ibid.).

Media Coverage and Disaster Footage

In *The Land of Hope*, Sono illustrates a unique encounter with trauma through the character Chieko. Chieko, who has dementia, is mostly oblivious to the events of the disaster as they occur around her. For instance, even after the explosion at the nuclear power plant, Chieko reports to her family obliviously that she heard they are building a nuclear plant in their town. Because of her condition, Chieko seems to dwell in a time in the past when she was younger, causing her to act somewhat childishly. There are a few instances within the film when Chieko views footage of the power plant explosion on television, and each time Chieko is shocked by what she sees. This causes her to shriek—belatedly—at the image (Sono). Thus, Sono illustrates quite clearly the impact that news footage of such catastrophic events can have and the way it can repeat the moment of trauma for those who view it. Although she is not physically a child, Chieko's memory loss and lack of a sense of time causes her to experience the disaster each time she sees it on her TV, extending the traumatic experience well past its initial occurrence. In this way,

Chieko takes on the role of the child in a nuclear disaster, since there are no children as main characters in the film. Through her character, it would seem that Sono would agree with the arguments that TV footage can be a source of trauma for children and others whose minds may be more vulnerable than the average, healthy adult.

However, unlike a child viewing disaster footage, an unusual aspect of Chieko's situation is that, although she experiences the initial moment of trauma repeatedly, she also forgets about it each time, moving on with her day-to-day life. Thus, she experiences the belatedness of trauma in a different sense than is meant by trauma scholars such as Caruth. Most scholars tend to look at the ways in which victims of traumatic events attempt to move on with their lives and are haunted by nightmares and flashbacks that cause them to relive the event for the remainder of their lives. Chieko, on the other hand, forgets about the event each time, immediately after she sees it. For this reason, one may not consider her to be traumatized if one views trauma as the lasting effects that result from such an event, which is outside the realm of "normal human experience." Chieko forgets; she is not haunted in the typical sense. It is disaster footage shown on the news that continues forcing her to relive the experience, thus imitating the effect that trauma *would* have on her if she had the ability to remember.

Dislocation and Social Stigma

Dislocation haunts the characters in *The Land of Hope*. While Yasuhiko and Chieko refuse to evacuate, Yasuhiko orders his son and daughter-in-law, Yoichi and Izumi, to leave for the sake of their future children. Yoichi, who initially is unwilling to leave his home, struggles to cope with the separation from his father. Naturally, both Yoichi and Izumi have difficulty leaving their

parents behind and at one point return home to say goodbye one last time, seemingly unfazed by the fact that they are subjecting themselves to dangerous amounts of radiation (Sono). Through Yoichi and Izumi's evacuation, there is an understanding that they will be losing their parents forever—a loss that will follow them throughout their lives.

Similarly, the fact that they come from a contaminated area also follows Yoichi and Izumi in their relocation. In Sono's film, this fact is clear when Yoichi and Izumi first leave their hometown and stop at a gas station. The gas station attendant looks at the couple's license plate, sees where they have come from, and refuses to serve them, saying, "No radioactive cars. I don't want radiation on me" (Sono). For Yoichi and Izumi, just being from a contaminated area is cause for discrimination. Later, there is another scene in which Izumi and Yoichi see a young boy being bullied on the street by a group of older boys. The boys say that he is radioactive because he is from Nagashima and tell him to go away. Izumi stands up for the boy being bullied by telling the others that radiation is everywhere, and they are radioactive too (Ibid.). Perhaps Sono believes that not much has changed since the days of World War II regarding the public's knowledge of radiation for him to include these two scenes in the film. In this way, he seems to argue that the nuclear disaster has brought about a new generation of *hibakusha*.

