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## Week 2: Building the Bomb

1. Reading the Frisch-Peierls memo with the benefits of hindsight, what sticks out to you about their analysis? What seems right, what seems wrong, what seems strange? What does it reveal about the authors' mindset in 1940?

While reading through the Frisch-Peierls memo, it seems that the authors are still underselling the capabilities of the bomb. Albeit the scientific theories they were relying on have not been thoroughly tested, the calculations for the comparable amount of dynamite is off by a considerable margin. They state, "the energy liberated by a 5 kg bomb would be equivalent to that of several thousand tons of dynamite, while that of a 1 kg bomb, though about 500 times less would still be formidable" (Frisch and Peierls 144). The bomb that was dropped on Hiroshima, Japan was estimated at having an equivalent of fifteen kilotons or fifteen-thousand tons of dynamite, while in Nagasaki, Japan it was comparable to about twenty-thousand tons of dynamite. By describing the power output in such a fashion, it allows for plenty of errors to be made when planning for potential use cases as the estimated and actual power output will lead to drastically different outcomes.

One example of a use case that seems strange is utilizing it for breaking a line of fortification. After claiming that no material or structure could resist the force of the

atomic bomb explosion, it is said the bomb can be used as a way to break through a fortification line. However, as seen in Hiroshima and Nagasaki, the damages done to the city are more than what might be expected to break a fortification line. Once again, this likely stems from the issue of underselling the power output of the bomb. Instead of assuming the bomb can simply break down a barrier for an advancement, as seen in Hiroshima and Nagasaki, it is much more capable than originally thought and could be used as something to end entire wars, not battles.

2. Imagine you are Truman and reading the memos by Groves and Stimson, learning about the project for the first time. What would you potentially think? When you read Groves and Stimson's accounts of the meeting, what sticks out to you? What do you make of their assessments of how the meeting went?

Based on the combined Groves and Stimson memos, if I were to be President Truman, I would have thought the United States was on the verge of obtaining the most powerful weapon to date. From the in-depth analysis and explanations, it seems that the project was fleshed out in its entirety making time the only obstacle in the way of completion. All the foreign affairs and patents were handled, and future uranium mining plans were already underway further solidifying my trust in the Manhattan Project and the capabilities of Groves.

From Groves's account of the meeting, one statement which stands out in particular is his disagreement after reading the statement of the Secretary. He says, "prior to going over to the White House I read the statement of the Secretary and expressed my concurrence in it with the exception that I pointed out the danger of over-emphasizing the

power of a single bomb” (Groves 1). Again, as seen in both the Frisch-Peierls memo and the Einstein-Szilard letter, it seems that he is attempting to undersell the bomb’s capabilities; with this being such a common practice, it seems it is better to under deliver than to over deliver. By over delivering, it would make the countless hours and funds seemingly be wasted; however, by having the bomb over perform upon completion, it would seem like an astounding success. With all of this being said, based on both Groves and Stimsons’ overall account of the meeting, with President Truman being in agreement for the necessity of the project and his concern over not wanting to keep a report, the meeting was a productive and successful one.

3. What’s Goldberg’s specific argument about the Nagasaki bombing? What kind of evidence does it use for the argument? Do you buy it?

Goldberg’s specific argument about the Nagasaki bombing was based on the justification for investing billions of dollars in manufacturing and testing the bombs used in Hiroshima and Nagasaki. He said, “The bomb dropped on Nagasaki justified the more than \$400 million spent on Hanford. It seems clear today that the rush to produce the active material and to drop the bombs on Japan as soon as possible was driven largely by fear that the war might end before both types of fission bombs could be used” (Goldberg 74-75). Had the bombs not been dropped and war ended prior, then the massive funding put towards the project would have likely caused outrage since there was no valuable outcome from the project. However, since they were able to drop the bomb on Nagasaki, the funding put toward Hanford was suddenly justified as there was a final product made and used on the enemy. With this being said, I believe this is not the sole reason for

dropping the bomb on Nagasaki because it was mentioned in the meeting notes from Groves, “The President did not show any concern over the amount of funds being spent but made it very definite that he was in entire agreement with the necessity for the project” (Groves 1). Therefore, money was of no object in the eyes of the government at the time, and thus, I do not believe they were seeking any justification or validation for spending the money it did, all that mattered was to have the world’s most powerful bomb by the end of it.

4. For Hersey’s book, what is your general impression of it? What works about it? What jumps out to you?

Reading John Hersey’s *Hiroshima* gave a realistic count of what was experienced on the receiving end of the bomb. Hearing what each individual went through when the initial flash of the bomb went off, and what happened in the hours and days following reminded me of listening to the stories of the people who were present in NYC on September 11, 2001. Although the two events were drastically different, the retelling of both events were so dark and surreal that outside of what was happening, the dread and pain everyone went through was all too similar. Following this was the aftermath of what happened to each character, how they lived out the rest of their lives and each of the hardships they underwent as Hibakusha—the term given to those who survived the bombing—both with their financial hardships and with the severe health issues each one was experiencing as time went on.

What stood out the most though was the term many of the survivors of Hiroshima used when explaining the bombing and the lack of assistance they receive: *shikata ga nai*

which means “it cannot be helped.” This was the signifying point in Hersey’s story where it was apparent the Hibakusha, having been on the receiving end of an atomic bomb, were just tired and had given up. While some people were left for days in the scorching sun with broken bones and severe injuries, they must have believed they were going to die and as a result any sense of hope was seen as useless or even dangerous. To go through such trauma and hardship, to then describing their feelings toward the event as “it cannot be helped” truly shows how the morale of the Hibakusha was damaged beyond repair.

I pledge my honor that I have abided by the Stevens Honor System. -Eric Altenburg