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978-0-521-88270-5 - Missiles for the Fatherland: Peenemunde, National Socialism, and the V-2 Missile

Michael B. Petersen

Excerpt

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Introduction

The Community of Innovation and Culture of Consent in the *Raketen-Stadt*

It's a factory-state here, a City of the Future full of extrapolated 1930s swoop-facaded and balconied skyscrapers, lean chrome caryatids with bobbed hairdos, classy airships of all descriptions drifting in the boom and hush of the city abysses, golden lovelies sunning in roof gardens and turning to wave as you pass. It is the *Raketen-Stadt*.

Thomas Pynchon, *Gravity's Rainbow*¹

One of the twentieth century's most dramatic technological achievements occurred the afternoon of October 3, 1942. That day, a Saturday, was a clear and unseasonably warm one at Germany's supersecret missile base Peenemünde, on the picturesque island of Usedom on the Baltic coast. For just over three years, the Third Reich had been waging a cataclysmic war in Europe and around the world, and the nation's fortunes were beginning to take a turn for the worse. Since early 1942, Germany had been suffering from a massive, nearly continuous Allied bombing campaign over its cities. Fourteen hundred miles to east, the battle of Stalingrad raged as German troops tried desperately to dislodge Soviet defenders from that ruined city. At that moment, though, such concerns were only secondary to the work occupying the scientists and engineers at Peenemünde. Dozens of them checked and rechecked equipment, made final technical calculations, and prepared the gear that would measure the flight of the missile that currently sat on its launch table in the middle of Peenemünde's huge test stand. With final preparations complete, the ground crews retreated to their protective bunkers, and the countdown began. Just before 4:00 in the afternoon, twenty-five tons of thrust lifted the forty-six-foot-tall A-4 (or V-2) from its launch moorings and into the sky. The black and white missile accelerated rapidly until it hurtled through the air at nearly 3,500 miles per hour, cut off its thrust, slipped out of Earth's atmosphere, and then came careening back to the planet at over three times the speed of sound, landing five minutes later some 125 miles away in the Baltic Sea.²

¹ Thomas Pynchon, *Gravity's Rainbow* (New York: Viking Press, 1973), 674.

² Walter Dornberger, *V-2* (New York: Viking Press, 1954), 3–15.

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After years of toil, the scientists and engineers at Peenemünde had carried out the first successful launch of the A-4. For the first time, humans had launched an object into space, an epochal achievement that they accomplished with virtually no previous practical knowledge and only a few years of theoretical experience. A mere six years earlier, neither the base at Peenemünde nor the plans for the A-4 existed. It was only in late 1936 that developers laid plans for this particular missile and began constructing the facilities for its development. Thus, the successful launch of the A-4 – a scientific and technical event of fundamental importance to the modern world – was one that Germany’s brilliant missile specialists managed to pull off with amazing haste.

Though many of its ambitious developers argued after the war that they dreamed of nothing but spaceflight, this was no humanitarian project. The A-4’s purpose was to terrify civilian populations by delivering, without warning, a high-explosive warhead to a target nearly 150 miles from its launch origin. German military strategists dreamed that it would so devastate enemy morale that foreign governments would have no choice but to sue for peace. In January 1944, the first of those missiles rolled off the assembly line over the emaciated bodies of thousands of prisoners of the Third Reich at the terrifying underground missile production facility known as Mittelbau-Dora. By the time of Dora’s liberation at the hands of American soldiers in April 1945, Nazi Germany had rained nearly 2,200 missiles on London and Antwerp, and perhaps as many as 20,000 slave laborers at the Mittelbau-Dora camp complex were dead as a result of the conditions they endured to build the V-2.³

This book tells the story of life and work within the German missile program as it played itself out at the missile base at Peenemünde. A complex interaction of professional ambition, internal cultural dynamics, military pressure, and political coercion coalesced in the texture of life at the facility. The interaction of these forces made the rapid development of the A-4 possible, but it also contributed to an environment in which stunning brutality could be committed against concentration camp prisoners in the name of defending the Nazi state. The engineers and other missile specialists at Peenemünde, only some of whom were committed National Socialists, reacted to these pressures in a variety of ways. Most became passive facilitators of Nazi brutality, doing their duty in support of the Nazi war effort. Through their passivity, they legitimized the tendencies of a smaller group

³ Manfred Bornemann and Martin Broszat, “Das KL Dora/Mittelbau,” in *Studien zur Geschichte der Konzentrationslager* (Stuttgart: Deutsche-Verlags Anstalt, 1970), 154–198. This estimate includes the 1,500 prisoners killed by the British bombing raids on the neighboring town of Nordhausen on April 3–4, 1945, Dora prisoners deemed “unfit for work” and sent to the gas chambers at Auschwitz and Majdanek, and those who were murdered during the evacuation of the camp.

