Modernity, the Holocaust, and Machines without History

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Walk into a bookstore and pick up any book whose author loosely fits the label "public intellectual." Many will fit under the broad category of what is now popularly known as the "Culture Wars": authors such as Alan Bloom, Jean-François Lyotard, and Richard Rorty. Flip through the index to the H's. Chances are that you will find a few pages on "Hitler" or "Holocaust," and if you read them you will find that, despite the bewildering diversity and vituperation, the unique atrocities of Nazism and "modernity" occupy a prominent place in these authors' historical imaginations. For example, Francis Fukuyama urges us to embrace the shining truth of modernity, which he defines as the progressive historical implementation of the Anglo-American Enlightenment, because a modern United States vanquished National Socialism.[1] Rorty, on the other hand, admonishes us to seek *not* the truth because it is authoritarian and leads down a slippery slope to the gas chambers.[2] Not to be outdone, M. Stanton Evans, who shares Rorty's disquiet over "the ideologies of the modern era," informs us that "Hitlerian concepts of unfettered power, genocide against defenseless people, and eugenic efforts to direct the growth of populations . . . resulted from the idea that man, severed from his connection to the absolute, had been assimilated entirely to the world of nature."[3] To rescue the West from this distress, he invites us to seek salvation in Jesus Christ. All perceive the modernity or anti-modernity of the Nazis as a climacteric of twentieth-century history. At stake is not so much an accurate portrayal of the Holocaust, but how that past can be fashioned as either a mortal weapon or impenetrable armor for competing claims to know where World History should be taking humankind.

In the face of this overwhelming multiplicity, let me state unequivocally what "the modern," "modernity," and "modernization" mean in the present meditation.

First, any claim to modernity or to "modernize" places a stake upon futurity. It seeks to fix the preconditions that must be fulfilled in order to make that future possible and identifies the patterns of development of these preconditions in history. Thus, to understand "the modern" requires more than any one idea. It requires comprehending the structure of a debate. This debate constantly identifies false starts as backward historical developments. To know what is modern, in contrast, means to hold the key to a new era, to claim the right to know what is best for the full flowering of human history and, no less, to herald the creation of a "new man." The primary casualty of this debate is reasonable discussion of first principles, which "modernity" sacrifices from the outset. To claim that anything is modern is to claim that it is desirable not because it necessarily represents the good, the true, or the beautiful but because it represents historical destiny.

Second, to say that "modernity" constitutes a debate does not imply that all is relative or that what is being debated is a matter of indifference. "Modernity" is about the power of industrial technology to transform civilization. As Reinhardt Koselleck pointed out long ago, the historical imagination has been preoccupied with modernity since the industrial revolution. Because the industrial revolution in tandem with the French Revolution inaugurated more than 200 years of continuous, rapid change, our ability to assimilate the past into the present has become a deep-felt need which Koselleck attributes to the startling pace of technological change: ". . . the more a particular time is experienced as a new temporality, as 'modernity,' the more demands made on the future increase. . . . this is certain to be an effect of the technical-industrial modification of a world that forces upon its inhabitants ever briefer intervals of time in which to gather new experiences and adapt to changes induced at an accelerating pace."[4] Again, what is at stake is our future. Because of the ongoing industrial transformation of society, nothing can be taken for granted, "the center does not hold," and therefore, in order to prepare as well as possible to muddle through an uncertain tomorrow or even to know who we are, citizens of modernity constantly stare into the past in order to discern patterns

which supposedly propel us forward in space and time (even in futility—like Walter Benjamin's Angel of History). Most often, this means an attempt to take charge of the patterns of technological change and claim that they will define our destiny.

It should be no surprise, in this light, that the special role of science, technology, and modernity in the Holocaust plays such a large role in the "Culture Wars" to which I alluded above.[5] At the most superficial level, modern technology defines the uniqueness of the Holocaust. Fatigued and blinkered as we are, the simple fact of genocide—even large-scale genocide in the heart of Europe—is less likely to shock us than it shocked those who believed unequivocally in Western progress at the middle of the twentieth century. Knowing more of the collectivization campaigns of the Soviet Union, we are also less likely to count the sheer numbers of dead as a distinctive sign of evil. In addition, it now seems that quite primitive regimes such as Serbia and Rwanda are capable of piling up bodies on a vast scale. What was truly surprising at the end of the twentieth century was that anyone ever thought this kind of barbarity would ever disappear from human experience.[6] On the other hand, only the Germans strove to use "assembly-line" methods. Only the gas chambers enlisted the services of the most advanced chemical industry in the world and the officious punctuality of the Reichsbahn. Only the concentration camps statistically managed murder, and only they built economies of scale and scope into their extermination systems.[7]

The National Socialists unmistakably turned to modern technology and science as their means; at the same time, they took Germany's historical prowess with modern technics as evidence that their achievements could deliver them to the "End of History," its full unfolding. A brief survey of the *Journal of the Four Year Plan* allows some insight into what the Nazis meant by "modern world" and what technology had to do with it. The *Journal*, founded by Hermann Göring, showcased the Third Reich's industrial policy on glossy folio-size pages replete with statements of Nazi futurity. Göring proclaimed in the first issue that National Socialism had divined the secret to a reborn economy and promised to "fulfill tasks of world-political and world-historical proportions."[8] Economics Minister Walther Funk similarly claimed a mandate to direct "tasks which have never before

existed in a highly qualified modern national economy."[9] A lesser official declared "We are National Socialists and that gives us duties and tasks for all future times"[10]; likewise, staff writers lauded the Frontarbeiter (Front Workers) organization as a crucible in which a new man would be forged.[11] Claims to modernity also took the form of specific artifacts and technological systems, as when Jakob Werlin wrote of the centralized, hierarchical management of the Volkswagenwerke and its rigorous insistence on norms, standardization, and mechanized production.[12]

The Nazis' millenarian modernism has caused great discomfort, for arguments that Hitler had a coherent modern social vision seem to lend themselves to apology. How can we fault the Nazis if they wanted a "modern" society just as everybody else did? Some warn us to abandon the discussion of National Socialist modernity altogether. Hans Mommsen asks, in near total frustration, "Does anyone earnestly wish to make the fascistic understanding of politics, which touched upon mere mobilization for the transformation of visionary-utopian goals, into the foundation of a present day 'modern' society?"[13] The answer, of course, is that the Nazis did, which cuts to the quick of a central false dilemma of the modernity debate. Those who would identify modernity with historical destiny, as the necessary legislator of the norms of contemporary society implied by Mommsen, leave scant room for the rational judgment of first principles—on what primary grounds should we condemn the regime *whether it was modern or not*? Too often the "modernity" debate seeks to substitute historical destiny for substantive discussion and, in so doing, strives to discount the actual history of the Nazi regime. Ironically, calls to abandon the question of "modernity" and National Socialism is in many ways analogous to Marxist debates of the 1960s and the 1970s, which demonstrated a marked aversion to any discussion of the Nazis' robust anti-capitalism. But that debate never went away just because its implications were unpleasant to some historians and other academics.[14] Modernity and National Socialism shows little sign of doing so either. In view of Heinrich Himmler's enthusiasm for "a completely new, modern concentration camp for new times, capable of expansion at any moment" the question is not whether the Nazis were modern or whether we should discuss it.[15] The question is what Nazi modernity meant and what it implies for us in the present.

Modernity Is Not the Enlightenment, or Why Nazi Modernity Is Hidden

As I have already noted, a macabre fascination with technology looms large in debates about the Nazi genocide. What, then, connects modernity, technology, and the Holocaust? Saul Friedländer has commented upon the feeling of Rausch (inebriation or ecstasy), which, he suggests, seduced Germans into believing that the Holocaust was meet and right.[16] Rausch stresses human transcendence through existential experience, which invites initiates to "feel the power." Rausch, as described by Friedländer, derives from terror and confrontation with the incomprehensible, as, for instance, when genocide sprang all known moral boundaries, requiring "ordinary men" to act outside any traditionally accepted authority. Nazi leaders were quick to explain that only Hitler's Volksgemeinschaft could provide the medium for this Rausch, precisely because National Socialism had made them subject to a new morality and a new historical epoch. They were invited to "feel" its history-making acts, among them mass murder. This is clear in Himmler's 1943 speech at Posen, in which, amidst the butchery, he urged his men to feel proud, empowered, and justified in their transgressions, for Nazis were masters of their own morality. For this very reason they believed themselves to stand at the brink of historical destiny, defining modernity's final and highest expression.[17]

This same sense of intoxication also manifests itself in technological endeavor.[18] Even some who are not historians of technology, such as Modris Eksteins, have argued that new technology was "a means of escaping from the confines of reality, a way of liberating the imagination."[19] Technology has long been a "religion" in the West, and, as David Noble has recently observed, we should not forget that this *secular* deity manifests itself through history. Noble locates it first in medieval Christianity, in which "technology . . . became at the same time eschatology."[20] Eschatology appealed to the Nazi mentality, although Hitler's 1000-Year Reich aspired to a racial utopia entirely of human making. This too was quintessentially modern, a narrative of human teleology to be fulfilled in this world and not through divine salvation in the hereafter. This caused no insignificant amount of friction between organs of the National Socialist German Workers Party (NSDAP) and traditional institutions. For example, defense of the modernity of National Socialism can be found in the censorship bureau of Richard

Walther Darré's Reichsnährstand (Reich Agricultural Estate)—an institution often presented as exemplary of Nazi anti-modernity.[21] The Catholic magazine *Nature and Culture* had upset a certain censor, Dr. Böhmkamp, by arguing that "natural science can give no answer to the most important problems of our being and that science is absolutely worthless." The rejection of evolution in the name of the biblical creation myth seemed to bother Böhmkamp the most: "We have here the crassest confusion of the confessional church when it comes to modern scientific results, and we must see this as an attempt to topple the foundations of National Socialist ideology."[22] Here the author coupled modernity, based in "science," with the fundamentals of National Socialism as a secular faith. The specific "science" he had in mind was the "racial teaching" of eugenics.

Racial science has received increasing attention from historians, including Robert Proctor, Henry Friedlander, Götz Aly, and Michael Burleigh. Nevertheless, in disproportion to the stress placed upon the Nazis' "macbinery of death," academic discourse has left the unique technology of the Holocaust almost completely untouched.[23] Instead, debates about modernization and National Socialism have entered a seemingly endless round, which comes full circle about once a decade. In 1972, Henry Ashby Turner, polemical as ever, suggested that the study of modernization in Germany could open the phenomenon of Nazism to more useful conclusions than previous analysis of capitalism, fascism, or totalitarianism. Nearly 15 years later, Thomas Nipperdey suggested roughly the same thing.[24] Almost 10 years after that, Hans Mommsen titled an article "Yet One More Time: National Socialism and Modernization."[25] It is little wonder that Gerald Feldman remarked disparagingly that "an invitation to consider any historical period from the perspective of modernization tbeory is a bit like being invited to climb a mountain in the fog."[26]

Technology has always played a crucial role in all definitions of modernization, and historians and sociologists by no means neglect it in their analyses. As Ian Kershaw has noted, modernization "implies long-term change spanning centuries and transforming 'traditional' society . . . into industrial class society with highly developed industrial technologies."[27] As Mary Nolan has shown, a preoccupation with modern technology was common, from right to left, among industrialists, engineers, managers, and union leaders of the 1920s.[28] And Ernst Jünger, with near exaltation, identified tbe same trends that Kershaw would summarize more than 50 years later: ". . . the technological engagement of industry, economy, agriculture, transportation, administration, science, public opinion—in short, each special substance of modern life in a self-enclosed and elastic space, inside of which a common character of power manifests itself."[29] The "common character of power" immanent within new technology and organization that Jünger celebrated filled the imaginations of ordinary Germans. The National Socialists were no exception.

