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HST-415
Week 2
Building the Bomb

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?

The Frisch-Peierls memo's overall analysis of the possibility of an atomic bomb is interesting. It seems that this memo needed to have an audience with a sufficient technical understanding pertaining to the atomic bomb. There are some aspects of this memo that seem overall correct. From my understanding, this memo covers the two different uranium isotopes and how they differ by three neutrons. They understood that the two isotopes differed by three neutrons. This distinction is vastly important when trying to create an atomic bomb.

After reading *Hiroshima*, we can conclude that their analysis on the effects of radiation holds some merit. It is known that if you survived the initial blast of an atomic bomb, you could still die from radiation exposure. We know that radiation sickness exists and this has more long term effects than just a few days. Being exposed to this much radiation can also agitate your immune system causing wounds to heal slower.

Furthermore, the assumption that Germany could also create this weapon is why the United States ended up creating the atomic bomb in the first place. This memo covers that by saying, "The most effective reply would be a counter-threat with a similar bomb". In the end, the Germans did not create a bomb and the United States ended up doing it with help from the urgency stated in this memo.

With the benefit of hindsight, we know that there are certain areas of this memo that are incorrect. For instance, the conclusion that a bomb needs only 5 kilograms of uranium-235 is incorrect. Relative to what they thought however, I personally don't think they were incredibly off with this estimate. It was found that they used 140 pounds (approximately 63 kilograms) of uranium for the creation of the atomic bomb.

As discussed earlier, this memo got the idea that Germany was going to create a bomb. Because of this, the United States decided to pursue this project with the idea that it would not be as costly as it came out to be in the end.

The memo also mentions that this super bomb has the same explosion power of 1,000 tons of dynamite. This sounds off to me but I am not sure because I am no scientist. It also states, "The effects of these radiations [from the bomb] is greatest immediately after the explosion, but it decays only gradually and even for days after the explosion any person entering the affected area will be killed". As discussed in the *Hiroshima* piece, this is not necessarily true. People who entered the area afterwards

did not immediately die and it seemed as though they did not quite understand how this radiation would spread and how damaging it could be.

There are some strange portions of the Frisch-Peierls memo. This memo states, “Owing to the spread of radioactive substances with the wind, the bomb could probably not be used without killing large numbers of civilians, and this may make it unsuitable as a weapon for use by this country”. It seems that the United States did not take this advice as they decidedly dropped the atomic bombs on both Hiroshima and Nagasaki later on. The authors of this memo were advocating that this weapon, if created, should be used responsibly.

The authors’ mindsets in 1940 were pretty clear. They believed that the creation of this bomb and the information regarding it would be enough for Germany to create a bomb and for the United States to create a bomb. They saw Germany as a huge threat and that this project should be taken seriously and that it should occur. They had enough research to know what they needed to create this bomb, but it was still unclear on how to create it completely. It seemed in the realm of possibility.

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?

In Grove’s memo, the opening sticks out immediately. He states, “If the United States continues to lead in the development of atomic energy weapons, its future will be much safer and the chances of preserving world peace greatly increased”. He sees that this weapon of mass destruction is a way for the United States to become a big superpower and stay there. It is interesting that creating weapons that have the ability to wipe out whole countries is a way to preserve peace. Grove’s memo also goes over all of the different plants and production areas that the United States already had operating and he mentions the other countries that are involved in this and who have helped with funding. I would think that a lot of time, energy and resources have been placed into this project and it seems like it is so far along that there is no turning back in any sense. The way Groves frames how the United States is a peace-loving nation is fascinating: “Atomic energy if controlled by the major peace-loving nations, should insure the peace of the world for decades to come. If misused it can lead our civilization to annihilation”. Additionally, Groves speaks on how radioactive material can be used for further development in the future. I would think that this project is truly to just benefit Americans and end the war.

Stimson’s memo starts off on a much more cynical note than Grove’s: “Within four months we shall in all probability have completed the most terrible weapon ever

known in human history, one bomb of which could destroy a whole city". He also believes that later on, it will be easier for other countries to recreate this atomic bomb and that more and more countries will have this technology to wipe out people as well. He believes that there will be a time in which countries, in order to win wars, will use powerful weapons (such as atomic bombs) to just end the war right then and there. Hence, by creating this weapon, it is possible that wars post this one have the ability to escalate much faster. Stimson brings light to issues that could occur in the future that the president of the United States would have to take account of due to the creation of this bomb.

Reading Groves and Stimson's accounts of the meeting was interesting as they both understood the secrecy that must be around in accordance to this meeting with the president. This was in large part due to the media who was watching the White House very closely. I find the assessments of how the meeting went from both of them to be very positive. That being said, Stimson and Groves had different views of the atomic bomb. Stimson wrote, "[Bundy and Harrison] both seemed to think a great deal had been accomplished. I think so too". Stimson believed that a bomb of this power could have devastating consequences for the future. If he wrote about how he felt positive about the meeting afterwards, it must have been because the President agreed with him. That being said, Groves also believed that they reached a positive consensus and it just makes the meeting seem vastly more confusing. Groves's memo was far more technical and Groves emphasized how this bomb was created for the military and there were no other reasons to have created it (to, of course, achieve peace).

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 because "the bomb dropped on Hiroshima, a uranium bomb, justified the more than \$1 billion investment in isotope separation at Oak Ridge. 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 a fear that the war might end before both types of fission bombs could be used". The argument that Goldberg has presented is that the war would have been won without the bombs being dropped on Japan and the war at the time was in fact winding down. I buy this argument because I cannot even begin to comprehend why we would drop two atomic bombs. Like, one is more than enough (and we should not have bought it in the first place). If we did not use it, there would be outrage from the public regarding the funding for these atomic bombs. It seems like the country spent an absurd amount on it.

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

This book hurt my feelings. I have literal nightmares about it. It gives me the same level of sadness whenever I watch *Grave of the Fireflies*. I think the aftermath of the initial explosion is what jumped out to me. The second I started reading this book, I could not stop reading it. The imagery of the burned soldiers who could not even drink water was so painful to read. This humanized the bombings for me. I used to see photos of Hiroshima with people's shadows still on the ground and that used to elicit a feeling but it was not as powerful as reading about these 6 survivors. It makes me wonder why we ever bombed Nagasaki. The loss of life in Hiroshima was horrifying and for the most part, many people were simply civilians who did not ask to go to war. The graphic description of what radiation will do to you when you do not die immediately is horrifying and the imagery of how people's skin just came right off is terrifying. This book has truly changed my perspective on what we did to Japan. It just was not okay for the United States to kill as many people as they did. They intentionally dropped a bomb over the cities that they did to cause as much damage as they could.