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that manifested a more radical tendency, combining scientific and technological rationality with Nazi ideology in a way that served the dual goals of producing weapons and persecuting perceived enemies of the state.

Understanding the ways in which the institution of Peenemünde was able to enlist the unequivocal support of its members is also central to a deeper comprehension of how major technological systems develop and reproduce themselves, especially in the intensified atmosphere of war. This study moves beyond the external functions of state financing and resource support to examine how individuals within the program endowed their institution with personal importance. Moreover, in the Nazi context, identification with the institution's goals also meant that many scientists, engineers, and technicians were willing to tolerate, even participate in, the regime's brutal excesses. Though Peenemünde experienced the impact of Nazification as much as any place in Germany, the reasons for its employees' complicity were not solely or explicitly ideological. Rather, they are located in the quotidian pattern of events taking place at the research station on the Baltic coast.

This book takes what appeared to those at Peenemünde as commonsense beliefs and everyday, rational routines and shows that they were in fact part of the process of what anthropologists call "enculturation," the steady, relentless internalization of a particular set of group norms and ideals.⁴ At Peenemünde, technical specialists internalized a specific set of beliefs about the importance of their work in a nation in the midst of a desperate war for its very survival. This created and reinforced the group's own ideas as a collective entity. In their new role as weapons specialists in the service of the Third Reich, they came to see the concerns of outside groups as being far less consequential than their own. The result was a narrowed technical and patriotic vision that consented to some of the worst crimes of the Nazi regime.

Missile developers at Peenemünde, however, were not solely united by any explicit political or ideological program but rather by a shared belief in a technological program. This set of ideas was characterized by cultural and technological dynamics that could function across a broad spectrum of political ideologies, subtly reinforcing an individual's loyalty to any number of political agendas. This, combined with their own active anticommunism, is what made former German missile specialists so amenable to working for the United States after the war. During the Nazi era, however, missile specialists at Peenemünde also displayed a durable sense of loyalty to Hitler's regime. In the context of a National Socialist government that pursued rearmament, war, and total war as policy ends, the decisions of weapons engineers, whose very work helped to both realize these goals and defend the system that set them forth in the first place, were nothing if not conclusive statements about

⁴ See Hugh Gusterson, *Nuclear Rites: A Weapons Laboratory at the End of the Cold War* (Berkeley, CA: University of California Press, 1996).

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their political sentiments toward the Nazi state. Peenemünde engineers and technicians did not just help supply Nazi Germany's war machine. They also contributed, in their own small way, to legitimizing the deeds of the government that made their work possible.

The issue of consensus and collaboration under Hitler is perhaps the most important and therefore most contentious issue in the historiography on Nazi Germany. In the 1980s, the effort to document the "history of everyday life" (*Alltagsgeschichte*) in Nazi Germany led historians to conclude that support for the Nazis emerged for many different reasons from many differing segments of society. Even so, the Nazis were successful in carrying out only those policies that the German population did not widely oppose. Though Nazism was a mass movement, only a minority of Germans took up the Nazi banner and its ideological causes. Those who did not were mostly passive onlookers or fellow travelers. This cleared the ground for the ideological vanguard to establish increasingly radical policies. Fanatical Nazi ideas were most successful when German citizens had nothing against them and raised no protest; a failure to voice disapproval of National Socialist fanaticism amounting to a passive acceptance of it. A de facto consensus on certain issues moved people to docile toleration and cooperation.⁵ More recent books have reexamined consensus for Nazi policy and have shown that even passive onlookers were in fact not so passive. The historian Robert Gellately, for example, has demonstrated the proactive participation of average Germans in the policing of the Nazi state.⁶ He also shows how a fluid but lasting consensus for Hitler developed within the first months of Hitler's regime and, through a combination of selective rewards and repression, remained until the end of the war.⁷ Through all of this work, one thing has become clear: The Nazi regime carried out a colossal social, political, and cultural project in Germany that would not have been possible without the activism of a minority of the population coupled with the positive consent of the majority. That they were as "successful" as they were indicates that, one way or another, the Nazis were able to produce powerful social bonds between individuals and with the regime.