The debate continued after 1945, as one might expect. Attempts to predicate historical destiny on "modernity" did not end with Hitler's suicide, and this has only added to the fog so wryly identified by Feldman. However, despite the prominence of modern technology in discourse of the 1920s, the 1930s, and the 1940s, after the Third Reich's demise the historical fact of National Socialism became a new linchpin in bitter struggles over the Enlightenment. This struggle has involved, essentially, two camps. Immediately after World War II, self-conscious moderns of the liberal left pointed to the Third Reich's supposed anti-modernity as the quintessential evil from which they proposed to rescue history. Later, so-called postmoderns quickly adopted the same strategy, but by declaring the Nazis to be modern they have used the Holocaust to discredit liberalism in general. The central theme common to these otherwise antinomic visions is a determined conflation of modernity with the Enlightenment, though this was wholly alien to the National Socialist movement and uncommon in the interwar period.

Very early on, champions of the Enlightenment advanced the erroneous conclusion that National Socialism was "anti-modern." Historians such as Henry Ashby Turner, joined by intellectual historians such as George Mosse and Fritz Stern, claimed that, essentially, National Socialism was a revolt of modernity's losers. Challenged by the progressive transformations inevitably caused by industrialization, these losers wished to "turn back the clock."[30] Hitler promised to wreak revenge on an isolated social group whicb reactionaries associated with everything repugnant about modernity: the Jews in modern urban areas, modern professions, and modern art movements who had profited from the liberal democracy and egalitarianism of the Weimar Republic.[31] Turner is the only historian of industry to have followed this trajectory, which Timothy Mason once pejoratively referred to as the fixation of intellectual historians only.[32] Turner is also one of the few

to have tried to explain the obvious contradiction between the supposed anti-modernity of Nazi ideology and Germany's startling military and industrial might. In brief, he argued that the Nazis came to terms with modern industry out of practical necessity. Hitler needed modern industry to realize his military pursuit of an atavistic "Lebensraum."[33]

The sociologist Ralf Dahrendorf had adopted a similar interpretation of Nazism in the mid 1960s: "Hitler needed modernity, little as he liked it."[34] Yet Dahrendorf went beyond analysis of industry to argue that, whatever the Nazis intended, they unwittingly destroyed the bastions of traditional society. After the war, traumatized as it was, German society could no longer resist modernization.[35] Thus liberal democracy, set equal to modernity, flowered in the Bundesrepublik despite continuities with the Nazi legacy. Several historians have pressed this point: If the Nazis achieved "modern" credentials, they certainly did not mean to; furthermore, those credentials are themselves dubious. So argued the social historian Hans Mommsen: the Nazis offered only a "vorgetäuschte Modernisierung" (feigned modernity)—a sham unity of the diffuse and disarrayed factions of Weimar.[36]

The postwar generation of scholars overwhelmingly associated "modernity" with the Enlightenment's legacy of liberal rationalism and with the ascendance of a politically active bourgeoisie in the cause of democratic government. They made no secret of their own first principles; however, they advanced them in a curious way, as if the historical destiny of the "modern" world entailed equality, liberal education, a society open to merit, and the rule of law as the natural accompaniment to ongoing industrialization. Their efforts to make this a reality in postwar German society should not be taken lightly. Many of those who had built the Third Reich were still alive and well in the 1950s and the 1960s, and the need to discredit their intellectual traditions was felt keenly and approached in deadly earnest. What better strategy than to label the Nazis as anti-modern—that is, retrograde troglodytes, or, as Wolfgang Sauer pithily called them, "the Philistine Underground"![37] The political stakes of this literature help explain the impact of David Schoenbaum's book *The Brown Revolution*, which argued that National Socialism created advantageous conditions for social mobility and political participation, despite its authoritarianism—perhaps because of it. His book makes no mention of the modern, modernity, or modernization, but Schoenbaum was drawn into the modernization debate nonetheless.

By the 1980s, many had begun to express uneasiness with modernity. Nipperdey, one of the few postwar historians to strike an ambivalent stance toward modernity, attempted a syncretism by claiming that, although the Nazis were anti-modern, they were also anti-tradition, and therefore they were "revolutionary anti-moderns."[38] Mostly younger historians have pursued this argument. Jeffrey Herf, who stands Nipperdey's point somewhat on its head, argues that the Nazis were "reactionary moderns."[39] Yet these authors still abide by the touchstone assumption that the liberal Enlightenment sets the paradigm for what it is to be "modern," something staunch National Socialists would have denied.

For the very reason that the Nazis embraced modernity, other historians have correspondingly condemned Enlightenment rationalism itself through guilt by association. At the risk of grossly oversimplifying, I suggest that Götz Aly, Susanne Heim, Zygmunt Bauman, Detlev Peukert, and Ronald Smelser all have uncovered contributions made to "modern" Germany by the Third Reich and all judge that legacy to be vexed and, at worst, malignant.[40] Peukert, for instance, argued that the Nazis showed the "shadow side" of modernity.[41] If portrayals of the Nazis as a reaction against modernity have explained Hitler's commitment to modern technology as a "compromise," we should not be surprised to find that critics of the anti-modern thesis place Nazi jubilation over modern technology at the center of their arguments.[42] To Zygmunt Bauman, a straight line runs from the logic of modern bureaucracy and technology to the killing machinery of the death camps: "The murderous compound was the work of a typically modern ambition of social design and engineering mixed with the typically modern concentration of power, resources, and managerial skill."[43] The Holocaust was social engineering with a vengeance that stemmed from "the Enlightenment" an "enthronement of the new deity, that of Nature, together with the legitimation of science as its only orthodox cult, and of scientists as its prophets and priests."[44] Partially in support of Bauman's ideas, Detlev Peukert's last essay warned of the "the genesis of the 'Final Solution' from the spirit of science."[45] Unlike immediate postwar scholarship, these historians and sociologists warn us that another event like the Holocaust may be exactly what we will get if an ascendant bourgeoisie, modern political economy, science, and industry continue to develop unrestrained.

Nevertheless, "modernity" remains more or less equated with the Enlightenment and liberalism. Alan Beyerchen has recently remarked that the Nazis "were united in their belief that they were fighting against modernity itself, which they called liberalism, democracy, urbanization, parliamentarianism, and other names they abhorred."[46] This last statement shows the current need to historicize modernity and the Holocaust, for there is no reason to believe that when the Nazis heaped scorn upon the legacy of liberalism they spoke in codes: they hated liberalism. When they mentioned modernity, as an architect did regarding the Hermann-Göring Werke of Salzgitter, they did so alternately with the gusto of crusaders and the dewy eyes of poets:

> Here a model rises into the light that will serve as precedent for private industry for future building. Here the engineer, the scientist, and the architect have sat down together and have created in communal labor the ideal modern industrial works, as rational as it is beautiful, at once a symbol . . . of true industrial culture: Technology, Science, Art.[47]

It is difficult to discern abhorrence for "the modern" or its offspring, "modernization" or "modernity," in this statement, and the Nazis would have violently rejected the label of "reactionary" or "anti-modern" applied to them ahistorically after 1945. Sadly, having chosen to advocate the advance of "modernity" instead of championing the substantive issues at the heart of Enlightenment humanism directly, liberal scholars such as Mosse, Stern, Dahrendorf, like many a disillusioned spouse, find that modernity has been cheating on them. Despite insistence on a "one best way," the modern has shown little fidelity to liberal social and political reform.[48] Modernization, in other words, philanders, and this is nowhere more apparent than among the historians (predominantly on the new German right) who have set out to historicize modernity and National Socialism. Far from creating a fresh consensus, they have polarized debate all the more. They have maintained the positive valuation of modernity expressed by immediate postwar scholarship; on the other hand, they have reversed the long-standing criticism of Nazi "anti-modernity." To the extent that National Socialism made possible a modern Germany, so argues especially Rainer Zitelmann, those contributions should be judged good and even celebrated as part of German national identity.[49] Thus, above all, this "mountain in the fog" of books, special editions of journals, and review essays demonstrates precisely the point with which I began this essay: that modernity has always encompassed a debate far more than a singular body of consistent political philosophy or a coherent, predictable pathway of historical development.

The Machine in the Fog

Nevertheless, this is a debate about industrial technology. Because of a wide-ranging consensus after World War II that the Enlightenment and modern destiny are one and the same, the history of technology has receded from view, but it is present nonetheless in a curious form. As important as technology has been to debates about modernity, most scholars usually equate one and only one technological rationality and one and only one pathway of industrialization with Enlightenment rationalism. Machines appear as artifacts without history even to those (e.g., Herf, Koselleck, Kershaw, Eksteins) who acknowledge the central importance of technology in these debates. Undifferentiated, machines have their entrances and their exits upon the world stage, but no character. But which machines are modern? Here a more accurate history of technology can play a crucial role. For if, as I argue, the attempt to associate some kind of destiny with the change caused by industrialization defines the "modernity debate," then selecting a single technological trajectory as the harbinger of that destiny involves historical choices. This holds whether or not the selection is made consciously. Some industrial technologies acquired favored status as "modern" over the course of the 1920s and the 1930s; others, equally new and equally capable of invoking massive social change, economic growth, and organizational transformation failed to awaken interest and were in fact discredited as illegitimate pathways toward future development.

The Nazis were fascinated, for instance, with large-scale industry over shop production (despite the misimpression that Nazi ideology favored the old middle class). Gottfried Feder, an engineer and Hitler's early economic guru, is often taken as the quintessential Nazi "anti-modern" because he wished to safeguard small shopkeepers from large department stores. He was also a rabid anti-Semite who blamed the Jews for Germany's economic troubles during the 1920s. Yet when Feder wrote of the "moral personality" of the "true entrepreneur" in *The Program of the NSDAP*, he did not name butchers, bakers, and candlestick makers. He named inventors, "constantly

concerned with innovations and improvements in factory and sales." And who did Feder name as the "most prominent and world renowned example of this kind of entrepreneur?" Henry Ford—hardly an inspiring figure for anyone seeking to "turn back the clock."[50]

Yet the 1930s were precisely the decade in which General Motors surpassed Ford by introducing more consumer-oriented marketing and more flexible approaches to serial production. This did not inspire Feder. The Four Year Plan, the Herman Göring-Werke, Volkswagen, SS concentration-camp industry, Albert Speer's war production ministry, and the rantings of Adolf Hitler displayed a consistent fascination with techniques of modern organization and standardized mass production—in short, for the capital-intensive, concentrated industry that was new to the twentieth century.

