

Labour, Science, and Extermination: The Nazi War Effort in Prisoner of War Camps

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Introduction

During the Second World War, preparedness for total war enmeshed every aspect of German life, from the economy and industry to civilian efforts and conscription. Nazi concentration camps were a vital tool in reflecting Germany's war effort and gradual shift towards total war. This was conducted in three ways. First, forced labour was utilised to advance infrastructure projects, as well as contribute to the German war economy. Second, Nazi experimentation on prisoners of war (POWs) sought to develop new ways of helping the army on the frontlines and in the air. And third, extermination of prisoners through innovations in gas and transportation emphasised a systematic industrialized process that required efficiency and speed.

There was a shift in German war aims that influenced the mobilisation and activities of concentration camps. Initially, German war aims focused on military fighting and strategic occupation of territories. This manifested through labour infrastructure projects, the employment of POWs in armament factories, and the construction of 'Retaliation Weapons (*Vergeltung-Waffe*).'¹ Medical experiments also reflected the need to develop new and innovative protective measures for soldiers and fighter pilots.² However, after the failures in the Soviet Union, Nazi war aims turned towards the need to develop the Final Solution to the Jewish Question. By the end of 1941, given the relatively slow progress in the Soviet Union, the Nazis sought to prioritise the extermination of Jews as part of their war

¹ Michael J. Neufeld, *The Rocket and the Reich: Peenemunde and the Coming of the Ballistic Missile Era*, (New York: The Free Press, 1995), 2.

² Paul Weindling, *Victims and Survivors of Nazi Human Experiments: Science and Suffering in the Holocaust*, (London: Bloomsbury Publishing Plc, 2015), 82-3.

objectives. To do so, they developed different technologies and infrastructure within the POW camps to aid in efficient extermination, as well as utilising railway transport to expedite mass deportations into the camps.³ Combining all of these elements produced an elaborate system of supporting both military and ideological aims of the Nazi government.

Labour and the German War Economy

Within the Nazi POW camps, there were two main functions of labour. The first was to implement Nazi ideological policies and use labour as a tool for torture, known as “terror labour” or “annihilatory labour.” The second was to fulfil the needs of the war economy through various projects and job placements in factories. “Annihilatory labour” was the product of mass deportations and transportations of Jews, Roma people, and Soviet POWs into large concentration camps during the Second World War. Central to the employment of forced labour in the camps was the idea of using work as torture, and eventually, as a tool for killing inmates. This process had several components that ensured a systematic extermination of POWs could take place without camp guards having to use much effort. The first component was overburdening POWs through hours of daily, physically demanding work. The intentional under-mechanisation aspects of the camps provided little to no room for prisoners to complete their tasks with the help of technology and other such equipment. “Primitive manual labour” forced prisoners to use their hands, shovels, and hammers. Such instances were evident in stone quarries, where they cut and ground stones for infrastructure projects, as well as aided in constructing underground tunnels.⁴ Prisoners were often on the verge of death due to exhaustion. Supporting the idea of extermination through forced and strenuous labour were the official guidelines set by Nazi officials at

³ Yitzhak Arad, *Belzec, Sobibor, Treblinka: The Operation Reinhard Death Camps*, (Bloomington: Indiana University Press, 1987), 52.

⁴ Wolfgang Sofsky, *The Order of Terror: The Concentration Camp*, (Princeton, New Jersey: Princeton University Press, 1997), 186-8.

the Wannsee Conference on 20 June 1942. In the meeting minutes, it was assured that those inmates, mostly Jews, who worked in the camps would do so until they were “eliminated by natural causes.”⁵ Not only did this follow the general trend towards a “final solution” for Jews, but it also highlighted how the war changed in a direction that prompted Nazi leaders to use fewer resources on killing individual POWs.

Within the under-mechanised system of labour was the idea of uncontrolled supervision. Since manual labour did not require any sort of advanced knowledge or understanding, prison guards were able to use brutal methods of violence to ensure prisoners did their work correctly.⁶ Thus, de-mechanisation contributed to an increasing trend of violence and supervision in the camps, further emphasising how labour was meant to be a tool of terror and torture.

