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Illustrating the Atomic Bomb for Science (Essay One)

In Fetter-Vorm's graphic novel, *Trinity*, a detailed illustration of the research, construction, and subsequent detonation of the first atomic bombs is recounted through an omniscient third-person viewer watching over the workings of the government officials behind The Manhattan Project. Despite other documentations regarding the inhumane nature of nuclear explosives that frequently cite the age old question, "should it be done?", Fetter-Vorm focuses more on the scientific aspect of the discovery. In order to show the foundations of the principles prior to the Manhattan Project, Fetter-Vorm poses the more objective counterpart question: can it be done at all? "Why would an author do this?" one might ask. The answer is simple: to keep the bias of opinion on the subject of nuclear weaponry, showing only the immediate effects of the bomb, and demonstrating that the bomb was created not in the name of war, but in the name of science. Through vivid imagery presented in the forms of analogies, graphic depictions of the bomb tests, and allusions to mythological titans, Fetter-Vorm effectively establishes that the bomb was a scientific endeavour more than an exploration into the social repercussions and controversy that the Trinity tests left in their wake.

Easily one of the most effective instances of Fetter-Vorm's illustrations is found about halfway into the text, showing the first atomic bomb test as it demonstrates the cataclysmic power of science at work. The image in question begins on an almost entirely black page, with

the little water tower housing the first Trinity bomb slowly exploding outward in a frame by frame series of panels. The slow, lumbering blast of the device increases in size with each picture as the titanic wave of fire and plasma gushes out of the once quiet tower. As the eruption engulfs the dark page, the text boxes Fetter-Vorm uses to elaborate on the scientific aspects of how the bomb functions wither away to mere phrases, as if he himself is stunned by what is taking place. Eventually, only the second horizon is in focus, silencing all who would speak in lue of the destruction (Fetter-Vorm 71-76). While many authors might use other forms of formal writing to show the physical destruction of the Trinity tests through the use of long, wordy sentences with vivid description, Fetter-Vorm boldly does the exact opposite and has an even more dramatic effect on the target audience. By saying nothing at all at the climax of the detonation, Fetter-Vorm establishes the power of science at work as the primary focus of his text, not the social attachments that define the bomb as right or wrong morally. The detonation is drawn on its own slide without any word boxes purposefully, as a way to characterize the bomb as a milestone for the scientists, not a military discovery to be used in the name of killing others.

Another noteworthy example of Fetter-Vorm establishing an effective argument stating that the Trinity test was a scientific conquest more than a militaristic one is found early in the graphic novel, alluding to a monumental story of Greek mythology. On page three of the novel, Fetter-Vorm depicts the man who will become world famous as the great mastermind behind the Trinity test, Julius Oppenheimer, not as a scientist of massive brain power, but more of a philosopher. In a military escort, Oppenheimer tells the story of the grecian titan, Prometheus, and how he was punished by Zeus for all eternity because he stole the secret of fire from the gods, giving it to Man: an action most greeks and their deities deemed brash and dangerous. The

gods did not believe that Man was ready for the knowledge of such a closely guarded secret because they feared Man could not control it if it were to be unleashed (Fetter-Vorm 3). This allusion made to Prometheus by Fetter-Vorm directly parallels how the titan stole the secrets of the gods and selflessly gave them to humanity in the name of progress, to how Oppenheimer unraveled the secrets of science to build the atomic bomb. It is no insignificant fact that the scientists of the Trinity experiments weren't entirely sure what the ramifications of detonating such an object would be once set into motion. Fetter-Vorm does not simply include the Prometheus legend in *Trinity* in order to flex his knowledge of mythology; rather, he does this intentionally in order to indirectly imply both an effective reinforcement to establish the emphasis on the discipline of scientific principles as the key motivation for building the bomb and an ironic similarity between the titans of the past and the creators of today: neither quite knew what the effect of such an "experiment" would result in, but both conducted the experiment anyways in the name of progress, not defiance of an enemy.

Continuing with the theme of science, Fetter-Vorm applies his prowess as both a comic artist and writer to *directly* demonstrate to the audience that his novel was written more as a take on the development and detonation of the first atomic bombs rather than the morality behind the destruction these bombs left in their wake. One repetitive analogy that Fetter-Vorm seems to favor above all others compares the otherwise basic patterns of dominos falling into each other to the manner in which a nuclear reaction takes place. While maintaining the elementary principle behind the dominos, Fetter-Vorm is also able to ingeniously apply the devastating feeling of a premature detonation in a way that many people can relate to: one little domino to represent a stray neutron being hurled into the epicenter of a basketball court, symbolic of a supercritical

mass, filled with dominos stacked precariously near each other (Fetter-Vorm 55-57). The analogies that explain the inner mechanisms of how the bomb functions, such as the constant references to dominos, show Fetter-Vorm's desire to depict the Trinity tests as a scientific matter as often as possible, highlighting how the science behind nuclear weaponry functions. The results of hard work are completely shattered in both cases, but one is clearly more relatable for the audience to understand, something that Fetter-Vorm does deliberately in an effort to help more general audiences understand a difficult concept. By doing this, Fetter-Vorm again pushes his claim for the scientific understanding and curiosity of the atomic bomb and it's design.