As defined by Thomas Parke Hughes, modern systems are characterized by centralized hierarchy, with smaller systems subordinate to larger, more encompassing systems through mechanisms of control both technical and social. Rather than conflate such systems with an eminent destiny compelled by an all-embracing Enlightenment rationality, however, one should remember that centrally controlled systems have themselves come under attack by industrialists and entrepreneurs as irrational. This is due to their inflexibility and, not least, their unprofitability.[51] As sociologists of technology such as Michael Piore and Charles Sabel and historians of technology such as Philip Scranton and Jonathan Zeitlin have shown, other, highly innovative alternatives to mass production presented themselves in the 1920s and the 1930s alongside assembly lines—namely, flexible, all-purpose machine tools and the mass marketing of customized goods through adaptable means. Nevertheless, specialized machine tools, rigid norms of design, and assembly lines captured Hitler's fancy, He latched onto them as an intimation of a future world, not the "old-fashioned" craft modes of production, the budding "flexible specialization," or the consumer's "freedom of expression." Remarking on traditional shop practice, Hitler at times ridiculed nostalgia for the supposed quality of non-mass-produced goods: "One wishes to believe that it [handmade goods] concerns something unachievable. That is a bluff. A modern giant press stamps me something to an exactness that is totally impossible with our craftsmen." Noting the productivity of Fordist automobile factories, Hitler continued: "The entirety is the pure work of automatic machines. . . ."[52]

Hitler's preoccupation for automation, I would argue, was largely if not wholly aesthetic, for he was no engineer. After all, even in the 1940s only a few of the world's companies found auromated production profitable or even possible. Nevertheless, the specracle of these few plants seemed the prophecy of a new order; they prompted the Swiss historian Sigfried Giedeon to write *Mechanization Takes Command*. There are few records of the same overwhelming experience elicited from other modes of production. Whether advocates (such as Aleksei Gastev) dedicated poetry to the grand machinery of mass production or whether critics (such as Aldous Huxley) conjured up unparalleled images of barbarism, the continuous flow of assembly lines stimulated the imagination like no other history of technological development in the early twentieth century. It seemed unique, something "man" had wrought for the first time, and it gripped the Nazis with its existential intoxication as much as with its promise of efficiency and output. Ernst Jünger described the mass-production aesthetic as a new mode of being. A new man had emerged, Jünger proclaimed, who did not strive for his essence in individual expression but who took delight in the massive release of power through collective organization and technological control: the grander the scale, the more intoxicating it was; the larger the influx of resources, the greater the complexity, the more naked the technology, the more titillating it was.

In industrial terms, this aesthetic meant a preference for productivism over consumption, which both Richard Overy and Mary Nolan have noted from quite different methodological directions.[53] And here I wish to define productivism precisely in its relation to Nazi modernity: it meant the tendency to view the purpose of the factory not as economic output in goods or services but as the production of identity. In this sense, National Socialism shared with other political movements of its day a central belief in work as the formative activity of modern collective identity. Whereas distribution and consumption carried the eye far from the factory system and tended to emphasize particular, prosaic uses of things, the aesthetic of productivism made the assembly line into a symphony of national destiny whose output could be enjoyed for its own sake. This would also seem to explain the prevalent fascination with Ford, who stressed extreme vertical integration and engineering prowess, over GM, which stressed marketing and sales. It did not hurt that Henry Ford was also an anti-Semite.

Again material drawn from the *Journal of the Four Year Plan* is instructive. First of all, in many of its articles liberal ideals of equality received a drubbing as old-fashioned and infantile:

> [The Führer] does not preach the childish and mocking lecture of the equality of man and man's equal claim on the distribution of the goods of this earth, but rather [the Führer] gives you back consciousness of your belonging to a great people. In the people [Volk] you are bound to decline or prosper and in the people each can achieve as much as he can according to how he applies his ability and achievements . . . so that ability and achievement is the only measure of progress . . . not—what a utopia!—to eliminate the inequality of man but the inequality of conditions under which they work.[54]

If enhanced production was not to serve the greater equality of human beings through the increased gratification of material consumption, what was the goal of industrial society? Another article assured readers that industry could now once again serve "the moral and cultural life of the nation." Rather than the mundane output of commodities to satisfy whimsy, the Four Year Plan set itself the tasks of manufacturing national identity: "The social question is first solved when all productive [schaffenden] German national comrades reawaken their proud and happy consciousness, fully worthy and responsible to partake of the nation's providence as well as its cultural and economic goods to the measure of their productive contribution."[55] This doctrine defined the worth of each individual according to his or her contribution to the national community, and in this light factories were supposed to produce more than commodities; their products were supposed to be Germany's strength, prowess, and sense of unity.

An article titled "The Future German Economic Order" argued that a centrally planned economy was not about prosperity but about national virtue. The author proposed in relatively straightforward terms what I define here as *productivism*:

> . . . the peacetime economy works for the higher value and power of human life and brings living human communities to their best development. Once again it is not economic goals that the economy has to obtain. It is not only the man as consumer and receiver of economic production . . . in much stronger measure the economy must work for man as producer and provider.[56]

Production was to manufacture the German spirit, a spirit forged as the maker rather than as the consumer of goods. At the heart of Nazi modernity was the dream of a perfecr system—what Charles Maier has called the "society as factory." But it was to be a system whose overarching output was supposed to be culture—the New Order of National Socialism.

Modernity and the Holocaust

In the Third Reich, "the New Order" meant something quite specific: the transformation of Europe into Nazi Germany's "Lebensraum." Götz Aly and Susanne Heim speculate that the desire to "modernize" a Greater Regional Economy (Grossraumwirtschaft) in central Europe fueled the Nazis' drive to eliminate the Jews, and their book *Vordenker der Vernichtung* makes the logic of capitalist expansion in the East a primary evil. Aly and Heim have been criticized for overdrawing their conclusions and for bypassing ideological motivations among perpetrators. Nevertheless, there can be little doubt that the exclusion of Jews from German society intensified in step with the accelerated armaments drive and the economic growth of the Four Year Plan.[57] I would argue that the Nazis' New Order had more to do with productivism than with an exclusively capitalist "logic" (a logic that many came to associate with "modernity" only after World War II).

I would like to turn to two examples: the norms and standards of manufacruring intended for Aryan settlements and the "factories of extermination" designed to eliminate the European Jews. In each case the motivation to fulfill "destiny" with modern technology had as much to do with the regime's intentions as with anti-Semitism and racial supremacy. The eastern territories conquered by the Wehrmacht serve as an excellent illustration. The SS received a mandate directly from Hitler to "make the East German." The special SS office of the Reichskommissar für die Festigung deutschen Volkstums (Commissar for the Reinforcement of Germandom) drew up blueprints for model Aryan settlements, which were supposed to secure the racial and cultural dominance of Germany ovet the conquered lands. Himmler's expert for regional planning adamantly opposed bucolic nostalgia in this endeavor:

> German agriculture has just begun to overcome the backwardness of the last decades. The technical and economic criteria for optimal production are still in a great deal of flux and represent a complex problem, but the organization of new farmsteads will exclude from the very beginning any romantic or far-fetched fantasies of "bucolic forms."[58]

Thus, the New Order in the East undeniably included dreams of a perfectly planned and integrated "modern" economy with an emphasis on technology (though this was by no means its only dream). For one thing, the SS proposed to use the captive labor of the concentration camps to mass produce building materials, furniture, and appliances for its Aryan settlements. These settlements, in turn, were supposed to convert the East into a "German" landscape. I will return to the means of production the SS wished to use. Here it is important to note that the SS's conception of modernization was also inherently racially motivated. "The Führer himself has set forth the great outlines for building up the eastern territories," wrote one manager of the SS's concentration-camp industries. He did not propose to turn back the clock to craft industrial forms; rather, he referred to the SS's wish to build up modern factories. In contrast, he criticized the "backwardness" of Polish society, in which "habitation worthy of human beings found absolutely no place."[59] In Himmler's New Order, modern industry represented a means of transforming a Polish and Jewish landscape into an Aryan one; at the same time, the presence of modern machines was a part of what was supposed to be Aryan about that landscape.

A mundane example of how the SS sought to manufacture its New Order, the SS company German Noble Furniture, serves to illustrate how these megalomaniac fantasies became embedded in the minutiae of technological detail. Through the lens of productivism, even seemingly banal manufacturing standards could acquire the aura of hallowed national symbols. Like any other artifacts of industrial societies, standards have a history that accompanies them into daily use, and few regimes have ever taken their cultural implications as seriously as Nazi industrial planners did.

German Noble Furniture was one of the SS's "settlement" industries, founded to supply the New Order. In the summer of 1940, the chief executive officer of all SS companies, Oswald Pohl, prepared to bid on Emil Gerstel AG of Prague, a highly valued furniture manufacturer. Emil Gerstel, the owner, was one among many Jews whom occupation authorities were forcing to sell out, and his factory had attracted the SS's interest because of its advanced manufacturing methods. In Prague the SS solicited the help of a well-positioned officer in private industry, Dr. Kurt May, son of the Stuttgart furniture manufacturer A. May. In 1932, at the age of 22, Kurt May had taken over the firm upon his father's death.[60] In the late 1930s, in

the crusading spirit of an industrial modernizer, he appeared in occupied Czechoslovakia seeking new investments. A friend of May's described his methods as follows: "By means of special production of individual parts by contracting firms, planned mass production, and modern wood-saving methods, a price level was to be achieved [by May] within the means of the majority of buyers but which, at the same time, guaranteed sound and tasteful work."[61] According to his contemporaries, "Dr. May was . . . concerned with the creation of culturally valuable household articles," and his vision included production norms for German culture.[62] His father had founded the Verband Deutscher Wohnkultur (Society for German Cultural Living), and May had himself founded the Deutsche Heimgestatlung (German Home Design Society).

At first, the attempted takeover of the Jewish firm brought Pohl and May into a fracas with the civil administration of occupied Czechoslovakia. In the autumn of 1940, Pohl had submitted a bid to Constantin Freiherr von Neurath, the regional governor of the former Czech lands tbat the Reich had not directly annexed (i.e., the Protektorat, encompassing Bohemia and Moravia). Neurath opposed the SS's goal of technological modernization because he feared the ensuing standardization of goods might lead to a "limitation of production to fixed models which threaten free artistic expression."[63] Thus Neurath was opposing the modern nature of the SS's business—its preference for mass production and for large-scale, centralized organization. The brief conflict is therefore instructive.

First of all, Neurath was hardly representative of the activists in Hitler's movement. His anti-modernism cannot be equated with any dominant current of Nazi ideology. He had made his career as a staid civil servant of the German diplomatic corps. He was an old-fashioned conservative, and in the last days of the Weimar Republic he had served Chancellor Franz von Papen as Foreign Minister. When Hitler became Chancellor, in January of 1933, Neurath remained in his ministerial post. In fact, he remained there until February of 1938, when Hitler replaced him with Joachim von Ribbentrop. Because Neurath had left the government before the round of annexations that began with Austria, he was not closely associated with either the NSDAP or Hitler's expansionist policies. At times the foreign press even speculated that Neurath was "anti-Nazi" because of his aristocratic, "cultured" background, and some speculated that Hitler had

appointed him because this "outsider" might elicit some measure of cooperation from Czech citizens. From the start, however, much more dedicated Nazis among the Sudeten-German nationalist movement challenged Neurath's authority, as did others within his own administration.[64]

Because of Neurath's weak position, his efforts to champion a craft-based economy cannot be considered typical of Nazi policy in the Sudetenland. It is also important to note that Neurath lost, as anti-moderns repeatedly did in the Third Reich. To characterize the entire Third Reich as "anti-modern" is out of all proportion to the weight such voices carried. In addition, when "anti-moderns" raised objections, they never actually claimed to be against modernity; unlike those Nazis who championed modernity, people like Neurath avoided the word. One searches in vain for quotations such as "We will destroy modernity!" or "I hate modernism!" Instead, Neurath based his objections on typically smug hypocrisy and cultural pretension to what rightly counted as "German" design and "artistic expression"—the very rhetoric mobilized by the Third Reich's modern productivism.

The SS countered that its unified management within Hitler's "National Community" could ensure that standardized production would ring true. "If the entire field of design down to the level of the last detail of utility is seen as a unity and focused on man," explained an engineer who designed SS furniture at the time, "then the senseless contrast between 'soulless industrial wares' and the exclusive, spiritual quality of craftsmanship falls away."[65] The SS, by its own admission, strove to enforce a homogeneity of "cultural" taste, but declared that this very homogeneity expressed the German will. Neurath remained unconvinced and continued to frustrate the merger through 1940 and into 1941.