Personal happiness and a positive self-perception, therefore, had a determining effect on what was possible in Hitler's Germany. The success of the A-4 endeavor is a case in point. This book revisits the historical traditions of *Alltagsgeschichte* by examining the texture of life at the Peenemünde

⁵ Ian Kershaw, *Popular Opinion and Political Dissent in the Third Reich: Bavaria, 1933–1945* (Oxford: Oxford University Press, 1983). See also Detlev Peukert, "Alltag und Barberei: Zur Normalität des Dritten Reiches," in Dan Diner, ed., *Ist der Nationalsozialismus Geschichte? Zur Historisierung und Historikerstreit* (Frankfurt am Main: Fischer, 1987), 51–61.

⁶ Robert Gellately, *The Gestapo and German Society: Enforcing Racial Policy, 1933–1945* (New York: Oxford University Press, 1990).

⁷ Robert Gellately, *Backing Hitler: Consent and Coercion in Nazi Germany* (New York: Oxford University Press, 2001).

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missile facility. The local practices in place at Peenemünde resocialized its employees from an aggregate of disparate individuals into a cohesive group that strongly identified with the same sets of social, political, and technical ideals. In becoming a part of the community of missile specialists at Peenemünde (a “Peenemünder”), individual specialists became firmly convinced that what they were doing was essential to the survival of their nation. The work was, in their eyes, a noble project. Despite whatever demographic differences that they might have had – there were, in fact, few – the basic practices at Peenemünde bound them together into a cohesive unit with a single mission. A distinct set of dynamic social and professional practices ensured their commitment to Peenemünde’s goals, which were inextricably linked to the murderous government that sponsored them in the first place. Support for National Socialism, was, to borrow historian Alf Lüdtke’s term, “co-produced” by the common practices of everyday life at the base.⁸

Moreover, with a few exceptions, much scholarship on Nazi Germany has asked why virtually no one resisted the murderous policies of the Nazi regime. Alternatively, historians and others have sought to understand how it was that Nazi perpetrators were able to overcome revulsion at crimes they committed in the name of the regime as well as the disillusionment that must have come along with these acts.⁹ This work has been instructive but flawed. It makes a basic assumption that the perpetrators viewed what they were doing as immoral and criminal, or that they should have at least understood that it was wrong. Nazi criminals carried out their acts without feeling. Other forces were at work that enabled them to surmount their natural predilections that these were in fact immoral, illegal acts. Thus historians immediately constructed a framework that implicitly assumed the Germans understood that what they were doing was wrong; that they should have resisted such terrible acts. Historical actors therefore repressed their true feelings of revulsion and avoided moral introspection about their actions. This framework has been helpful, but it has not been entirely satisfying. Most often, it does not actually address the issue of personal dedication to the tasks confronting individuals. The work itself is merely a task to be

⁸ Alf Lüdtke, *Eigen-Sinn: Fabrikalltag, Arbeitererfahrungen und Politik vom Kaiserreich bis in den Faschismus* (Hamburg: Ergebnisse Verlag, 1993), 332.

⁹ Robert Lifton, *The Nazi Doctors: Medical Killing and the Psychology of Genocide* (New York: Basic Books, 1986); Hans Mommsen, “Die Realisierung des Utopischen: Die ‘Endlösung der Judenfrage’ im ‘Dritten Reich,’” in *Der Nationalsozialismus und die deutsche Gesellschaft* (Reinbek bei Hamburg: Rowohlt, 1991), asks “Why did so many who participated in the events that led directly or indirectly to the extermination of the Jews fail to withdraw their contribution either through passive resistance or any form of resistance at all?” (p. 186). See also Christopher Browning, *Ordinary Men: Reserve Police Battalion 101 and the Final Solution in Poland* (New York: HarperCollins, 1992). Finally, though problematic, one of the benefits of Daniel Goldhagen’s *Hitler’s Willing Executioners: Ordinary Germans and the Holocaust* (New York: Knopf, 1996) was to ask whether or not Germans actually faced any dilemma at all in persecuting the Jews.