To reiterate, Fetter-Vorm wrote the graphic novel *Trinity* with one goal in focus: to help an otherwise nuclear-science illiterate audience to better understand the inner workings through the design, manifestation, and explosion of the first atomic bomb. It is clear that he accomplishes this effect in a number of ways that each share the similar characteristic of using the graphic novel style to their advantage. Through allusions to titanic deities, detailed portraits of the processes involved, and analogies that help break down complex concepts, Fetter-Vorm argues that the atomic bomb was not originally birthed as a weapon of war, but rather a milestone of intellectual progression as a modern society. In the end, it is obvious that Fetter-Vorm did not dare debate whether the bomb should have been created, but brought to light an event in history many overlook due to the shockwaves it caused.

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Marine life captivity at SeaWorld (Essay Two, Revised)

Humans use animal cruelty to force wildlife to act a certain way or to perform in a way they normally would not. Invading an animal's environment to capture and take wildlife to small, enclosed spaces is a harsh form of treatment that can cause animals to become aggressive towards people and other wildlife. Animal cruelty is a nationwide problem that is growing in today's contemporary world. From capturing animals, to not feeding them, to breeding the wildlife in their early years, it all goes back to torturing a living thing. One of the most common animal cruelty facilities is SeaWorld. SeaWorld employees neglect the marine life, breeds the orcas at a young age, and starve them until they perform abnormal tricks for an audience. People tend to be apathetic and do not take into consideration the emotions and psychological stress that at these animals face by being trapped and mistreated. Wildlife should not be taken away from their environment just for the entertainment and amusement of humans. They should be able to live their life freely and not be held captive for any establishments such as aquariums or zoos.

Animals are placed in unsanitary conditions without food in order for them to perform unnatural acts in front of an audience. SeaWorld is a prime example of a touristic place that has been criticized in the media for animal cruelty. The dolphins and orcas that are held in captivity tend to display psychological stress for being kept in a small tank and have altercations with other wildlife and employees due to being in an enclosed area. According to Casey Weed's article, *The World Beyond SeaWorld*, " Capturing and raising cetacea in captivity not only threatens the lives of the animals, but has been linked to the avoidable deaths of several humans as well, an occurrence unheard of when these creatures are in the wild" (Pg. 284). The marine life at

SeaWorld tend to become aggressive towards the trainers because they feel boredom due to being in a confined space and are forced to perform unusual acts. The orcas injure or kill the trainer because they are stressed from the torture they are receiving, such as being underfed, bred with their family members and lack of proper care. In *Dolphins, Captivity and SeaWorld,* an article written by Thomas White, states that, " Cetaceans emerge as non- human persons who, in captivity, live in conditions that make it impossible for them to thrive or flourish" (Pg. 128). Cetacea are capable of swimming hundreds of miles daily, so keeping them in an enclosed area gives them no freedom to swim as much as they would if they were in their natural habitat. Due to swimming in small circles, orcas often get broken dorsal fins and broken teeth. This leads to the orcas, dolphins and other sea life to have a shorter lifespan.

SeaWorld employees are unconcerned when it comes to the mistreatment of animals and only care about fulfilling the entertainment needs of the visitors. The people running facilities, such as SeaWorld, threaten animals to perform more tricks to bring a bigger audience and gain more profit. In the article, *Dolphins, Captivity, and SeaWorld*, White states that in the SeaWorld website it claims," Our commitment to animal care, conservation, rescue and research has advanced the well- being of animals in our parks as well as the wild" (Pg. 120) SeaWorld uses statements such as this one to persuade visitors that animal captivity is not as bad as some people claim it to be. By ignoring the captivity problem, people are forced to believe that they are being taught real information about the wildlife and are also being entertained at the same time with the shows the cetacea perform. In the media, SeaWorld has been criticized for animal captivity and abusement, so employees use entertainment as a cover up of the mistreatment. These facilities refuse to recognize the problem and put the visitor's entertainment before the rights of animals and the environment. In his article, White states that, "SeaWorld represents itself as a fully

committed to scientific integrity, and uses that image to advance a false picture of the nature of dolphins. In reality, SeaWorld's defense of captivity is based on using science as no more than a marketing tool, and represents a lack of intellectual honesty" (Pg. 119) SeaWorld employees put up false images to avoid the mistreatment and harsh conditions of the cetacea. SeaWorld's goal is to keep the audience entertained and mislead them with false information so the audience does not get too involved with knowing the mistreatment of marine life.