In contrast to under-mechanisation was standardisation and labour on a “piecework basis.” Standardisation was seen mostly in armaments factories and stone masonries. In factories, conveyor belts demanded repetitive tasks from prisoners, from installing cylinder heads and piecing machine guns together, to stitching individual parts of gas masks. By fragmenting labour into smaller, quicker, and repetitive movements, it ensured prisoners would be entirely focused on the task at hand; any error would result in a beating.⁷ The persistent threat of violence, coupled with an intense mechanised labour system, put prisoners under overwhelming stress but also allowed for self-regulation.⁸ This meant that with prisoners over-analysing their own actions, prison guards did not need to pay too much attention to their labour, only when punishment was needed.

⁵ Adolf Eichmann, “Wannsee Protocol, January 20, 1942,” in *Trials of War Criminals Before the Nuremberg Military Tribunals Under Control Council Law, Volume 13*, accessed 25 November 2024.

https://www.loc.gov/item/2011525364_NT_war-criminals_Vol-XIII/.

⁶ Sofsky, *The Order of Terror*, 188.

⁷ Sofsky, *The Order of Terror*, 184.

⁸ Sofsky, *The Order of Terror*, 188-9.

A final component was the nature of the tasks delegated to prisoners. Despite the growing demands of the war economy, camp labour often consisted of menial tasks; cleaning bombed-out factories, pushing carts with stones, and building brick walls, tearing them down, and rebuilding them. Some prisoners were forced to dig trenches and fill them back up again, while others were told to shovel sand from one spot to another.⁹ But, as meaningless as these tasks appeared to the prisoners, their underlying intention was to slowly exterminate POWs through exhaustion and free camp guards to focus on more impending tasks.

Fulfilling the needs of the war economy became evident as soon as the war broke out. Various industries required measures to fill the labour gap and keep production as an ongoing process.¹⁰ There were several reasons for recruiting prison labour; some were for infrastructure that predated the war, some were in armaments factories, and others were to construct new weapons for the war. Starachowice became one of the most prominent places where labour camps and factories were built solely for the war economy. In 1939, several steel mills and munition plants were constructed by the Hermann Göring Werke to harvest iron ore and steel for artillery pieces. Following the gradual liquidation of Polish ghettos, mainly Wierzbinek, several Jewish prisoners were transferred to the labour camps in Starachowice and forced to work. This was an interesting development in the war economy, given that in the prewar period, Jews were barred from employment at these factories. However, wartime necessity demanded any and all Jews fill in the labour gaps.¹¹ Another feature was the weight given to exploitation rather than extermination, in the sense that Jewish labour was valued, even if their lives were not.¹² This

⁹ Sofsky, *The Order of Terror*, 189-90.

¹⁰ Paul B. Jaskot, "Cultural Policy and Political Oppression: Nazi Architecture and the Development of SS Forced Labor Concentration Camps," in *Forced and Slave Labour in Nazi-Dominated Europe* (Washington: Center for Advanced Holocaust Studies, 2004), 24.

¹¹ Christopher R. Browning, "The Factory Slave Labor Camps in Starachowice, Poland: Survivors' Testimonies," in *Forced and Slave Labour in Nazi-Dominated Europe*, (Washington: Center for Advanced Holocaust Studies, 2004), 63-4.

¹² Browning, "The Factory Slave Labor Camps", 72.

compromise in ideology could only be made due to the increasing demands of the war effort. Otherwise, in peacetime, this change would have never been considered.

Another wartime necessity that forced the Nazis to integrate all POWs into the war economy was the failure of Blitzkrieg. Following the invasion of the Soviet Union in 1941, Germany gained an overwhelming number of prisoners and placed them in concentration camps. At the same time, the need for more weapons and soldiers increased, while workers in armament factories and war industries decreased.¹³ Nazi dialectic shifted between adhering to racial ideology and addressing the war's economic concerns. In this case, the Nazis chose the latter, and in November 1941, Göring announced the division of Soviet POWs in six sectors of labour: armaments, infrastructure/ construction, railways and transportation, agriculture and land cultivation, forestry, and mining¹⁴ Overall, the rate of Soviet POW employment rose from forty percent to fifty-seven percent between October and November 1941, while the absolute number rose from 112,400 to 225,000. Significant considerations were given to keeping these prisoners alive, as commanded by Hitler, in order to preserve labour, and consequently, the German war economy.¹⁵

Weapons manufacturing and the development of wartime infrastructure relied heavily upon forced prison labour. The first POW camps were constructed specifically for infrastructure projects (Kerfeld, Neuss, Wesseling, and Düsseldorf). Labour in these camps was dedicated to the war effort on the home front by clearing rubble, checking and disposing unexploded shells and bombs, and creating air-raid shelters. Strategic construction of camps around major German military districts provided

¹³ Rolf Keller, "Racism versus Pragmatism: Forced Labor of Soviet Prisoners of War in Germany (1941–1942)," in *Forced and Slave Labour in Nazi-Dominated Europe*, (Washington: Center for Advanced Holocaust Studies, 2004), 114.