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performed, not a possible source of binding energy or motivation. Instead, it is useful to recall that the problems confronting those who forcibly relocated Jews and other perceived enemies of the state, coordinated massive slave labor projects, developed the world's first ballistic missile, or, for that matter, executed the "Final Solution," were gargantuan. The success of these projects could only be counted on if those carrying them out were dedicated, conscientious, and motivated workers.¹⁰ Repression, avoidance, and denial do not fully explain the willingness of individuals to carry out criminal acts.

The work by the Peenemünders to produce missiles for the Nazi regime as well their participation in the practice of slave labor have become the central points of controversy in historical discussions about Peenemünde generally. For nearly fifty years after the war, most histories of the German ballistic missile program were written by participants themselves or their supporters. The result was a narrative that both distanced their work from the regime that sponsored it and misrepresented or ignored their decisions about participation in the use of slave labor.¹¹ In the late 1980s, after the Justice Department's investigation of Arthur Rudolph, the Factory Director at the Peenemünde production plant and the slave labor factory at Mittelwerk, some journalists began scrutinizing the Nazi past of the former Peenemünders. This work was valuable for the documents it turned up, but unfortunately, it was similar to the earlier work in that it painted a crude, though very different, picture of life in the Third Reich and the missile specialists' place in it.¹² Thus, for nearly half a century, historians were left

¹⁰ See Michael Thad Allen's work on the SS Economic and Administrative Main Office, *The Business of Genocide: The SS, Slave Labor, and the Concentration Camps* (Chapel Hill, NC: University of North Carolina Press, 2002); Michael Wildt's qualitative study of the *Reichssicherheitshauptamt* (Reich Security Main Office – RSHA) officer corps, *Generation des Unbedingten: Das Führerkorps des Reichssicherheitshauptamt* (Hamburg: Hamburg Edition, 2002); and Eric A. Johnson's study of the Krefeld Gestapo, *Nazi Terror: The Gestapo, Jews, and Ordinary Germans* (New York: Basic Books, 1999) for excellent efforts to surmount this tendency. Allen's book also contains a chapter dedicated to the effort to manufacture the A-4. In this chapter, he places ideology at the center of activities, missing, in my estimation, the connections between Peenemünde and Mittelbau-Dora, and therefore the other factors motivating work that resulted from this connection.

¹¹ An excellent example of this type of work is Walter Dornberger's V-2, *Der Schuss ins Weltall: Geschichte einer Grossen Erfindung* (Esslingen: Bechtle Verlag, 1952). Among the many examples of work written by other supporters of the Peenemünders, see Thomas Franklin (pseudonym for Hugh McInnish), *An American in Exile: The Story of Arthur Rudolph* (Huntsville, AL: Christopher Kaylor, 1987) and Marsha Freeman, *How We Got to the Moon: The Story of the German Space Pioneers* (Washington, DC: 21st Century Science Associates, 1994).

¹² See Tom Bower, *The Paperclip Conspiracy: The Hunt for Nazi Scientists* (Boston: Little, Brown, 1987) and Linda Hunt, *Secret Agenda: The United States Government, Nazi Scientists, and Project Paperclip, 1945 to 1990* (New York: St. Martin's Press, 1991). Another, less valuable book is Dennis Piskiewicz, *The Nazi Rocketeers: Dreams of Space and Crimes of War* (Westport, CT: Praeger Press, 1995).

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with a thoroughly incomplete understanding of one of the most significant technological endeavors of the twentieth century.

In 1995, Michael Neufeld addressed this oversight with his important book *The Rocket and the Reich: Peenemünde and the Coming of the Ballistic Missile Era*. His work is an account of the technological and administrative history of the German ballistic missile program. According to Neufeld, the A-4 was “the product of a narrow technological vision that obscured the strategic bankruptcy of the project.”¹³ Though immensely sophisticated, it was a weapon that had virtually no tactical or strategic value because it was wildly inaccurate and could only deliver a payload of one ton, much less than even a single American bomber. Administrators of the project inflamed the expectations of the regime and used the regime’s polycratic struggles to establish the missile as Germany’s best chance to win the war. Allied bombing raids provided the rationale for continued access to resources during the war, which were allocated at the expense of other more strategically valuable projects. The use of slave labor to mass produce the missile was, according to Neufeld, the Nazis’ contribution to the program. In all, Neufeld shows that in the German context, such a huge technological leap forward would not have been possible without the megalomaniacal, even irrational, ambitions of National Socialism.