So began a case of true SS industrial espionage. May transferred his German Home Design Society (an eingetragener Verein—nonprofit society) to the SS, which then founded a GmbH (limited corporation) of the same name with a high-profile storefront in Berlin's Potsdamer Straße. Meanwhile, May posed as a civilian entrepreneur and bid on the coveted Gerstel factory. In Brünn, he also purchased a 75 percent interest in another Jewish firm, D. Drucker AG. Several of his partners from Stuttgart simultaneously founded Deutsche Meisterwerk GmbH to subsume these industrial properties.[66] This gave all the dealings the façade of private entrepreneurship beyond the SS's direct involvement. Pohl quickly began

negotiations with industrial authorities in the Protektorat to subsume Deutsche Meisterwerk as a subsidiary. Because Deutsche Meisterwerk was nominally German owned and run by private citizens, the transfer remained hidden from Neurath's direct scrutiny. The closure of all transactions took place in 1941, and thus Pohl deftly manipulated modern organization—that is, a national corporate bureaucracy—to overcome the merely regional scope of the Protektorat's authority. The SS created a new affiliate, Deutsche Edelmöbel (German Noble Furniture), to consolidate all furniture manufacturing, and May entered as CEO of "wood working industries."[67] This poised the SS to furnish its Aryan settlements as a direct supplier.

As furniture design and manufacture came on line for the SS, May proudly reported among his personal contributions "comprehensive new application of modern, specialized machines."[68] He also helped organize exhibits of household interiors, with the assistance of an engineer from the Industrial Arts School of May's native Stuttgart, Diploma Engineer Hermann Gretsch. Gretsch criticized the tastelessness of past ages and the slavish imitation of foreign styles, especially those motivated by a mindless liberal capitalism: ". . . if we find so many houses so ugly today, it is because they were made in the period of beloved mammon!" He then suggested that German values and race had to be crafted into material artifacts: "Race, heritage, tradition, and lifestyle are important, but designers completely forgot them. They have forgotten that they must also satisfy cultural needs."[69] In this light, such men had no problem seeing racial supremacy—in whatever form—as "modern"; it resided in the standards of their industrial production.

Gretsch called his own style "Agrarian Objectivity," characterizing it as a "timeless" aesthetic located in an imagined epoch before capitalist spoliation. He consciously coined the term as a direct attack upon left-leaning artistic movements associated with "New Objectivity," whose consummate representative was the Bauhaus of Dessau. The Bauhaus had sought to create homes and living spaces as "machines for living" and made ostentatious use of modern, mass-produced materials such as steel, concrete, and glass. Its designers strove to strip away flourishes that did not serve practical, functional needs; this is perhaps best represented by Marcel Breuer's famous chair made of bent steel tubing and flat-black leather.[70]

To those who would define "modernism" by the international style of architecture and design promoted by the Bauhaus, Gretsch and the SS's

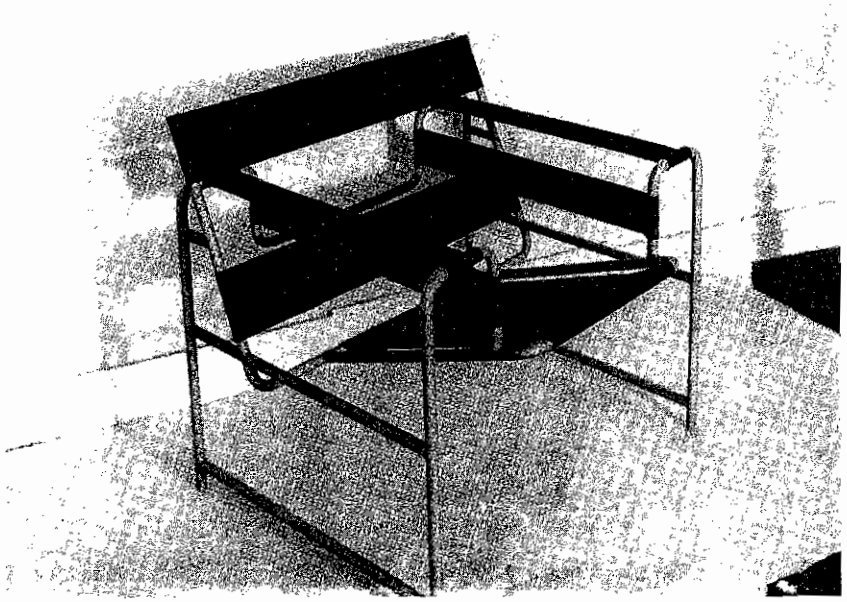

Figure 1
A Marcel Breuer chair. (Bauhaus Archives)

German Home Design undoubtedly seem "anti-modern." Were they not simply reactionaries who longed to turn back the clock to an imaginary past? (Gretsch acknowledged his own nostalgia for the epoch of Biedermeier.) Gretsch tried to derive racially pure "German" design from what he considered the eternal virtues of peasants, whose "life-style was more objective than the so-called New Objectivity." In contrast: "The Farmer took it for granted that everything he designed had to be practical as well as beautiful. He obeyed the eternal laws of nature."[71] In Gretsch's living spaces, the woman's place was unmistakably in the kitchen, preferably with many children, and Gretsch took care to place a baby carriage in the "parents' room." Scenes of peasant life hung on the walls of his displays.[72] Again, this would seem to confirm those who view the Nazis as hopelessly backward-thinking retrogrades. In a survey conducted in 1929, for instance, Erich Fromm claimed to have discovered an overweening preference for conventional aesthetics among Nazis, including wall pictures of

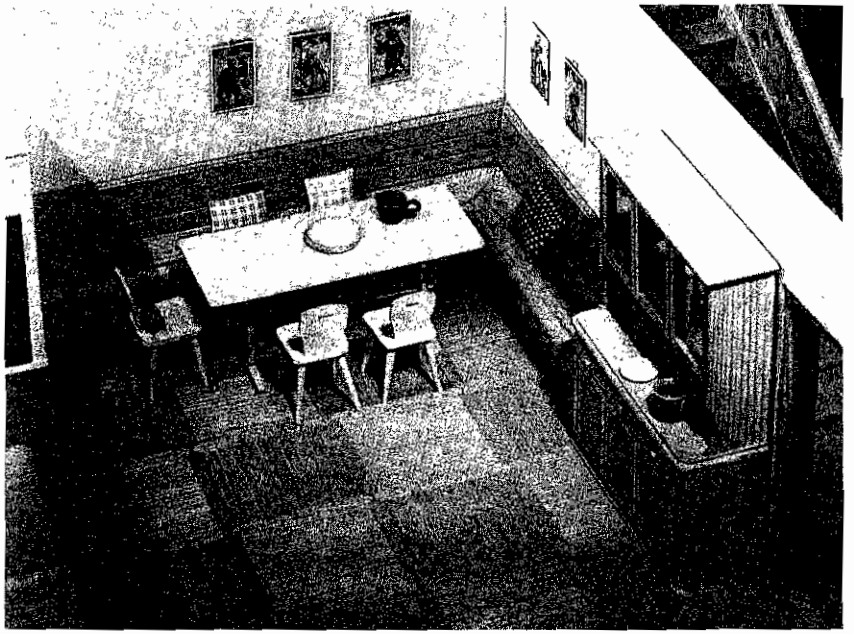

Figure 2
Sketch of a kitchen by Diploma Engineer Hermann Gretsch, from *Planung und Aufbau im Osten* (Deutsche Landbuchhandlung, 1941).

dictators and generals as opposed to progressive, original works of art.[73] Gretsch's taste could not have proved Fromm wrong.

On the other hand, as Mechtild Rössler and Sabina Schleiermacher aptly note: "The history of the modern is not only the history of international developments in philosophy, architecture, art, and aesthetics, is not only the Vienna Circle, the German Werkbund, and the Bauhaus . . . modern also means a new culture of technology and science."[74] In fact, when it came to technology and industry, Gretsch shared with Bauhaus design an impulse to plan domestic spaces as "machines for living." The SS's "German design" confirms Rössler and Schleiermacher no less than Fromm. Gretsch did not object to the New Objectivity's spirited idealization of technology; he simply found Bauhaus designs ugly, pretentious, degenerate, and "un-German." He too called upon the SS to hammer out norms for functional dwellings: "The useful is always the beautiful and lends simple, unified principles of form."[75] Furthermore, simple design aided mass production: "We

should not aim for short-term fashion 'hits'; we should aim for standardized designs that are universally viable. Only this will reduce the serial production expenses over long term production and thus make designer furniture profitable."[76]

Unlike the Bauhaus designers, however, Gretsch believed that traditional materials such as wood suited the "German spirit" better than tube steel. Kurt May, whose firms specialized in woodworking, intended to adapt modern production to the values advocated by Gretsch. Their efforts suggests that Nazi modernity had much less to do with fine distinctions of intellectual history than with technology, organization, and their fusion in production. As Frank Trommler has pointed out, the aesthetics of the Werkbund and the Bauhaus do not necessarily define modernity; rather, they often betray the attempts (which had failed by 1933) of high artists and architects to win the modernity debate—that is, to proclaim the aesthetic destiny supposedly immanent in the ascendant technology and organization of the twentieth century.[77]

Some may object (as do the critics of Aly and Heim) that the active imaginations of SS planners seldom amounted to much more than memoranda filed away in Himmler's desk drawer. And true enough, May's Deutsche Edelmöbel did not produce the New Order; it merely filled minor subcontracts for military suppliers during the war. But the preoccupation with Nazi industrial norms hardly began and ended with the SS. The *Journal of the Four Year Plan* repeatedly advocated the adoption of German mass-production standards, and authors of articles in that journal also did so in sectors more suited to fluctuating demand, flexible consumer response, and open-ended production practices (such as construction, machine-tool building firms, and textiles). Furniture design was, in fact, a case in point, for classic mass production has always proved a failure in this industry.[78] Here the SS pursued modern production *despite* its irrationality.

Nothing was more typical of this irrational modernization than the means the SS developed to murder the European Jews. Here too the regime sought to combine its fantasies of racial supremacy with modern technology. Contemporaries both outside and within Germany immediately recognized the nature of the SS genocide as "modern," and it was precisely the modernity of the technology that horrified them. The *New York Times* reported on November 26, 1944, that "a new modern crematorium and

gassing plant was inaugurated at Birkenau."[79] At Auschwitz the SS seems also to have bragged about the tightly coupled integration of gassing and cremation in one technological system—"the best ever done in this line," as an SS man instructed one prisoner.[80] An adjutant of one of the SS's highest-ranking generals wrote of his travels to Auschwitz: "The camp Auschwitz has a special task in the Jewish Question. Here the most modern means make it possible to carry out the order of the Führer [to exterminate the Jews] in the shortest period of time without a great deal of sensation."[81] He went on to describe in detail how the system operated, stressing the modern organization of steady-flow production. Outside Germany this seemed a new vision of hell; within the SS it often awakened awe and pride.