¹⁴ Keller, "Racism versus Pragmatism," 114

¹⁵ Keller, "Racism versus Pragmatism," 117.

sufficient labour for these tasks.¹⁶ Air raid bunkers also provided facilities for the Nazi's secret aircraft and 'vengeance weapons' production. The largest of these bunkers, "Dora," helped facilitate the manufacturing of V1 and V2 weapons, as well as some jet planes and aircraft parts.¹⁷ In addition to this, the Nazis employed up to 12,000 prisoners to work on A-4 propellant tanks in Dachau as part of Hitler's strategy to retaliate against British aerial bombardment.¹⁸ A common issue throughout the war was labour shortage; to address this, the A-4 Special Committee employed Polish and Soviet prisoners, especially young women, to work on aircrafts and ballistic missiles.¹⁹

As a whole, forced labour provided sufficient manpower to address economic concerns, as well as produced material for the army and the air force. The struggle between choosing to follow Nazi ideology or using 'undesirables' to contribute to the war effort was somewhat intertwined and created a systematic camp process that imported Jewish and Soviet POWs, organised their torture through labour, and exported manpower for the war industry.

For Science and our Men: Nazi Experiments on POWs

Throughout the entirety of the Nazi's experimentation campaign, one thing always remained central; that experiments were vital in helping the soldiers in the front lines. At this point, the German side of the war called for innovative protective measures against disease and the natural elements. Racial ideology also played a part in driving the experiments in the prison camps.

¹⁶ Karola Fings, "Slaves for the 'Home Front': War Society and Concentration Camps," in *Germany and the Second World War*, (Oxford: Clarendon Press, 2008), 209-10, 250.

¹⁷ Sofsky, *The Order of Terror*, 178.

¹⁸ Michael J. Neufeld, *The Rocket and the Reich: Peenemunde and the Coming of the Ballistic Missile Era*, (New York: The Free Press, 1995), 170, 188.

¹⁹ Neufeld, *The Rocket and the Reich*, 184.

One of the most significant experiments was the Dachau Freezing Experiment. This was said to replicate conditions of German Luftwaffe pilots when they crash landed in the ocean.²⁰ The experiment involved 220-240 POWs, mostly from Eastern Europe, who were submerged in freezing water, often three to eight degrees Celsius, for eighty minutes to three hours. Special attention was given to replicate the clothing of German pilots, from helmets and fur lined boots, to their uniform and flotation devices.²¹ Post-war testimony revealed the need for new clothing that could withstand the freezing conditions of the Soviet Union. Dr. Rascher, the scientist in charge, claimed that improvements in the clothing were of immense importance and gave way to the manufacturing of the “foam suit with suitable neck protector,” by the German Institute for Textile Research.²² Similarly, concerns about frostbite led to “dry cold” experiments that looked for preventing frostbitten feet in German field soldiers in the Soviet Union.²³

Another concern was the treatment of wounds at the front lines. Medical debates about the efficacy of surgical, chemotherapeutic, and homeopathic treatments encouraged Heinrich Himmler to approve a series of medical trials in Dachau, Sachsenhausen, and Ravensbrück. A significant factor behind this approval was also the recent death of Reinhard Heydrich, who had suffered from infected injuries after being shot.²⁴ The growing urgency to develop new treatments forced prisoners to act as guinea pigs in the wound infection trials. Parallel to this was the Dachau Malaria Experiment designed to improve immunity for those fighters stationed in North Africa, as well as design potential biological weapons.²⁵ What was significant about the possibility of producing biological weapons was its connection to both military aims and ideological aims. Militarily, Germany would be at an advantage

²⁰ “Excerpt from the Protocol of the Tribunal II against E. Milch,” *HLS Nuremberg Trials Project*, 7 February 1947, 6.

²¹ Paul Weindling, *Victims and Survivors of Nazi Human Experiments: Science and Suffering in the Holocaust*, (London: Bloomsbury Publishing Plc, 2015), 82-5.

²² Sigmund Rascher, “Intermediate report on intense chilling experiments in the Dachau Camp, started on 15 August 1942,” 15 August 1942, in *Trials of War Criminals Before the Nuernberg Military Tribunals*.