Responses to Fukushima and the Future of Nuclear Power

Media Coverage Beyond Japan

As previously discussed, media coverage of the Fukushima nuclear disaster has been massive due to new media, or the Internet and social media. These means made extensive coverage available not only for those in Japan but also in other countries. This alone allowed the traumatic

event to reach those outside of Japan on a level that the world had not seen with previous major nuclear disasters, such as Chernobyl in 1986, again, supplying real-time coverage of events for anyone with access to the Internet. Some of this information was very helpful in understanding the disaster. For instance, the *New York Times* made use of animated diagrams to help illustrate and explain changing evacuation zones, potential paths of radioactivity, the International Nuclear and Radiological Event Scale, as well as levels of radioactivity in the air, soil, food, and water (Friedman 60). In this way, some resources may have actually calmed fears by providing accurate and easily understandable information, although that was certainly not always the case.

Likewise, traditional news media in other countries covered the events of the Fukushima disaster extensively as well. According to the Tyndall Report, which monitors weekday nightly newscasts in the United States, there were twenty-nine nightly newscasts covering updates on Fukushima from ABC, CBS, and NBC, reporting on the accident every night between March 11 and March 18 (Friedman 60). Some stations, Friedman argues, were unprepared to cover the event. CNN, for instance, repeatedly aired the same video during early coverage of the disaster (Ibid.). Other coverage often contained overly simplified and even incorrect information, the result of reporters being “in over their heads” during a nuclear disaster (Friedman 63). Media coverage also tended to use fear inducing language, such as “meltdown,” “catastrophe,” and “radiation,” which some may argue was an attempt to increase ratings (Ibid.). Understandably, the Japanese Foreign Ministry referred to foreign media’s coverage of the accident as “excessive,” and the public’s nuclear phobia increased as a result (Ibid.).

Both new and traditional media in the United States continue to illustrate public interest in nuclear power since the disaster. For instance, the April 2014 issue of *Popular Mechanics* featured a data visualization titled “Nuclear Power: Phaseout or Revival?” The visualization clearly illustrates the changes being made to nuclear plants in the U.S., while also explaining the safety features that new plants will include (Fecht 10-11). Again, while some sources covering the Fukushima disaster and nuclear power in general have provided reliable information that could have calmed the public’s fears, an extensive amount of information resulted in an increased fear of radiation as well as continued concern and interest in the safety nuclear power. This is not to suggest that those in the United States or elsewhere exposed to this immediate and long-term coverage of the Fukushima disaster were necessarily traumatized. However, trauma theory can be used in this way to understand the lasting impact that the disaster was able to have globally.

Three Reactions: Exit, Voice, and Loyalty

Since the Fukushima nuclear disaster, many countries have reconsidered their nuclear policies and begun to question the future of nuclear power. However, these changes vary from country to country, and although the prospects of nuclear power are in decline, many continue to remain loyal to their plans of using nuclear power (Ramana 66-7). One article, “Nuclear Policy Responses to Fukushima: Exit, Voice, and Loyalty,” by M.V. Ramana, elucidates the responses of various countries by dividing them into three categories, taken from Albert Hirschman’s approach to the ways in which people respond to deterioration in a business or organization: exit, voice, and loyalty (67). No country is limited to one of these categories, and some may move

from one group to another at times, but they illustrate the general reactions of different countries to the Fukushima disaster (Ibid.).

According to Ramana, “exit” refers to an unambiguous reversal of nuclear commitment, including countries that were previously considering nuclear power but have abandoned those plans since the Fukushima nuclear disaster. Some of these countries include Greece, Israel, Kuwait, Oman, Peru, Portugal, Singapore, and Venezuela (Ramana 68). As these countries were neither particularly for nuclear power or opposed to it, it makes sense why the Fukushima nuclear disaster would become a deciding factor in their movement toward or away from a nuclear power program. Similarly, for countries that were already moving away from nuclear power, such as Germany and Switzerland, Fukushima understandably accelerated that trend (Ibid.). In such cases, Fukushima would certainly reinforce concerns for the safety of nuclear power that these countries were already unwilling to ignore.