The complementary converse is also true. Although the grand designs of the Nazi regime were undoubtedly critical, such a task could also not have been accomplished without the willing identification of individual engineers and technicians with many of the same overblown ambitions. The social, cultural, and political fabric at Peenemünde inextricably bound the missile specialists to the goals of their institution and, through them, to the objectives of the regime itself. Neufeld necessarily focuses on the specialists’ accomplishments as purely technological achievements, as ends themselves. This book examines the Peenemünders’ accomplishments not as technological statements but as political and military ones. In less than a decade, missile specialists at Peenemünde carried out one of the twentieth century’s most impressive technological achievements. Such a stunning feat could indeed not have taken place without the willing and active identification of the Peenemünders with the important work to which they were assigned. An important part of their connection with these goals was a willingness to set aside the priorities of all other groups and to engage in slave labor under some of the most horrific conditions in the Nazi empire. The process by

¹³ Michael J. Neufeld, *The Rocket and the Reich: Peenemünde and the Coming of the Ballistic Missile Era* (Cambridge, MA: Harvard University Press, 1995), 274. In 1984, Heinz-Dieter Hölsken published the scholarly work *Die V-Waffen: Entstehung, Propaganda, Kriegseinsatz* (Stuttgart: Deutsche Verlags-Anstalt, 1984), but his work did not have access to the entire documentary record and fell prey to many of the myths about Peenemünde established after the war.

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which the Peenemünders came to internalize such imperious ambitions is at the center of this study.

Thus the story of Peenemünde is one that sits at the intersection of the history of Nazi Germany and the history of spaceflight. The A-4 was undeniably developed to serve as a weapon, but it was nevertheless an important step in the development of spaceflight technology. In exploring the forces that led individual engineers, scientists, and technicians at Peenemünde into the arms of the Nazi regime, this book also describes the lived experiences of these people as the sun began to dawn on the space age. It explores the role that culture and society played in shaping the environment in which they worked, and how these factors in turn either helped or hindered their decision making. These issues, often overlooked in the general historiography on spaceflight, can provide a special insight into the whys and hows of successful space programs.

This book is arranged both chronologically and thematically. Chapter 1 examines the roots of rocket engineering in Weimar Germany. The central feature of rocketry in this period was the collection of amateur rocket societies that were dedicated to the idea of spaceflight. Perhaps the most important experimental facility was located in Reinickendorf, outside of Berlin, and had the impressive moniker *Raketenflugplatz Berlin* (Rocket Base Berlin). The members of the *Raketenflugplatz* were mostly unemployed engineers, technicians, manual laborers, and other enthusiasts who were fascinated by the idea of space travel. Many of them commonly cast their work as an assertion of German cultural and national interest. Radically new rocket technology was a statement of strength made by its practitioners on behalf of a nation that suffered so terribly in the wake of World War I. Moreover, the common practices and shared conditions on the shop floor at the *Raketenflugplatz* acted to bind its members together into a closely knit group that identified intensely with its work. When the German Army began its own in-house missile program and was able to co-opt the services of some of the amateur rocketeers, those few who joined the Army program began to fulfill their technological, economic, and nationalist interests, and the process by which their identities would be reshaped as rocket specialists in the service of the state had begun.

As the Army dedicated more and more resources to the work, it became clear that a new research facility was necessary. Chapter 2 examines the rise of Peenemünde and the framework within which Peenemünde's unique institutional culture would crystallize. Missile specialists were drawn into a close cooperative relationship with authorities within the Nazi regime through a combination of military decisions, professional aspirations, and demands for secrecy. The steadily strengthening Army made its commitment to missile technology clear. Frenetic rearmament in the 1930s gave the specialists a first-rate research facility on the Baltic coast that was the most closely guarded secret in the nation. The secrecy around this project had

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important implications for the formation of the engineers' group identity as missile specialists in the service of the Nazi state. It fostered a sense of community, privilege, loyalty, and an overriding sense of being observed by the authorities. This general atmosphere set the framework for all of their future efforts on behalf of the regime.