²³ Weindling, *Victims and Survivors*, 85.

²⁴ Weindling, *Victims and Survivors*, 87-8.

²⁵ Weindling, *Victims and Survivors*, 102-3.

with a biological weapon. Ideologically, these weapons would serve to exterminate the ‘weaker’ population and ensure German survival. Some evidence points to collaboration with the Japanese, whose Unit 731 conducted biological experiments against prisoners in Manchuria and Nanking, in a similar racial ideological fashion.²⁶ In this case, biological weaponry would fulfil the ideological needs of the war, rather than military ones.

Post-war justification for these experiments cited the threat of total war on the “possibility of German survival.” In saying this, the Nazi defendants excused their actions as products of wartime necessity, and that they would never have done so in peacetime conditions.²⁷ This holds some truth given the lack of strategic developments following Operation Barbarossa and the drastic effects of the Russian winter on German soldiers. Some argued that these experiments were German doctors’ way of contributing to the war effort. Others linked soldierly sacrifice and total war to the mobilisation of prisoners to sacrifice themselves for science, the men in the front lines, and the war effort as a whole.²⁸

That was the crossroads between strategic aims of the war versus ideological plans for the Final Solution. Forced labour addressed serving the war economy through arms manufacturing, mobilising the maximum number of prisoners in factories, and to some extent, creating a relatively self-sufficient labour force that was not dependent on expert supervision. There were some ideological underpinnings; however, racial ideology was somewhat abandoned when the Nazis decided to exploit non-Aryan prisoners for the war effort. On the other hand, medical experiments revealed the interconnectivity of using POWs for military and ideological purposes. Whereas experiments sought to find answers to military problems, they also acted as torture methods against Jewish and Soviet

²⁶ Weindling, *Victims and Survivors*, 108.

²⁷ Daan De Leeuw, “‘In the Name of Humanity’: Nazi Doctors and Human Experiments in German Concentration Camps,” *Holocaust and Genocide Studies* 34 (2020): 226.

²⁸ Leeuw, “In the Name of Humanity,” 235.

prisoners. As 1942 came about, there was a shift in the demands of the war effort. Given the failures in the Soviet Union, the Nazi regime turned towards expediting the Final Solution through industrialised killing that manifested in the form of efficient railways and innovative gas chambers.

Constructing Extermination: The Final Solution

There were two major developments that led to the Final Solution. The first was the preparation of military and Nazi personnel for carrying out the eventual exterminations in concentration camps, and the second was the murderous phase where mass extermination of Jews, Roma people, and POWs ensued.²⁹ The gradual shift from procuring labour and equipment for war aims to this ideological need to exterminate all Jews and non-Aryans led to innovations in infrastructure and logistics in conducting what was called “industrial extermination.”³⁰

In the beginning stages of the war, and even before 1 September 1939, Nazis experimented with euthanasia injections. The T-4 euthanasia programme targeted the mentally unwell, killing over seventy thousand people in the years 1939-1941. While this was in conjunction with Nazi ideology about exterminating the “undesirables” of Germany, it had not yet reached the camps until 1941.³¹ After the invasion of the Soviet Union and the influx of Soviet prisoners, the *Einsatzgruppen* and local collaborators would conduct mass shootings of Jewish men, women, and children. Although this produced enormous results, its toll on ammunition and the army’s psychological well-being meant that new ways of extermination had to be implemented.³² The T-4 programme initially began with carbon monoxide injections against sick POWs in the summer of 1940, however, it quickly stopped in August 1941. New innovations in gas production and scientific research led to experimental trials in Auschwitz

²⁹ Robert O. Paxton, *The Anatomy of Fascism*, (New York: Random House, Inc, 2004), 161-2.

³⁰ Paxton, *The Anatomy of Fascism*, 161.

³¹ Paxton, *The Anatomy of Fascism*, 163.

³² Arad, *Belzec, Sobibor, Treblinka*, 7-8.

with the Zyklon B gas against Soviet prisoners.³³ At this point, Nazi party ministers and camp guards were still not satisfied with the low number of deaths with gas, leading to the construction of specialised infrastructure that would aid in the quick and efficient killing of prisoners.

