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The abject suffering of the victims of the atomic bombings of Hiroshima and Nagasaki is well-known, well-documented, and has been, in the many decades after the fact, much-discussed. This suffering has played a key role in debates over the morality of the use of the atomic bombs, as well as the entirely separate question about whether the people of the United States (to say nothing of the rest of the world) were properly informed of the nature of their government's actions during the war.

An exploding atomic bomb wreaks its havoc with three primary effects: heat which sets fires and sears the flesh (35% of the total energy output of a fission weapon); blast waves which apply concentrated, earthquake-like pressures to crush structures (50%); and ionizing radiation, both in prompt (5%) and residual (10%) forms, the former causing radiation sickness and painful death, the latter causing long-term population effects such as cancer and birth defects.¹ Heat and blast are present in all explosives; they are merely taken to extremes in nuclear explosions, and were the cause of the majority of the initial deaths from the bombings of Japan. Radiation, however, is a unique aspect of the atomic bomb, and arguably one perceived as far more terrifying for its invisible, mysterious, and generational effects.²

For many, it is the radiation which puts the bomb into a qualitatively new category of weapon — what makes it 'special,' as opposed to being simply an economical means of

¹ Samuel Glasstone and Philip J. Dolan, *The Effects of Nuclear Weapons*, 3rd edn. (Washington, D.C.: U.S. Department of Defense and U.S. Department of Energy, 1977), 1-8.

² Spencer Weart, *The rise of Nuclear Fear* (Cambridge, Mass.: Harvard University Press, 2012).

carpet bombing.³ But this radiation was not mentioned in the initial announcements and stories about the bomb. In fact, when reports of radiation-related injuries trickled in from Japan in the weeks after the bombings, they were downplayed if not outright denied. These facts have led a number of authors to charge the U.S. government with trying to cover up these effects as a means of securing the approval of the American and world public.⁴

Sean L. Malloy's recent article in *Diplomatic History* hopes to settle this question once and for all. What did the Manhattan Project scientists and organizers know about the radiation effects of the bomb? What did President Harry Truman or Secretary of War Henry Stimson know? Does it matter? Surprisingly, for all of the discussion of the radiation effects of the first atomic bombs, and for all of the imputation of 'cover ups' and propaganda, extremely little work has been done to ferret out what exactly was known within the Manhattan Project hierarchy about the radiological effects of the first atomic bombs prior to their being dropped, and how that knowledge was or wasn't used, ignored, hidden, or exposed.

Malloy approaches the matter systematically. The obvious questions – who knew what, and when? – are covered, but what makes Malloy's article especially important is that he situates this knowledge within the organizational constraints of the wartime Manhattan Project. Extreme compartmentalization meant that information did not flow anything like freely between different parts of the project, and this, it turns out, is crucial to addressing this issue.

Malloy traces work on the radiological effects of the atomic bombs from the earliest days of the uranium work. Early reports on the feasibility of nuclear weapons, dating from 1940 and 1941, concluded that they would create "dangerous" or "violently" radioactive by-products (522-523). But during the period of actual weapons development and production (starting in late 1942), this knowledge dropped out of the picture. Radioactivity was in fact studied closely during the Project — but primarily as an occupational hazard, out of concerns for the *workers* on the Manhattan Project, not the *victims*. When the scientists discussed the effects of the bombs, radioactivity was often deliberately excluded from the calculations: it began as an acknowledged unknown, but quickly became an unacknowledged unknown. The short-term goal was to make a bomb that would blow things up, not to understand what the long-term effects would be on those who were hit (528-529).

Only in the area of the "Trinity" test in July 1945 did the concerns about fallout emerge, but again, only out of concern for those viewing the test. That these effects would pertain to the use of the bomb *in combat* was acknowledged by low-level scientists studying the problem — indeed, they even came up with creative ways to try and *increase* the amount of fallout

³ On the construction of the 'specialness' of the bomb, see Michael Gordin, *Five Days in August: How World War II Became a Nuclear War* (Princeton, N.J.: Princeton University Press, 2007).