SeaWorld is a public place that is an example of facilities that have animal cruelty and captivity. They capture marine life from their environment and place them in a small tank in which they do not have the freedom to swim, be with their family and eat as much as they need. Several problems arise with the captivity and cruelty of wildlife. Orcas and dolphins have a shorter lifespan because it is not natural to keep them in an enclosed area with unsanitary surroundings. Another issue with keeping the cetacea captive is that dolphins and orcas face psychological stress from the mistreatment. This leads the sea life to act aggressive towards the SeaWorld trainers and other sea creatures. Often times the aggression leads to the death of trainers or the cetacea themselves die from the torture of being in captivity. Animals should not be taken away from their natural habitat just for entertainment purposes. This is a huge problem because capturing orcas and dolphins can lead to a decrease in their population in the wild and could potentially cause the extinction of these creatures. This problem is important for people to understand because people become a part of the problem when they pay to go to facilities, such as SeaWorld. People contribute to the captivity of the marine life by attending the shows in which the orcas perform abnormal tricks. Also, capturing animals not only affect the wildlife, but it also has a negative effect on the wildlife's natural habitat. Animals should be able to keep their freedom and live a longer life instead of being held captive and have a shorter lifespan.

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Who Gets to Play What?: Representation in Lin-Manuel Miranda's *Hamilton* and Ryan

Coogler's *Black Panther* (Essay Three)

In the upbeat, refreshing twist on American history, *Hamilton*, Lin-Manuel Miranda

recounts the life of founding father Alexander Hamilton by fusing modern-day American culture

with the past to such a degree that inspires a newfound regard for American government and

history among audiences. To portray white, historical figures such as George Washington and

Thomas Jefferson in Hamilton, Miranda surprisingly casts black and Hispanic actors and

actresses. On the contrary, in *Black Panther*, the perception of African Americans begins with

powerful, superior individuals who exist separately from the common-wealth and solely express

concern for the well-being of the African nation, Wakanda, but eventually share their prosperity

with the rest of mankind. A great majority of the characters are played by African Americans, and

they are represented in a way that elevates their position on the social ladder. Although the two

texts differ dramatically, both give the impression that they want to alter the stereotypes often

placed on minority groups such as African Americans. In *Hamilton*, African Americans and

Latinos are given the opportunity to represent American founding fathers—men who hold

significant power, sparking a state of disbelief, which highlights how uncommonly people of

color are deemed important and commanding. *Black Panther* emphasizes this idea simply by the

reactions it provokes among African Americans. African Americans take away feelings of

empowerment and strength because this is the first time they see themselves as the superheroes

instead of villains. The choice of both texts to include members of underrepresented communities

as leaders pushes for a change in the way race is used to determine how people are perceived in not simply the entertainment industry, but also American society.

The casting of minority actors and actresses in the musical *Hamilton* suggests a desire to alter the way we think of race and ethnicity in theater. In other words, the portrayal of white historical figures such as George Washington, Thomas Jefferson, and Alexander Hamilton by black and Hispanic actors challenges the divisive social norm that calls for the casting of primarily Caucasian performers. Miranda's intentional assignment of diverse actors and actresses to depict dead, white men prompts the audience to think about how infrequently people of color are given the option to play both multicultural characters and characters who are historically white. To explain further, Patricia Herrera states that, minority groups, particularly Latinos and African Americans, "are often times on the other side of the judicial paradigm—behind bars" (Herrera). Only on occasion do people of color make an appearance "in the center as lawmakers" (Herrera), contrasting to white individuals in which "culture reflects not only [them] but nearly infinite versions of [them]" (Smith). In the same way, the selection of a predominantly black cast in *Black Panther* accentuates this idea by rebelling against the typical, limited variety roles African Americans play. Although their capability of playing strong, heroic characters may parallel, or even exceed that of a white individual, African Americans fail to receive many chances to showcase their skills across different genres of film in the same fashion as white actors and actresses. With that said, *Black Panther* provides African Americans with an outlet to express themselves through a series of empowering and inspiring moments; permitting them to voice their struggles and triumphs, which is a concept they are moderately unfamiliar with due to the bias Americans hold towards non-traditional selection methods with regards to the entertainment industry. According to Smith, "those of us who are not white have considerably more trouble not only finding representation of ourselves in mass media and other arenas of public life, but also

finding representation that indicates that our humanity is multifaceted" (Smith). Both texts

consider this argument and embrace America's diverse nature by integrating the faces of several

groups that are often forgotten.