It is well known that most Jews perished by primitive means and that the crematoria at Auschwitz broke down repeatedly. What is less well known is that "modern" killing, and by this I mean an integrated system approximating mass production, started relatively late. The Nazi genocide had proceeded with large-scale gassings since the autumn and winter of 1941. By early 1942 the SS had erected several installations exclusively to kill victims with carbon monoxide exhaust. The concentration camps had built industrial-scale cremation ovens much earlier, in the late 1930s. Nevertheless, these early systems were hardly "modern." The Belzec death camp simply burned its victims in open pits, and Odilo Globocnik's[82] experiments with the prussic acid agent "Zyklon B" were amateurish. Rudolf Höss testified after the war that his assistant at Auschwitz had attempted to use Zyklon B as early as the autumn of 1941, on some Soviet prisoners of war. But the basement in which they had locked the prisoners was likely too cold to activate the gas pellets effectively.[83] After the decision to begin mass gassing on a larger scale at Auschwitz, the SS staff simply sealed the doors and windows of existing barracks with felt or paper strips. In another case, they used two old farmhouses confiscated from Poles, and a low-ranking SS man teetering on a ladder poured the poison througb openings knocked in the walls. These were the ad hoc experiments of psychopaths, scarcely the cool, calculating work of "technocrats" or a faceless, Behemoth-like bureaucratic machine.[84]

Christopher Browning begins *Ordinary Men*, his chronicle of one SS shooting squad, with the poignant observation that the Holocaust was a short, intense wave of mass murder. In the spring of 1942 the Nazis had

killed only about 20–25 percent of the Holocaust's victims, but by mid February of 1943 only 20–25 percent of their victims were still among the living.[85] Since the invasion of the Soviet Union in the summer of 1941, and through 1942, the SS's killing spree proceeded with tudimentary technological systems. The simple shooting of Jews beside mass graves continued in the East; in fact, it increased over the course of 1942 even as large-scale gas chambers came ou line.[86] In other words, a crude mixture of ad hoc technology and outright barbaric killing more than sufficed.

The only killing systems that one might truly describe as modern industrial factories were Crematoria II and III in Birkenau. Here the engineers and architects of the Central Building Directorate of Auschwitz planned undressing rooms and gas chambers in the basement and long banks of cremation ovens on the ground floor designed to run from central furnaces, thus achieving economy of scale. The layout of the buildings accommodated a steady flow of work. Special slave-labor commandos transported the corpses from the cellar to the cremation ovens on an electric lift, and the SS had even undertaken plans for semi-automated transport systems to deliver coal to the furnaces and to remove ashes from collecting bins.[87]

But the Central Building Directorate of Auschwitz designed these killing factories very slowly, over the late autumn and the winter of 1942. Crematorium II at Birkenau, the first, would not begin full operation until the spring of 1943. Jean-Claude Pressac notes that from April to October of 1943 the crematoria at Birkenau ran for only about 2 months at full capacity. In other words, the Auschwitz camp complex (of which Birkenau was a part) vastly overbuilt its killing machinery.[88] A graph recording transports to Auschwitz (figure 3) illustrates this quite well. This graph is based on the careful analysis of Franciszek Piper. Although the numbers of victims in transports to Auschwitz are not equal to those killed in the gas chambers (some prisoners were shunted into slave labor), it is nevertheless a good measure of activity in the killing camp. After March of 1943, killing continued on a large scale, but by Auschwitz's standards this period was a tather long lull. In the spring of 1944, Hungarian Jews started to arrive in staggering numbers (more than 430,000). At the end of 1942, however, Hungary, a German ally, still refused to release its Jews to the Nazi genocide. It is highly unlikely that the staff of Auschwitz was planning its capacity for this huge influx (represented by the spike ftom April to August of

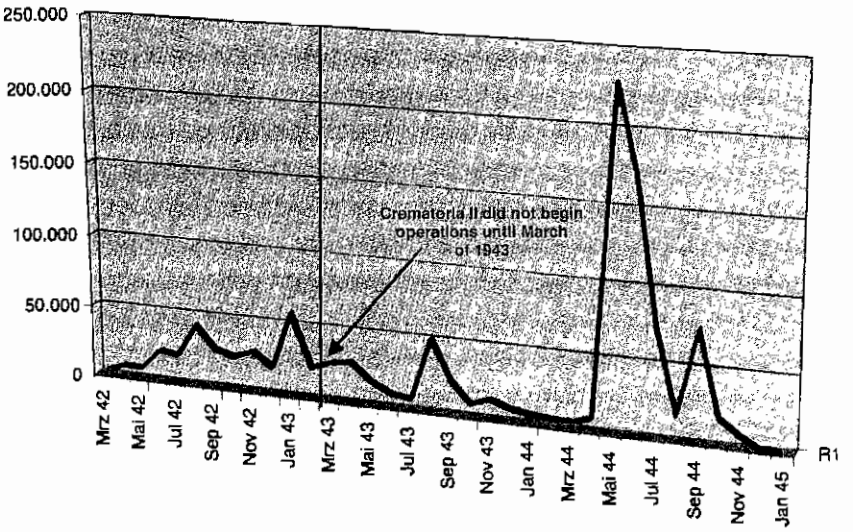

Figure 3
Graph of numbers of Jews transported to Auschwitz-Birkenau. (after F. Piper, *Die Zahl der Opfer von Auschwitz* (Oswiecim: State Archive Press, 1993)

1944) more than a year in advance. Thus, at the beginning of 1943, ironically, there never was a modern technology more lacking in justification as a means to an end.

This would seem to lend credence to the argument that the Holocaust represents the supreme danger inherent in modern industrial development, which has unleashed technological change without concern for the consequences to humanity. If the machinery of deatb at Auschwitz was not "technics out of control," what possibly could be?[89]

To answer this question, I would like to look more closely at how and why the idea of a Zyklon B gas chamber first entered Auschwitz. Rudolf Höss testified after the war in his famous confession that mass killings using gas began in the summer of 1941. We know this cannot be true, for the first experiments with Zyklon B began no earlier than September. Nevertheless, Höss's slip of memory is instructive. SS engineers did plan gas chambers for Zyklon B in early July of 1941, but they did so as part of an integrated and partially automated system for the fumigation of clothing. The chemical firm Degesch marketed machinery for this purpose, and at the beginning of July some advertising materials arrived at Auschwitz, including a copy of

a scholarly article by the company's chief executive officer, Dr. Gerhard Peters. Peters discussed the considerable progress made in the use of "blue acid" or "prussic acid." Both Degesch and the firm Tesch & Stabenow marketed this chemical under the label Zyklon B. At around this same time, Bruno Tesch, the owner of Tesch & Stabenow, started training courses in the operation of the Degesch gas chambers at Sachsenhausen and other SS garrisons. After the war, Gerhard Peters admitted in German courts to having discussed the possibility of killing men and women efficiently with the poison, and several office personnel of Tesch's firm testified that the SS had also asked him about the suitability of Zyklon B for killing large numbers of human beings.[90]

In July of 1941, however, murder was not yet the purpose. The modern technology that Degesch was pushing involved clothing-fumigation chambers, each 10 cubic meters in volume, with specially designed ventilation systems and automatic devices for introducing Zyklon B pellets. Peters's article, still preserved in the files of the construction directorate of Auschwitz, begins by discussing the "advances in this particular year that have contributed considerably to the modernization of the well-known [gassing] process."[91] The chambers could be built in series in a factory-like arrangement: "The operation is organized so that an undressing room [for prisoners] lies on one side of the chambers [the "impure" side]. During the delousing of the clothing, the ptisoners can bathe and submit to a general examination until they arrive at the other side [the "pure" side of the installation] where they receive their clothing in a dressing room."[92] The SS, Degesch, and Tesch & Stabenow conceived of these chambers as a means of managing prisoners as "human material" in a mass-production fashion.

Enthusiasm for such a "modern" system is unmistakable among the construction engineers and architects of Auschwitz. They had long planned a prisoner-reception building at Auschwitz, including a laundry and delousing station. The new SS chief of engineers who entered service in June of 1941, Hans Kammler, gave these buildings top priority. After the SS became aware of the Degesch system, however, the Central Building Directorate rushed to modify them. This happened as early as July 14, little more than a fortnight after Dr. Peter's advertising materials were received. "Without overall planning there can be no economic and timely installation of technically modern equipment," wrote one SS engineer in an attempt to spur Auschwitz's subcontractors to more concerted action on the project, and in the SS's eyes what counted as "modern" about the new Zyklon B reception building was its approximation of mass production.[93] As early as September of 1941, a report mentioned that blueprints had been drawn up so that "the floor plan is so organized in order to make possible an assembly-line operation [Fließbetrieb] such that the flow of work is never interrupted."[94]

This initial enthusiasm was not confined to Auschwitz. The leadership of the SS's corps of civil engineers in Berlin insisted that "the final means of all delousing installations . . . be geared toward the process with blue acid."[95] The SS believed it had found the "one best way" to handle sanitary conditions and insisted upon the Degesch's factory-style chambers, a new invention, as the standard for all concentration camps. This decision is peculiar, for these very gas chambers had already failed by the spring of 1942. The SS architect Fritz Ertl marked exclamation points in the margins of the above-mentioned letter from Berlin, as if to express his exasperation with the lack of comprehension of the real problems with delousing. Regional authorities were putting the camp's administration under pressure and complaining that civilian workers were catching diseases when they worked in proximity to Auschwitz. Epidemics were common there, as they were at other concentration camps, owing to the atrocious shortages of shelter, sanitation, food, and potable water. In fact, SS men had also reported sick with spotted fever. By December of 1942, the chief physician of Auschwitz, Eduard Wirths, had had to borrow mobile autoclaves from SS doctors in Kattowitz, and he reported that "the Cyklon-B fumigation has been completely abandoned, for it has been shown that the success of this process is not 100% certain."[96] The prussic acid only suhlimated at relatively warm temperatures—hardly an "efficient" poison in the cold Polish winter. The reception building, constructed according to principles of an "assembly line," a huilding that had once been projected by Auschwitz chief of engineers to cost 2.7 million Reichsmarks, proved a waste of time and money.

We might therefore return now to the questions posed above: Does the technology of Auschwitz represent the greatest nightmare in which the dreams of reason have begotten monsters? Was the mechanized genocide "less an eruption of the irrational than an extreme form of technocratic reason?"[97]

First of all, the SS was scarcely indulging an unbridled enthusiasm for Enlightenment rationality when it chose to make a fetish of "assembly lines," the latest chemical novelties, and complex automated gadgetry. Zyklon B was a rather unusual choice. Chemical fumigants were a new technical product that had found their first widespread use after World War I. As such, they counted as modern, something Dr. Peters of Degesch labored to point out in his article. Paul Weindling has noted, however, that other chemical fumigants at this time were much more effective and much easier to handle. German authorities and German industry—not just the SS—had adopted fumigation with prussic acid at a time when others were adopting DDT. The dangers of DDT are well known, but it is hard to imagine its use in homicidal gas chambers. In contrast, as early as 1915 plaintiffs had brought suits before the German courts because the highly potent toxins in Zyklon B had led to wrongful death.[98] What could have been the attraction of Zyklon B? Weindling notes that it had heen invented in Germany and thus seemed to represent the "inventive spirit" of that nation. In the case of the Degesch fumigation chambers, German firms had also developed delivery systems to approximate the methods of mass production.

The reason for the adoption of the Degesch-style chambers at Auschwitz thus seems to have been unbridled enthusiasm, not for technology generically, and far less for "reason," but for *modern* technology. The SS engineers' calculations leapt the bounds of mere "instrumental rationality" such that modern technology began to be an end it itself. We should not be surprised, therefore, to find tbat the search for "high-tech" solutions to epidemics continued at Auschwitz even after the massive failed investment in the Degesch chambers. Wirths soon reported that he was experimenting with radio waves to sterilize clothing. Needless to say, this too proved a dismal failure.[99] The most rational solution to the epidemics of Auschwitz, of course, would have been to halt the never-ceasing transport of new prisoners. The SS failed to do that because killing the Jews was a central focus of Nazi racial supremacy, not because of some dialectic of the Enlightenment.