Chapter 3 analyzes the life and work of specialists inside the Peenemünde research station. Those who worked at the facility, which was something between an army base and a utopian social experiment, recalled their years there as some of the best of their lives. Engineers and scientists, most of whom would have been drafted into the Army to serve at the front if not for their work, were positively thrilled about being hired or assigned to Peenemünde. The development work, so profoundly advanced and playing about the edges of science fiction, was supremely exciting. Many of them bonded personally and professionally while making many major technological advances. The tasks at Peenemünde deeply satisfied many of their personal and professional goals. At the same time, engineers who designed and built the missile base made sure that the specialists were afforded spacious, comfortable housing for themselves and their families. Community life at Peenemünde was distinctly pleasant. Inhabitants of the small, enclosed settlement established tight bonds with each other by holding regular social events and partaking in the many leisure and recreation opportunities on their island base. These activities helped solidify their identification with each other and established the community of "Peenemünders," a group of professionally and personally like-minded people whose shared circumstances fostered close bonds of personal familiarity and professional friendship.

This work, however, was not entirely set in an apolitical, technocratic environment. It was clear to these Peenemünders, who owed their identities and professional lives to the Nazi regime, that their work was being carried out in order to defend the government that made their work possible. They were to develop and produce a powerful weapon for which there was no defense, and they were to do so as quickly as possible. That they were doing so for a regime that embarked on a war that engulfed the continent, openly persecuted Jews, homosexuals, and others, and enslaved foreign civilians was not a matter of particular concern for them. A number of them even embraced Nazi political and military goals. Those who were not necessarily committed Nazis still accepted the National Socialist rhetoric in which their work was cast. Their comfortable personal lives and profound professional satisfaction, all established within a framework of intense secrecy that tended to stunt the development of contrary positions, led to the nearly automatic adherence to Peenemünde's central mission of developing an unstoppable weapon that could be used to defend the Nazi state. Their concerns were central. Those of other groups paled in comparison.

This dynamic led the Peenemünders to participate in one of Nazi Germany's most heinous acts of cruelty. Chapter 4 examines the decision by

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Peenemünde managers to employ slave labor in the mass production of the A-4. Specialists at Peenemünde actively sought out slave labor as a solution to the increasingly pressing labor shortages that were occurring across Germany, and they welcomed the contributions of the SS (*Schutzstaffel*) in this regard. Chapter 4 also analyzes the treatment of forced and slave laborers who worked at Peenemünde. An important dynamic established itself at the base, in which unskilled foreign labor suffered poor treatment, extremely arduous work, and impossible living conditions, while skilled labor, because of its value for the project, enjoyed better treatment, easier work, and more comfortable housing. Those prisoners who were in a position to directly help the Peenemünders and their work received much better treatment than those who were involved in more menial construction and materials transport work. Peenemünde specialists made no efforts to alleviate the condition of those unfortunate laborers who were not lucky enough to possess the skills that would enable them to assemble a functional ballistic missile. This was a pattern that would be reflected, with much more catastrophic results, at the notorious slave labor facility Mittelbau-Dora. The Peenemünders' narrowed ethical outlook, a result of their strong identification with each other and the goals of their project, meant that the concerns of others barely weighed in the balance.

The result was ready accommodation to increasingly barbarous slave labor in the missile program in 1943 and after. Chapter 5 examines the actions of Peenemünde specialists who were engaged in mass production in the terrifying slave labor factory of Mittelwerk. The missile program's midlevel managers who carried out their tasks at Mittelwerk proved to be willing collaborators with the SS, which supplied labor for the factory and set the overall conditions for its use, because both groups strongly identified with the military and technical goals of the missile project. Former Peenemünde specialists assumed important positions in the factory in which they had to make daily decisions that directly affected the lives and well-being of slave laborers who worked on the shop floor. Their strong identification with the program's objectives, the major professional advances that they made in the move to Mittelwerk, and, it must be noted, a dramatically increased feeling of personal coercion to conduct the work successfully, combined to ensure the civilian specialists' utmost dedication to their production tasks. The same dynamic as at Peenemünde, in which management viewed skilled labor as a valuable commodity and treated it as such while not concerning itself with the fate of unskilled labor, rapidly took shape at Mittelwerk. The result was a dynamic in which decisions about human value were made based on criteria of function and skill; humanitarian considerations did not fit into the equation at all.

Chapter 6 shifts the focus back to the experts at Peenemünde. In the last eighteen months of the war, the missile program was buffeted by major bureaucratic conflict at the highest levels of the regime. The increased