The first of these was gas vans (*gaswagen*) which were used by the *Einsatzgruppen* B on mentally ill patients. The overall structure consisted of a normal car with a concealed cabin in the back. Carbon monoxide gas would be channelled from the exhaust into the cabin through a single pipe. With the basic structure outlined, production for two variants began; the larger van could hold 130-150 prisoners, while the smaller van could hold 80-100 prisoners. In total, thirty *gaswagen* were produced and were given to the *Einsatzgruppen* in the Chelmo Concentration Camp, where extermination began in December 1941.³⁴ Now, armoured mobile extermination devices could move around the occupied territories, exterminate prisoners, and head to their next destination without needing any outside help with equipment. However, there were logistical issues with disposing of the corpses. The difficulty of driving the vans, loading prisoners in the van, gassing them, and then disposing of them was not an efficient or quick process. To solve this, plans to construct permanent, self-contained gas chambers in the camps were underway.

The construction of these permanent gas chambers involved the same elements of the *gaswagen*, but with additional components to ensure its self-sufficient structure. This included gasoline to replace bottled gas, which would need to be replenished frequently, the internal combustion system of a car, and armoured padding as walls.³⁵ Most camps installed these bath-like gas chambers and intentionally concealed their purpose once prisoners arrived en masse in the camps. Barbed wire and fences would funnel prisoners into the gas chambers, resembling a 'killing/ annihilating ground.' Once the gas did its

³³ Arad, *Belzec, Sobibor, Treblinka*, 9.

³⁴ Arad, *Belzec, Sobibor, Treblinka*, 10-11.

³⁵ Arad, *Belzec, Sobibor, Treblinka*, 24-5.

work, disposal of the corpses was conducted, and the next batch of prisoners would be lined up.³⁶ The escalation of systematic extermination reflected the new war directives in the post-Barbarossa war years. Now, all emphasis was on achieving a means to an end, implementing the Final Solution.

Increasing efficiency in the extermination process gave way to slight infrastructural adjustments. First, gas baths increased in both size and capacity. Whereas the first chambers, only three in each camp, could only absorb up to 600 prisoners, the new chambers, now six in each camp, could hold double, and sometimes, triple the amount.³⁷ Another innovation was the deliberate lowering of the chamber ceilings to ensure less gas usage, efficiency in the gas' effect on children who were closer to the ground, and a lower asphyxiation time.³⁸ With the extermination infrastructure in place and adjusted to the Nazi's needs, they turned to the next important aspect of this entire process: transportation.

The movement of prisoners as a result of deportations depended on an efficient railway system, however, the German railways were occupied with transporting soldiers and equipment to the front lines. Coordination was required in order to schedule train departures and arrivals of prisoners to all of the camps across the country and occupied territories. Timetabling and scheduling became a significant factor in organising transportation. In some way, an efficient schedule allowed prisoners to be funnelled into the camps, where they would be funnelled further into the gas chambers. This entire system of efficiency came to be on 26 and 28 September 1942, where an official 'schedule' was established.³⁹ Additionally, freight cars were intentionally overcrowded to speed up transportation to avoid any delays caused by the overburdened military transportation system.⁴⁰ The combination of an efficient and

³⁶ Arad, *Belzec, Sobibor, Treblinka*, 68-70.

³⁷ Arad, *Belzec, Sobibor, Treblinka*, 73-4.

³⁸ Arad, *Belzec, Sobibor, Treblinka*, 119.

³⁹ 2 daily trains from Warsaw to Treblinka, 1 daily train from Radom to Treblinka, 1 daily train from Cracow to Belzec, and 1 daily train from Lvov to Belzec. Arad, *Belzec, Sobibor, Treblinka*, 52.

⁴⁰ Arad, *Belzec, Sobibor, Treblinka*, 67.

scheduled transportation system, with a systematic process of leading prisoners into the gas chambers, manifested an overall speedy and effective method of industrialised killing. Innovations in both areas allowed for Nazi camp guards, the SS, and the army to fulfil their new objectives and to finally carry out the Final Solution on a massive, total scale.

Conclusion

With all three elements put together, (labour, experiments, and extermination), there was a clear trend that highlighted what the German war looked like. In the initial stages, when mass mobilisation and conscription created a labour gap, POWs served as the solution and sources of production. While economic aims were of utmost importance, labour as torture was still employed to keep some remnant of Nazi ideological objectives. As the war progressed, and the failures in the Soviet Union arose, experiments helped to develop new ways of thinking about the war. There, the needs of the army and the needs of ideology mixed in various experimental trials, and produced a system in which soldiers, doctors, and prisoners contributed to the war effort. And finally, industrialised killing reflected a new priority towards winning the ideological and racial war, the Final Solution, which in many respects, was Germany's end goal of total war.

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