A similar history of irrational enthusiasm for mass production accompanied the modern "factory of extermination" typified by Crematoria II and III at Birkenau, for which the Degesch chambers served as predecessor and model. Here the SS clearly intended to approximate principles of mass

production with the continuous flow of "human material." SS architects and engineers designed these two buildings to facilitate forcing prisoners into the gas chambers at one end, transporting their corpses to the crematoria, and burning their bodies in a steady-flow progression. Nevertheless, the system constantly broke down, not unlike the Zyklon-B fumigation chambers. Because the SS insisted on cramming the cremation ovens with too many bodies (four at a time, sometimes more), they burned too hot and the firebrick soon caved in.[100] In the summer of 1944, when the Hungarian Jews started to arrive at Auschwitz in large transports, the SS reverted to ad hoc gas chambers in the storage rooms of Crematoria IV and V, where Zyklon B was simply shaken in through small windows in the side of the building. Here the SS engineers and architects never designed a steady-flow, linear progression of genocide into the building's layout. The SS also began once more to burn bodies in open pits instead of in the "modern crematoria," which were then largely defunct.[101] Thus Auschwitz ended its orgy of murder where it began: with psychopathic improvisation. The personnel who conceived and carried out these operations were not in thrall to the monsters of reason; they were simply monsters.

Conclusion

The barbarous utopia of the SS, which it tried to huild into an "assembly line" for murder, was wholly in keeping with what I have termed *productivism*. That is, the National Socialist movement in general identified modernity with technology as the means of forming national identity in production. If social engineering was part of this, so too was the irrational belief that German national identity resided in a destiny tied to modern machines. Regarding the gas chambers and crematoria of Auschwitz, the leader of one mobile SS killing squad, Erich von dem Bach Zelewski, reportedly commented that the machinery of Auschwitz was "something the Russians could not accomplish: it reflected the German gift."[102] What better example of Hitler's productivism might we find: the Nazis consciously adopted a modern technological system in order to purge Europe of its Jews and thus sought to manufacture a racial empire in their own image? Productivism urged Hitler's true believers to seek the wellsprings of national identity and homogenous community in modern production, and this is

exactly what killing the Jews of Europe was supposed to do: prepare a clean slate so that the National Socialists could manufacture their New Order, a utopia of Nazi values.

Degesch's factory-style Zyklon B chambers were the immediate predecessor and model for Crematoria I and II at Birkenau. That SS men after the war confused them often enough with the killing chambers is further evidence of this.[103] Allow me to repeat, however, that I am not arguing that modern technology "caused" the Holocaust or that anti-Semitism played no role; in fact, anti-Semites were among the most energetic advocates of modern technology in the Third Reich. But I do argue that modernity determined the unique means of the "Final Solution" at Auschwitz. In this sense the "postmoderns" have been right all along. But it is wrong to see this as the necessary teleology of Enlightenment rationality. The crassest irrationality and modernization have never contradicted each other, least of all in the minds of anti-Semites.

The history of technology reveals that a belief that the machine would "change the world" was central to Nazi modernity, but more than this a specific kind of technological system—the hierarchically governed, centralized, mass-production factory new to the early twentieth century. Wedded to Nazi productivism, the legitimate purpose of the state became the promotion of industrial growth as a symbol of national strength and unified identity rather than the wealth, peace, and freedom of citizens. National Socialism emphasized existential feeling—feelings like Rausch—through an inevitable fulfillment of destiny by modern technological means.

Hans Mommsen asks: "Does one earnestly wish to make the fascistic understanding of politics into the foundation of a present day 'modern' society?" One might answer with another question: What about the modernity of this morbid history could possibly bind us to do so? To reject the modernity of the Holocaust, however, one must reject the common assumption of Mommsen and many others that modernity is destiny. The SS's vision of modernity was partial, and cannot be taken as an overarching definition of *the* modern world. A multitude of values and attitudes have accompanied the rise of an industrial, scientific, and technological society, and the Nazis were undeniably selective. Yet still less did Nazi modernity conform to the many claims made in its name by postwar historiography, and a selective approach to "modernity" hardly distinguished National

Socialism. Rather, it seems a central element of the entire "modernity" debate. Fritz Stern, George Mosse, and Ralf Dahrendorf have all associated liberal democracy with "modernization." However much one sympathizes with their political goals rather than with Hitler's, this characterization of hisrory is hardly less arbitrary. It is the Nazis' participation in the debate, the effort to present their dogma as historical destiny, that made them "modern."

We should beware of the moral paralysis that dehates over modernity induce precisely because they render discussion of substantive principles impossible in the name of an "inevitable" or "inexorable" logic of industrial development. This paralysis was already evident at the time of Hitler's rise to power. Lyndall Urwick, Director of Geneva's International Management Institute, warned in 1933: "A machine technology points to the obvious economies of large-scale units of business control: amalgamations founder because there is widespread ignorance as to the methods of managing these aggregations." The new technics of the twentieth century in communication, production, and distribution seemed to outstrip civil institutions in the 1920s and the 1930s, and Urwick made his own passionate plea for the world's democracies to adapt more efficiently: "In country after country liberty of speech and of person are lost, because democratic institutions fail to devise an administrative structure adapted ro the speed and complexity of social evolution."[104] In the same year, the Chicago Century of Progress exposition featured an Art Deco statue with the inscription "Science Finds—Industry Applies—Man Conforms."

In such a light, the ability to force the pace of modern organization and technology could too easily displace inquiry into the first principles of citizenship, the state, and political economy, which should define social change. Fascists would condemn democracy directly for institutionalizing an old-fashioned "cultural lag" behind the dynamic changes of technology and organization. Although Urwick deplored the Nazis, he believed as they did that "modernization" itself was inevitable. Once Hitler could pose as a master of technological success, even staunch resisters began to see him as the inevitable product of historical destiny. In the mid 1930s, when National Socialism achieved real economic growth, visions of modernity offered slim recourse ro anyone who still wished to condemn the regime.

Notes

1. Francis Fukuyama, *The End of History and the Last Man* (Free Press, 1992), pp. 128–130.

2. Richard Rorty, *Truth and Progress* (Cambridge University Press, 1998), pp. 323–326. Here Nazism is condemned (as is Jürgen Habermas, ironically) for daring to posit universal theories of social justice. Rorty also attributes the poverty of metaphysics to the Enlightenment (pp. 317, 321), and argues that, rather than first principles, "utility" should be the standard of just government. For Jean-François Lyotard, as for Rorty, "Auschwitz" is the ultimate "differend," the hole in our understanding that gives the lie to any absolute statements of truth and ultimately to the Enlightenment itself. See Lyotard, *The Differend* (University of Minnesota Press, 1988), pp. 43, 56–57, and 89–110.

3. M. Stanton Evans, *The Theme Is Freedom* (Regnery, 1994), pp. 15, 52. Evans's argument is, in fact, the same as Rorty's: the Holocaust and fascism demonstrate the evil of metaphysical theories of first principles, especially those of the Enlightenment. Evans merely has a much different answer to this problem.

4. Reinhart Koselleck, *Futures Past* (MIT Press, 1985), p. xxiv.

5. Note the enthusiasm for information technology among many so-called postmoderns. See Jean-François Lyotard, *The Postmodern Condition* (University of Minnesota Press, 1979), pp. xxiv–xxv. For an example of technology and the Holocaust in the "Culture Wars," see p. 6 of Fukuyama, *The End of History*. See also the central themes of John Ralston Saul's *Voltaire's Bastards* (Vintage Books, 1993).

6. Omer Bartov, *Murder in Our Midst* (Oxford University Press, 1996), esp. pp. 1–11; Sven Lindquist, *"Exterminate All the Brutes"* (New Press, 1992).

7. For an array of positions in the "uniqueness" debate, see Alan Rosenbaum, *Is the Holocaust Unique?* (Westview, 1996). On technology's role in this uniqueness, see Christopher Browning, "Barbarous Utopia: The Terrible Uniqueness of the Nazi State," *Times Literary Supplement*, March 20, 1992, p. 5.

8. Hermann Göring, "Verantwortliche Wirtschaftsführung," *Der Vierjahresplan* 1 (1937), p. 66.

9. Wirtschaftsminister Walther Funk, "Die wirtschaftspolitische Aufgabe," *Der Vierjahresplan* 2 (1938), p. 140.

10. Staatssekretär Paul Körner, "Leistung des ganzen Volkes," *Der Vierjahresplan* 3 (1939), p. 4.

11. See "Der Frontarbeiter," *Der Vierjahresplan* 4 (1940), pp. 366–369. The Frontarbeiter were militarized work crews not unlike the American "Seabees."

12. Jakob Werlin, "Der wirtschaftliche und soziale Sinn des Volkswagens," *Der Vierjahresplan* 2 (1938), pp. 472–473. Werlin visited Henry Ford in the United States in 1938 and secured the aging industrialist's blessing on the Volkswagen.

13. Hans Mommsen, "Noch einmal: Nationalsozialismus und Modernisierung," *Geschichte und Gesellschaft* 21 (1995), p. 401. See also Dominick La Capra, *History and Memory after Auschwitz* (Cornell University Press, 1998), pp. 3, 30ff.; Saul Friedländer, "The Final Solution: On the Unease in Historical Interpretation," in *Lessons and Legacies*, ed. P. Hayes (Northwestern University Press, 1991); "Introduction," in Gerald Fleming, *Hitler und die Endlösung* (Ullstein, 1987); Thomas Saunders, "Nazism and Social Revolution," in *Modern Germany Reconsidered 1870–1945*, ed. G. Martel (Routledge, 1992), p. 166.

14. See Horst Matzerath and Heinrich Volkmann, "Modernisierungstheorie und Nationalsozialismus," in *Theorien in der Praxis des Historikers*, ed. J. Kocka (Vandenhoeck & Ruprecht, 1977).

15. Falk Pingel, *Häftlinge unter SS-Herrschaft. Widerstand, Selbsthehauptung und Vernichtung im Konzentrationslager* (Hoffmann und Campe, 1978), p. 62.

16. Friedländer, "The Final Solution."

17. PS-1919, Himmler's Speech in Posen, 4/11/1943. See also La Capra, *History and Memory after Auschwitz*, pp. 25–42.

18. John Kasson, *Civilizing the Machine* (Grossman, 1976), esp. pp. 137–180; Leo Marx, *The Machine in the Garden* (Oxford University Press, 1964); David Nye, *American Technological Sublime* (MIT Press, 1994); Paul Florman, *The Existential Pleasures of Engineering* (St. Martin's Griffen, 1996).

19. Modris Eksteins, *Rites of Spring* (Anchor Books, 1989), p. 322. Eksteins (ibid., pp. 320–321) focuses on the technological means of the Holocaust as its quintessential modernity.

20. David Noble, *The Religion of Technology* (Knopf, 1997), p. 22.

21. Gustavo Corni and Horst Gies, *Brot, Butter, Kanonen* (Akademie Verlag, 1997).

22. Dr. Böhmkamp, i.A., Hauptabteilung E1, 24/2/38, "Zeitschriften-Vorgutachten 'Natur und Kultur'," Bundesarchiv Lichtefelde, R16/1272.

23. For notable exceptions, see the following: Robert van Pelt and Debórah Dwork, *Auschwitz 1270 to the Present* (Norton, 1996); Jean-Claude Pressac, *Auschwitz* (Beate Klarsfeld Foundation, 1989) and *Die Krematorien von Auschwitz* (Piper, 1993).

24. Thomas Nipperdey, "Probleme der Modernisierung in Deutschland," in *Nachdenken über die deutsche Geschichte* (Beck, 1986); Henry A. Turner, "Fascism and Modernization," in *Reappraisals of Fascism*, ed. H. Turner (New Viewpoints, 1975).