Correspondingly, the diverse selection of actors and actresses in *Hamilton* signifies an

attempt to include traditionally underrepresented communities in a narrative they are often

excluded from. When Miranda incorporates America's unique, varied society in the detailed

account of the founding fathers, he encourages their acceptance and participation by expressing

the necessity for the elimination of a racial stratification in a melting pot. Herrera acknowledges

this attempt by stating that Miranda's inclusion "[supports] diverse artists and [provides] an open

mic to any and all" (Herrera). The presence of the social hierarchy in America creates difficulty

amongst "racially inferior" individuals in terms of how well they can assimilate into American

culture, particularly when natural born citizens choose to disregard their residency and refuse to

consider them Americans. Simultaneously, the large number of black individuals starring in *Black

Panther*, a film concerning superheroes, suggests that African Americans desire a certain

recognition from society because they have the potential, as much as any other American, to

become excellent and proficient people regardless of the obstacles put in place to oppress them.

As reported by Nicole Hallberg, *Black Panther* "asks [audiences] what vital contributions to

technology, politics, and culture the African nations never got to make because of the effects of

colonization" (Hallberg). This is especially significant because black individuals continue to be

overlooked by many separate cultures due to common misconceptions regarding their disposition

and abilities but, ironically, were never given the chance to demonstrate their nature or talents to

begin with. Nonetheless, most African Americans seek nothing but a sense of unity and

appreciation between them and the remainder of society. *Black Panther* encompasses this concept

in hopes of "crushing injustices and defeats that can so easily dominate the conversation about

race relations in America" (Hallberg). The film serves to inspire members of other racial groups to form different opinions on what African Americans have to offer society. Representation in *Hamilton* and *Black Panther* imitates America's current state, a nation of many races and ethnicities, with the intention of reaching not simply underrepresented communities in hopes of inspiring their participation, but also overrepresented communities to aid them in the process of welcoming different groups that aspire to participate.

Furthermore, multicultural actors and actresses in the musical *Hamilton* suggest a desire to adopt a positive image of non-white individuals in America. When Miranda repeatedly mentions Alexander Hamilton's immigrant ranking, along with the resilience and determination it took on Hamilton's part for him to become such an influential character in American history, he inspires the audience to reflect on immigrants in general and how they aspire to achieve their own version of greatness in respect to America. The nation is comprised of immigrants, and although many immigrants originate from imperfect situations and encounter hardships that are seemingly difficult to overcome, they work hard to establish themselves and assist American society with services it—every so often—fails to properly appreciate. As stated by Herrera, the musical "makes visible the Afro-diasporic significance in American History in the face of a larger society that rarely recognizes it" (Herrera). By the same token, African Americans in *Black Panther* illustrate the contribution black individuals make to America, and despite the labels and discrimination constantly formed against them, they continue to prove themselves which incites the audience to reflect on how irrelevant a lighter complexion is to the influence they may have on society. The film highlights black excellence by illustrating the possible achievements of African Americans in the face of evil, and "flips our American perceptions of Africa on their heads by giving us a world free from colonial influences, flourishing, powerful, and proud" (Hallberg). Few people acknowledge the degree to which non-white individuals provide for

America, and both *Hamilton* and *Black Panther* include accurate portrayals of how much they help accomplish. With that in mind, it would not be unfair to suggest that these individuals receive a legitimate chance at success.

In the final analysis, Miranda's and Coogler's choice to cast mainly culturally diverse actors and actresses in *Hamilton* and *Black Panther* calls attention to the challenges surrounding specific minority groups and immigrants in America. Thus, the selection of multicultural actors and actresses in the musical and African American performers in the film signal not merely the inclusion of traditionally underrepresented communities in American society, but also toward greater issues of racial inequality in the entertainment industry, and toward the adoption of a prodiversity attitude in America. From Miranda's perspective, it appears, his ability to accommodate modern-day Americans in terms of equal representation among ethnicities in *Hamilton* should set a standard for what America should strive to accomplish time and time again. As for Coogler's viewpoint, one can infer that the rationale behind his selection of a majority black cast lies somewhere between efforts to "[shine] a bright light on the psychic scars of slavery's legacy and how black Americans endure the real-life consequences of it in the present day," (Smith) generate "the most productive responses to bigotry… by [celebrating] what those who choose to prohibit equal representation and rights are ignoring," (Smith) and provide a way for African

Americans to explore identities that, seemingly, were not originally intended for them.

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