⁴ See, e.g., Robert Jay Lifton and Greg Mitchell, *Hiroshima in America: Fifty Years of Denial* (New York: J.P. Putnam's Sons, 1995), xv-xvi, 6, 10-13, 40-49, 52-57.

by using a nuclear bomb to modify the local weather conditions (!) — but all of these reports got no further up the chain of command than J. Robert Oppenheimer, scientific director of the Manhattan Project.⁵ Oppenheimer, for his part, seems to have been uninterested in the question. We cannot know why, but the medical physicians who worked with him later reported that he was distrustful of doctors (Oppenheimer's personal history may provide some reasons for that, but this is in the realm of speculation⁶), and he had a recurrent knack for underestimating the complexity and 'messiness' of biology, medicine, and contamination.⁷ (Oppenheimer, like many theoretical physicists, similarly dismissed the difficulty of nuclear waste disposal as "unimportant" as late as 1948, when a sanitation engineer politely informed him that this reflected "a total ignorance" of the practical difficulties of the subject matter.)⁸

Oppenheimer was the conduit by which Brigadier General Leslie R. Groves, and later, the Secretary of War, understood the bomb. So if Oppenheimer was uninterested in radiological effects, they were ignorant. Groves had concern for radiological effects when the question of the Germans using 'dirty bombs' against invading Allied troops was brought up, but failed to extend these concerns to the Japanese.

Groves knew about the issues relating to the "Trinity" test, but even in late July 1945, he advised the Army Chief of Staff that "we think we could move troops through [an atomic-bombed] area immediately preferably by motor but on foot if desired." (539) Malloy argues persuasively that this serves as strong evidence that Groves was, indeed, genuinely ignorant of the lingering radiological effects, as it seems highly unlikely that Groves would recommend such a policy if he knew what a tremendously toxic blunder it would be for American forces.

⁵ Joseph O. Hirschfelder to J. Robert Oppenheimer, "Strategic Possibilities Arising if a Thunderstorm is Induced by Gadget Explosion," (25 April 1945), Nuclear Testing Archive, Las Vegas, Nevada, document NV0123721.

⁶ This verges on psychobiography, but reading about Oppenheimer's disastrous early life experiences with psychology, I cannot help but wonder if they played a role in his apparent distrust for the messier sciences. See in particular, Kai Bird and Martin Sherwin, *American Prometheus: The Triumph and Tragedy of J. Robert Oppenheimer* (New York: Vintage Books, 2005), 46-50. There are, to be sure, more mundane interpretations as well: Oppenheimer was a theoretical physicist who preferred his worldview in a form that could be drawn on a chalkboard, and he himself had proven to be a poor experimentalist.

⁷ Shields Warren, one of the major medical researchers on the Manhattan Project, later complained that Oppenheimer had a "deep antipathy for doctors" and regarded them as "very unscientific." He claimed that Oppenheimer had "contempt for the inexact experiments of the life sciences." M. Susan Lindee, *Suffering Made Real: American Science and the Survivors at Hiroshima* (Chicago: University of Chicago Press, 1994), 22 fn. 13.

⁸ J. Samuel Walker, *The Road to Yucca Mountain: The Development of Radioactive Waste Policy in the United States* (Los Angeles/Berkeley: University of California Press, 2009), 12.

How could Groves simultaneously know about radiological hazards in one context, but miss them in another? Malloy argues that Groves suffered from “a combination of ambition, wishful thinking, and a form of ‘self-compartmentalization,’” which led to his “bizarre and irresponsible recommendations with respect to tactical use and radiation effects prior to Hiroshima” (26). I find this argument compelling: systems of secrecy are known to produce unusual psychological and sociological states among those who work in them, and Groves’ larger compartmentalization policies meant that he saw all of the work of the project through a multiplicity of tunnel-visions.⁹ That he failed to generalize the outcomes while operating in such a regime — especially when it came to worrying about the victims of the bomb — is not surprising.

One of the things which is curious is the connection between these concerns and radiological warfare. The scientists had considered dropping toxic fission products onto enemies from very early on, but the idea of using radiological weapons was more or less quickly dismissed — it was too similar to chemical warfare, and it would be difficult to use effectively. That this distinction was made regarding radiation, but was not pursued when thinking about the actual bombs, leads to the question of whether the knowledge of radiation effects would have influenced the decisions by the Interim Committee and, finally, Truman, whose genuine ignorance on the matter is fully established by Malloy.

Malloy suspects not, given the technological path the Manhattan Project had already embarked upon, and given the pre-existing U.S. bombing policies towards the Japanese (544). This strikes me as a reasonable conclusion: the idea of using of the atomic bomb was, by late July 1945, not going to be derailed by the idea that those who apparently survived the blast would, in fact, be killed slowly by it in a painful fashion. (Which is also the case for many non-fatal casualties of firebombing.) But Malloy further argues that the choice of *how* to use the bomb might have been affected by the decision: instead of being dropped on an inhabited city, perhaps the ‘demonstration’ idea would have been taken more seriously. It’s impossible to know, of course, but it is interesting to see, some sixty-seven years later, what appears to be a genuinely new counterfactual situation proposed for the dropping of the bomb.