25. Mommsen, "Noch einmal."

26. Gerald Feldman, "The Weimar Republic: A Problem of Modernization?" *Archiv für Sozialgeschichte* 26 (1986), p. 1. Norbert Frei ("Wie Modern war der Nationalsozialismus?" *Geschichte und Gesellschaft* 19, 1993: 367–387) also speaks of this debate as one shrouded in fog.

27. Ian Kershaw, *The Nazi Dictatorship* (Edward Arnold, 1989), p. 418 and "Ideologe und Propagandist. Hitler im Lichte seiner Reden, Schriften und Anordnungen," *Vierteljahrshefte für Zeitgeschichte* 40 (1992): 263–271. See also Mark Walket, "Naturwissenschaftler, Techniker und der Nationalsozialismus" in *Ich diente nur der Technik*, ed. A. Gottwaldt (Nicolaische Verlagsbuchhandlung, 1995). On the organizational dimensions of modernity in industry, see Alfred Chandler, *The Visible Hand* (Harvard University Press, 1977), pp. 393–592; Chandler, *Strategy and Structure* (MIT Press, 1969); Jürgen Kocka, "Scale and Scope: A Review Colloquium," *Business History Review* 64 (1990): 711–716.

28. Mary Nolan, *Visions of Modernity* (Oxfotd University Press, 1994).

29. Ernst Jünger, *Der Arbeiter*, in *Werke*, Band 6: Essays II (Klett, 1964), p. 318. On Jünger, see Jeffry Herf, *Reactionary Modernism* (Cainbridge University Press, 1984), pp. 70–108.

30. George Mosse, on p. vii of the 1981 edition of his book *The Crisis of German Ideology* (Schocken), withdrew his claim that Nazism was strictly an anti-modern movement, stating that "the Nazis made use of the most up-to-date technology in all fields."

31. For one of the earliest developments of this idea, see Talcott Parsons, "Some Sociological Aspects of the Fascist Movements," in Parsons, *Essays in Sociological Theory* (Free Press, 1954). See also Thomas Childers, *The Nazi Voter* (University of North Carolina Press, 1983); William Brustein, *The Logic of Evil* (Yale University Press, 1996).

32. Timothy Mason, "Zur Entstehung des Gesetzes zur Ordnung der nationalen Arbeit, vom 20. Januar 1934: Ein Versuch über das Verhältnis 'archaischer' und 'moderner' Momente in der neuesten deutschen Geschichte," in *Industrielles System und politische Entwicklung in der Weimarer Republik*, ed. H. Mommsen et al. (Droste, 1974), p. 324.

33. See Henry Ashby Turner, "Fascism and Modernization," in *Reappraisals of Fascism*, ed. Turner (Franklin Watts, 1975). Turner claimed that anti-modern ideology fired the imagination of Adolf Hitler, in whose eyes "modern industrial society was wholly and unavoidably incompatible with what they held to be the only true wellspring of social life: the folk culture" (ibid., p. 119).

34. Ralf Dahrendorf, *Society and Democracy in Germany* (Norton, 1979), p. 383.

35. David Schoenbaum, *Hitler's Social Revolution* (Norton, 1980); Jens Alber, "Nationalsozialismus und Modernisierung," *Kölner Zeitschrift für Soziologie und Sozialpsycologie* 41 (1989): 346–365; Dietmar Petzina, "Soziale Lage der deutschen Arbeiter und Probleme des Arbeitseinsatzes während des Zweiten Weltkriegs," in *Zweiter Weltkrieg und sozialer Wandel*, ed. W. Dlugoborski (Vandenhoeck & Ruprecht, 1981); Rüdiger Hachtmann, *Industrie Arbeit im Dritten Reich* (Vandenhoeck & Ruprecht, 1989), esp. pp. 54–89; Albrecht Ritschl, "Die NS-Wirtschaftsideologie—Modernisierungsprogramm oder teaktionäre Utopie?" in *Nationalsozialismus und Modernisierung*, ed. R. Zitelmann and M. Prinz (Wissenschaftliche Buchgesellschaft, 1991).

36. Hans Mommsen, "Nationalsozialismus als vorgetäuschte Modernisierung," in *Der Nationalsozialismus und die deutsche Gesellschaft* (Rowolt, 1991).

37. Wolfgang Sauer, "National Socialism: Totalitarianism or Fascism," in *Reappraisals of Fascism*, ed. H. Turner (Franklin Watts Inc., 1975), p. 275. See also Detlev Peukert, "Alltag und Barbarei. Zur Normalität des Dritten Reiches," in *Ist der Nationalsozialismus Geschichte?* ed. D. Diner (Fischer, 1987), p. 52;

38. Nipperdey, "Probleme der Modernisierung," pp. 44–59.

39. Jeffrey Herf, *Reactionary Modernism*. Herf is doubly exceptional in that he acknowledges both the Nazis' technological enthusiasm (usually avoided by self-confessing moderns) and their ferocious anti-Enlightenment bile (usually avoided by the postmoderns). Yet conflation of the Enlightenment with scientific and technological "reason" endures in his analysis, so much so that he is forced to postulate a "crisis of German ideology." German engineers supposedly had to overcome the contradiction between rejecting Enlightenment humanism and embracing modern iudustry, which they did through thinkers who spun a spiritual cult of romanticism around machines. Compare Ken Alder, *Engineering the Revolution* (Princeton University Press, 1997). Alder suggests that engineers at the time of the Enlightenment were more concerned with control than with Enlightened freedoms.

40. Götz Aly and Susanne Heim, "Die Ökonomie der Endlösung: Menchenvernichtung und wirtschaftliche Neuordnung," *Beiträge zur nationalsozialistischen Gesundheits- und Sozialpolitik* 5 (1987): 11–90; Götz Aly and Susanne Heim, *Vordenker der Vernichtung* (Fischer, 1993); Zygmunt Bauman, *Modenity and Ambivalence* (Cornell University Press, 1991); Zygmunt Bauman, *Modernity and the Holocaust* (Cornell University Press, 1989); Detlev Peukert, "The Genesis of the 'Final Solution' from the Spirit of Science," in *Reevaluating the Third Reich*, ed. T. Childers and J. Caplan (Holmes &Meier, 1993); Detlev Peukert, *Inside Nazi Germany* (Yale University Press, 1987); Ronald Smelser, "How 'Modern' were the Nazis? DAF Social Planning and the Modernization Question," *German Studies Review* 12 (1989); Robert Ley, *Hitler's Labor Front Leader* (Berg, 1988).

41. Detlev Peukert, "Alltag und Barbarei," pp. 51–61. See also Rainer Zitelmann, "Die totalitäre Seite der Moderne," in *Nationalzozialimus und Modernisierung*, ed. R. Zitelmann et al. (Wissenschaftliche Buchgesellschaft, 1991); Geoff Eley, "Die deutsche Geschichte und die Widersprüche der Moderne. Das Beispiel des Kaiserreichs," in *Zivilisation und Barbarei*, ed. F. Bajohr et al. (Hans Christians Verlag, 1991).

42. Norbert Frei ("Wie Modern war der Nationalsozialismus?" p. 385) claims that Hitler viewed modern technology "partly with skepticism." As evidence he cites, with implied criticism, Rainet Zitelmann, whose biography of Hitler nevertheless contains much contrary evidence drawn from private speeches and other sources.

43. Bauman, *Modernity and the Holocaust*, p. 77. See Ann Taylor Allen's, David Lindenfeld's, and Alan Beyerchen's contributions to "The Holocaust and Modernity," a special issue of *Central European History* (volume 30, 1997). See also Geoff Eley, "German History and the Contradictions of Modernity: The

Bourgeoisie, the State, and the Mastery of Reform," in *Society, Culture, and the State in Germany, 1870–1930*, ed. G. Eley (University of Michigan Press, 1996).

44. Bauman, *Modernity and the Holocaust*, p. 68.

45. Peukert, "The Genesis of the 'Final Solution,'" pp. 234–252.

46. Alan Beyerchen, "Rational Means and Irrational Ends: Thoughts on the Technology of Racism in the Third Reich," *Central European History* 30 (1997), p. 390.

47. Wilhelm Ziegler (Riechsministerium für Volksaufklärung und Propaganda), "Zusammentarbeit von Technik, Wissenschaft und Kunst," *Der Vierjahresplan* 2 (1938), p. 584.

48. Peter Wagner ("Sociological Reflections: The Technology Question during the First Crisis of Modetnity," in *The Intellectual Appropriation of Technology*, ed. M. Hård and A. Jamison, MIT Press, 1998) notes the similar impetus to direct the dynamism of the industrial revolution in the Swedish "Folks Home" movement, in German National Socialism, in Stalinism, in the New Deal, and in Italian Fascism.

49. Zitelmann, "Die totalitäre Seite der Moderne."

50. Gottfried Feder, *Das Programm der NSDAP und seine weltanschaulichen Grundgedanken* (Eher, 1932), pp. 46–47.

51. Thomas Parke Hughes, *Networks of Power* (Johns Hopkins University Press, 1983), p. 6; "Modern and Post-Modern Engineering," *Sternwarte-Buch* 1 (1998): 256–275.

52. Zitelmann, *Hitler*, p. 357.

53. Nolan, *Visions of Modernity*; Richard Overy, "'Blitzkriegswittschaft'? Finanzpolitik, Lebensstandard und Arbeitseinsatz in deutschland 1939–42," *Vierteljahreshefte für Zeitgeschichte* 36 (1988): 370–435; Overy, "Mobilization for Total War in Germany 1939–1941," *English Historical Review* 88 (1988): 613–639; Overy, *The Nazi Economic Recovery 1932–1938* (Cambridge University Press, 1982).

54. Otto Dietrich, Riechspressechef der NSDAP, "Der Führer und der deutsche Arbeiter," *Der Vierjahresplan* 1 (1937), p. 214.

55. Erich Gritzbach, "Nationale Kraft durch neue Lebensgestaltung," *Der Vierjahresplan* 1 (1937), p. 345. See also Wilhelm Zangen, "Dienst an der Nation. Ein Rückblick über zehn Jahre nationalsozialistischer Industriearbeit," *Der Vierjahresplan* 7 (1943), p. 4.

56. "P.," "Von künftiger deutscher Wirtschaftsgestaltnng," *Der Vierjahresplan* 4 (1940), p. 805.

57. Götz Aly, *'Endlösung'* (Fischer, 1995). See also Christopher Browning, "Vernichtung und Arbeit. Zur Fraktionierung der planenden deutschen Intelligenz im besetzten Polen," in *'Vernichtungspolitik'*, ed. W. Schneider and U. Herbert (Junius, 1991); Ulrich Herbert, "Rassismus und rationales Kalkül. Zum Stellenwert utilitaristisch verbrämter Legitimationsstrategien in der nationalsozialistischen 'Weltanschauung'," in ibid.; Michael Burleigh, *Death and Deliverance* (Cambridge University Press, 1994), pp. 98–99; Frei, "Wie Modern war der Nationalsozialismus," pp. 371–374; Avraham Barkai, *From Boycott to Annihilation* (University Press of New England, 1989), p. 114; Peter Hayes, "Big Business and Aryanization in Germany, 1933–1939," *Jahrbuch für Antisemitismusforschung* 3 (1994): 254–281. The tendency to identify Jews as a threat to a "modern" industrial economy was something that German authorities shated with the French. See Wolfgang Seihel, "Holocaust und wirtschaftliche Verfolgungsmaßnahmen—Anlaß zur Nenbewertung der Strukturalismus/Intentionalismus-Debatte? Das Beispeil Frankreich, 1940–1942," delivered at Arbeitskreis Unternehmen im Nationalsozialismus der Gesellschaft für Unternehmensgeschichte, Frankfurt am Main-Höchst, January 14, 2000.