“Voice,” in Ramana’s article, refers to public voice and its opposition to nuclear power. It notes examples of countries where, in Ramana’s words, “Officials might be inclined to continue with, expand, or enter into nuclear power, but are being held back, or even forced to reverse course, by public opinion” (68). For instance, before Fukushima, Italy, which had formally opposed nuclear power, was beginning to reconsider adopting it. After the disaster, however, citizens voted overwhelmingly against the idea. Lithuania experienced a similar reaction in its citizens, when they rejected plans to construct a nuclear power plant in October of 2012 (Ramana 68). In these cases, those in power generally are supportive of nuclear power but public opposition will not allow a movement in that direction.

Finally, Ramana uses “loyalty” to describe those countries which were seemingly unaffected by the Fukushima nuclear disaster, continuing their commitment to nuclear plans with very little change. This group, as described by Ramana, includes the United States, China, Iran, Russia, and India, as well as many others (69). The reasoning of countries that have moved away from nuclear power after witnessing its devastating effects for Fukushima is quite obvious, but why are so many remaining loyal to their use of nuclear power? Ramana explores some reasons for this, including the idea that “it can’t happen here” (70). Many countries have adopted this attitude, arguing that because of their location and advanced design of nuclear plants, something like the Fukushima disaster would never happen to them. Furthermore, in some countries, propaganda continues to present nuclear power as safe and efficient, playing down the scale of the Fukushima incident (Ramana 71). On the other hand, some of these countries are aware of the risks of nuclear power, but argue that economic growth is leading to growing energy demands that require the use of nuclear power, feeling that there is no choice but to continue using it (Ramana 72).

Admittedly, responses to the Fukushima nuclear disaster are not as black and white as these categories describe, and they continue to change. Even in Japan, the reaction has moved from “voice” to “loyalty” since the disaster. After Fukushima, former Prime Ministers Naoto Kan and Yoshihiko Noda proposed that they would work on reducing the country’s reliance on nuclear power as a result of protests. However, the 2012 electoral victory of the Liberal Democratic Party, which has historically supported the nuclear industry, suggests a movement back toward loyalty to nuclear power (Ramana 67). With such contradictory reactions to the Fukushima

nuclear disaster, both within Japan and all over the world, the future of nuclear power remains unclear. However, it is quite clear that the disaster has raised the question of the safety of nuclear power and increased discussion on the topic globally in the media and in regards to nuclear policy.

Conclusion

The effects of the Fukushima Daiichi nuclear meltdown continued long after the initial event for those who actually lived through the disaster and experienced it first hand as well as for those across the world that were able to witness the events unfold through new and traditional media. For some, the disaster was experienced belatedly—a key concept in trauma theory—through later health concerns about radiation, relocation and the stigma of coming from a contaminated area, excessive media coverage of the disaster, and distrust of the government and other authorities. The confusion and incorrect information that spread immediately following the meltdown led to much of the health-related anxieties, bringing up the question of how authorities should react in a disaster situation. As previously discussed, radiation readings in the first few days after the disaster were often incorrect and increased the public's concerns, and excessive media coverage alone can be seen as traumatic for some, particularly children. Understanding this could inform the government's as well as the media's responses to future nuclear crises.

Shion Sono's film, *The Land of Hope*, provides an intimate look into the lives of those who experienced this trauma, in the context of a fictional prefecture some time after the Fukushima disaster. Using his research on the Fukushima nuclear disaster, Sono aims for his audience to see how devastating this event was for some families, while also imagining that a similar catastrophe

may happen again in the near future. Sono seems to criticize not only the use of nuclear power, but also the response of authorities, the lack of reliable information, and the role of the media during the disaster.

Similarly, many others within Japan and in other countries as well, began to question the safety of nuclear power after the Fukushima nuclear meltdown. This undoubtedly has something to do with the immense amount of media coverage that was seen globally, via new media online as well as traditional news reports, which provided constant, real-time updates of the events. While some countries seemed unaffected by the event in their decision to move forward with nuclear power, many that were previously considering nuclear power decided against it after what happened in Fukushima. Even within Japan, the future of nuclear power remains unclear, and there seems to be continued loyalty to the use of nuclear power after a short period of opposition immediately following the meltdown. However, at the very least, Sono's film as well as continued media interest are both evidence of increased public discourse on nuclear power that resulted from the Fukushima disaster.

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