All of this leads secondarily into the question of Groves’ and Oppenheimer’s reactions once reports came in from Japan of survivors dying of radiation sickness in late August 1945 (after Emperor Hirohito’s ‘surrender’ radio address, but prior to the signing of the formal instruments of surrender). Groves, for his part, considered the reports to be “a good dose of propaganda” designed to “create sympathy” for the Japanese.¹⁰ His experts agreed with

⁹ For anthropological studies of secrecy regimes, see esp. Hugh Gusterson, *Nuclear Rites: A Weapons Laboratory at the End of the Cold War* (Berkeley: University of California, 1996) and Joseph Masco, *The Nuclear Borderlands: The Manhattan Project in Post-Cold War New Mexico* (Princeton, N.J.: Princeton University Press, 2006).

¹⁰ It is easy, in retrospect, to lose sight of the fact that there *was* propaganda being sent out by the Japanese during this period. A stunning example of this is that on August 10, 1945, Japanese radio stations in Singapore claimed that Japan had long since had the atomic bomb as well, and claimed they would soon be dropping them on the United States. “Nips Assert They’ve got A-Bomb, Too,” *Los Angeles Times* (10 August

him: the head of the base hospital at Oak Ridge suspected that the observed results were “just good old thermal burns” and that Japanese were engaged in “hookum.” Groves mobilized “anti-propagandists” — chief among them, Oppenheimer — to get the news media “on the right track.” (516-517) These had come after earlier, hyperbolic news reports about how the cities would be uninhabitable for at least seventy years, would resemble the moon, and other uninformed absurdities. That Groves and Oppenheimer lumped the Japanese accounts into that category, and felt that they were designed to increase an existing (and arguably growing) ambivalence towards the bomb, is not a surprise.

This smells of cover-up, to be sure. But Groves was, in fact, acting in a dearth of data. It was not until September 1945 that he was able to send over American specialists to examine the *hibakusha* themselves, and to confirm that the Japanese observations were, in fact, legitimate.¹¹ By November 1945, even Groves could not deny that radiological effects were significant, though he had the gall to downplay such deaths before Congress as “a very pleasant way to die.” (518)

Oppenheimer was willing to provide the scientific ‘weight’ to claims that radiation was not a concern as part of Groves’ post-bombing ‘public relations’ effort, to the dismay of many Manhattan Project medical experts, who suspected that the Japanese claims were legitimate. This campaign, discussed at length in the Malloy article as well as other sources, seems to have been half-truth (in denying the more extreme claims) and half ignorance. Groves and Oppenheimer seem to have genuinely dismissed the Japanese accounts until they were able to get them verified by American scientists. Reading Malloy’s description, as well as many of the documents he consulted and cites, I am much more inclined to view this less as a ‘cover-up’ attempt and more as a genuine attempt to control ‘the story’ of the bomb. That Groves — so used to being lord of the narrative and king of the secret atomic empire — faltered so in the full glare of the media is not surprising. Whether one considers Groves’ public reactions as simply self-serving or indeed sinister will depend on one’s assumptions, but Malloy situates these concerns in far more ambiguous territory than do the more revisionist accounts.

The long and short of it, in the end, is that the story of radiation and the first atomic bombs lacks a simple, moralistic punchline. Enough information was known by the low-level scientists to make a case for further study; the middle-level scientists and administrators

1945), 1; “Japs Threaten to Use Weapon Like Atom Bomb,” *Chicago Daily Tribune* (10 August 1945), 1. During the war, Groves had also been monitoring Nazi propaganda relating to new “wonder weapons” that later turned out to be nonexistent. “Nazis Use Atomic Bomb, German Radio Claims,” *Chicago Daily Tribune* (28 December 1944), 2; George Axelsson, “Nazis Talk Less of New V Weapons,” *New York Times* (14 January 1945), B5. All of which is just to say that the notion that the Japanese might be engaging in misleading propaganda in an attempt to influence the terms of their surrender was not an entirely fanciful or ridiculous notion at the time.

¹¹ On the creation of this atomic data, and the US suspicion of Japanese expertise in this area, see esp. Lindee, *Suffering Made Real*.

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who could have done something with that information, for various reasons, dismissed it. The higher-level politicians never got wind of the issue at all, until after the fact. Instead of a story of cover-ups, decisions, or even just pure ignorance, what Malloy tells is a story about how organizations make — or fail to make — knowledge, and how that knowledge circulates — or fails to circulate — within those organizations. Malloy's article is important not just because it illuminates this particular issue and opens up an entirely new line of examination for these events, but because of its wider-ranging methodological significance. This is how serious histories of 'who knew what' should be done.

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