58. Hauptabteilung Planung und Boden, Stabshauptamt des RKF, *Planung und Aufbau im Osten* (Deutsche Landbuchbandlung, 1941), p. 11.

59. NO-1043, Leo Volk, undated, "Generaltreuhaenders fuer Baustofferzeugungsstaetten im Ostraum im Jahre 1940."

60. I thank Jan-Eirk Schulte for this biographical information, which he received from the Kultnramt of the Landeshauptstadt Stuttgart aud the Westdeutsche Wirtschaftschronik.

61. Affidavit of Kurt Brnne, Defense Document Books of Hans Hohberg. Karl Bestle; Karl Neimann, 30/6/43; Kurt May, 23/6/41, "Jahresrechnung des Vorstandes der Drucker AG, Dampfsägewerke und Holzwarenfabriken in Brünn zur Jahresrechnung 1940"; undated, unsigned, "Technische Grundlagen" and op. cit. "Protokoll der Aufsichtsratssitzung 1943," US National Archives microfilm T-976/22. Compare Hounshell on Gunnison homes: David Hounshell, *From the American System to Mass Production* (Johns Hopkins University Press, 1984), pp. 145–146, 310–314.

62. Affidavit of Kurt Brune, Defense Docnment Books of Hans Hohberg, International Military Tribunal, Case IV vs. Pohl et al.

63. Eno Georg, *Die wirtschaftlichen Unternehmungen der SS* (Deutsche Verlags-Anstalt, 1963), pp. 77–79.

65. Shiela Duff, *A German Protectorate* (Frank Cass, 1970), pp. 98–102.

65. Alfons Leitl, "Professor Hermann Gretsch/Eine Ausstellung seiner Arbeiten," *Die Bauwelt* 32 (Heft 26, 1941), p. 4.

66. Georg, *Die wirtschaftlichen Unternehmungen*, p. 81; Dr. Höring, Report of 16/11/41, T-976/22. Later Pohl acquired up to 94% of Drucker's stock.

67. Ibid., p. 80. The DWB recapitalizing Deutsche Meisterwerk with over 800,000 RM. Volk to Pohl, 1/9/41, "Umorganisation der Ämter," T-976/35. The chief of the SS Reich Security Head Office, Reinhard Heydrich, replaced Neurath as Protektor on Sept. 27, 1941. Heydrich opposed other SS bids for corporations, such as mineral-water companies, for motives that are not clear, but he did not oppose this furniture deal.

68. Kurt May, 23/6/41, "Jahresrechnung des Vorstandes der Drucker AG, Dampfsägewerke und Holzwarenfabriken in Brünn zur Jahresrechnung 1940, T-976/22.

69. Dipl. Ing. Hermann Gretsch, "Zeitgemäßes Wohnen," *Die Bauzeitung* 38 (1941), p. 425.

70. See Frank Trommler, "Von Bauhausstuhl zur Kulturpolitik. Die Auseinandersetzung um die moderne Produktkultur," in *Kultur*, ed. H. Brackert et al. (Suhrkamp, 1990).

71. Herman Gretsch, "Vom richtigen Wohnen," 37 (1940), p. 426.

72. Gretsch, "Zeitgemäßes Wohnen," p. 430.

73. Erich Fromm, *Arbeiter und Angestellte am Vorabend des Dritten Reiches* (Deutsche Verlags-Anstalt, 1980), pp. 142–150. Fromm's statistical samples of NSDAP party members were so small as to render his data unrepresentative. He also noted, curiously, an overrepresentation of Nazis among admirers of Neue Sachlichkeit.

74. Mechtild Rössler and Sabine Schleiermacher, "Der Generalplan Ost und die Modernität der Großraumordnung. Eine Einführung," in *Der 'Generalplan Ost'*, ed. M. Rössler and S. Schleiermacher (Akademie Verlag, 1993), p. 10.

75. Alfons Leitl, "Professor Hermann Gretsch," p. 4.

76. Gretsch, "Die Stellung des Entwerfers in der Wirtschaft," *Bauen, Siedeln, Wohnen* 19 (1939), p. 751

77. Frank Trommler, "The Avant-Garde and Technology: Toward Technological Fundamentalism in Turn-of-the-Century Europe," *Science in Context* 8 (1995): 397–416 and "The Creation of a Culture of Sachlichkeit," in Geoff Eley, *Society, Culture, and the State in Germany, 1870–1930* (University of Michigan Press, 1996), pp. 465–485. Jennifer Jenkins, "The Kitsch Collections and *The Spirit in the Furniture*. Cultural Reform and National Culture in Germany," *Social History* 21 (1996): 123–141.

78. On construction: Fritz Todt, "Regelung der Bauwirtschaft," *Der Vierjahresplan* 3 (1939): 762–764. Eugen Vögler, "Durch Betriebsrationalisierung zur Leistungssteigerung in der Bauwirtschaft," *Der Vierjahresplan* 3 (1939): 765–769. J. Jb., "Rationalisierung im Wohnungsbau," *Der Vierjahresplan* 4 (1940): 1042–1044. On craft industries: Josef Free, "Wandlung der Maschinentechnik durch die neuen Werkstoffe," *Der Vierjahresplan* 2 (1938): 530–537. Ferdinand Schramm, "Neue Ausrichtung des Handwerks," *Der Vierjahresplan* 3 (1939): 461–463. Annonymous, "Die Betriebsgrößen in kriegswirtschaftlicher Beurteilung," *Der Vierjahresplan* 4 (1940): 103–104. Heinrich Krumm, "Wert und Aufgabe der Konsumgüterindustrie im Kriege," *Der Vierjahresplan* 5 (1941): 518–521.

79. The report, by Alfred Wetzler, Walter Rosenberg, Czeslaw Mordowicz, and Arost Rosin of the Polish resistance, was published by the American War Refugee Board, Washington D.C., 1944. It has been reprinted in English and in its French versions by Jean-Claude Pressac, *Auschwitz*, p. 461. See also the similar reaction to the "largest and most efficient technical installations for the extermination of people" in *Law Reports of Trials of War Criminals* (United Nations War Crimes Commission, 1948), p. 12.

80. Memoirs of Dr. Paul Bendel, reprinted and translated from the French *Temoignages sur Auschwitz* (Amicale des Dports d'Auschwitz, 1946) in Pressac, *Auschwitz*, p. 469. Bendel worked with the Sonderkommandos.

81. Alfred Franke-Gricksch, undated report, "Umsiedlungs-Aktion der Juden," reprinted in Ptessac, *Auschwitz*, p. 238.

82. Globocnik was the organizer of the Belzek, Sobibor, and Treblinka death camps.

83. Rudolf Höss, "Meine Psyche, Werden, Leben, u. Erleben," autobiography, Institut füt Zeitgeschichte (IfZ) 13/4, p. 86. Franciszek Piper, "Estimating the Number of Deportees to and Victims of the Auschwitz-Birkenau Camp," *Yad Vashem Studies* 21 (1991), p. 87.

84. Pressac, *Auschwitz*, pp. 132, 184.

85. Christopher Browning, *Ordinary Men* (Harper Collins, 1992), p. xv.

86. See Dieter Pohl, *Nationalsozialistische Judenverfolgung in Ostgalizien 1941–1944. Organisation und Durchfühung eines staatlichen Massenverbrechens* (Oldenbourg, 1996), pp. 241–252. For the liquidation of all remaining Jews in the Lublin district in November 1943, the concentration camp Lublin chose to resort to mass shooting even though gassing apparatus was available. See Tomasz Kranz, "Das KL Lublin—Zwischen Planung und Realisierung," in *Die Nationalsozialistischen Konzentrationslager, Entwicklung und Struktur*, Band 1, ed. U. Herbert et al. (Wallstein, 1998), pp. 377–378. Christopher Browning, "The Development and Production of the Nazi Gas Van," in *Fateful Months* (Holmes & Meier, 1985). Gas vans had been developed first for use against the handicapped in operation T-4.

87. Bischoff to Topf & Söhne, 11/2/43, "Krematorium III," repreinted in Pressac, *Auschwitz*, p. 360.

88. Pressac, *Auschwitz*, p. 227.

89. Bauman is the primary representative of this view. See also Langdon Winner, *Autonomous Technology* (MIT Press, 1977).

90. Testimony of Dr. Bruno Tesch, British Military Court Hamburg, 4 March 1946, pp. 18–25. Tesch's gassing specialist, Dr. Joachim Drosihn also visited Neuengamme, Sachsenhausen, and Ravensbruck and admited to having learned of the gassing of human beings in 1942. Testimony, 3 March 1946, p. 18. Testimony of Emil Sehm, 1 March 1946: 9–12 claimed that Tesch had worked with the SS to adopt gassing to killing human beings in the autumn of 1942, exactly when the SS began developments Crematorium II & III. Regarding Peters, Urteil des Schwurgerichts Frankfurt, 27/5/55, ZSL VI 439 AR-Z 18a/60: 16–17.

91. Article by Peters and E. Wustinger, "Sachenentlausung in Blausäure-Kammern," offprint from *Zeitschrift fur hygienische Zoologie und Schädlingsbekämpfung* from 1940, received by the Neubauleitung Auschwitz, 3/7/41, US Holocaust Memorial Museum microfilm RG-11.001M.03: 42 (502: 1: 332).

92. Firm H. Kori GmbH to Haumptamt CIII of the WVHA, 2/2/43, RG-11.001M.03: 42 (502: 1: 332). This organization is confirmed on much earlier drawings that are reproduced in Pressac, *Auschwitz*, pp. 31–38.

93. Hauprabteilung CIII/3, 8/6/42, "Aktennotiz," RG-11.001M.03: 28(502: 1: 138). A weekly report covering the 14th to the 19th of July, 1941 by Karl Bischoff's predecessor Schlachter, RG-11.001M.03: 34 (502: 1: 214).

94. Unsigned, 12/9/41, "Erläuterungsbericht," RG-11.001M.03: 34 (502: 1: 218). Also Karl Bischoff, 15/7/42 and 13/3/42, "Erläuterungsberichte," same film (502: 1: 220) and (502: 1: 225) respectively.

95. Chief of Amt Allgemeiner Bauaufgaben to all SS Bauinspektionen, 11/3/42, "Entlausungsanlagen," RG-11.001M.03: 43 (502: 1: 335). On Degesch chambers at Lublin, see the Polish article prepared on gas chambers with diagrams for the Eichmann trial, IfZ Eich 1427.

96. Wirths, 4/12/42, "Besprechung beim Landrat des Kreises Beilitz," RG-11.001M.03: 43 (502: 1: 332).

97. Eley, "German History and the Contradictions of Modernity," p. 103.

98. Paul Weindling, "The Uses and Abuses of Biological Technologies: Zyklon B and Gas Disinfestation between the First World War and the Holocaust," *History of Technology* 11 (1994): 291–298.

99. See Bischoff, 9/5/43, "Aktenvermerk," RG-11.001M.03: 35 (502: 1: 233) and Wirths to Hans Kammler, 10/8/44, "Bericht uber die Wirksamkeit der Knrzwellenentlausungsanlage," 11.001M.03: 43 (502: 1: 333).

100. Affidavit of Henryk Tauber, reptinted and translated in Pressac, *Auschwitz* (pp. 482–501).

101. Pressac, *Auschwitz*, pp. 171–181, 380.

102. Richard Breitman, *The Architect of Genocide* (Knopf, 1991), p. 204.

103. See for example NO-2368, affidavit of Friedrich Entress.

104. Source of quotes here and above: Lyndall Urwick, "Organization as a Technical Problem," in *Papers on the Science of Administration*, ed. L. Urwick (Institute of Public Administration, 1937), p. 49.