

NAZI SCIENCE AND NAZI MEDICAL ETHICS: SOME MYTHS AND MISCONCEPTIONS

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We often hear that the Nazis destroyed science and abandoned ethics. That was the view of Telford Taylor in his opening statement at the Nuremberg “Doctor’s Trial” of 1946–1947, where he stated that the Nazi doctors had turned Germany “into an infernal combination of a lunatic asylum and a charnel house” where “neither science, nor industry, nor the arts could flourish in such a foul medium” [1]. Similar views were expressed by Franz Neumann, author of the 1942 treatise *Behemoth*, the first major analysis of how the Nazis came to power [2]. Neumann predicted “a most profound conflict” between the “magic character” of Nazi propaganda and the “rational” processes of German industry, a conflict the emigré political theorist believed would culminate in an uprising on the part of engineers to combat the irrationalist regime. Such an uprising, needless to say, never materialized.

It would be comforting to believe, of course, that good science tends to travel with good ethics, but the sad truth seems to be that cruelty can coexist fairly easily with “good science.” There is a convenience of sorts in the myth: it makes it easy to argue that “Nazi science” was not really science at all, and therefore there is no ethical dilemma. One needn’t talk about the ethics of Nazi medicine, since there was no legitimate medicine to speak of. Nazi science in one swift blow is reduced to an oxymoron, a medical non-problem.¹

1. Analyzing the notorious Dachau hypothermia experiments, Robert Berger claimed that “the Nazi data” were not scientific, any ethical debate over whether to use Nazi science was misconceived from the outset; see [3].

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Myth-Making and Exculpation

Different groups have participated in this process of myth-making; let me mention four.

First, for *Germans who stayed in Germany*, the myth of suppressed science served as a way for post-war scientists to distance themselves from their Nazi past, to block historical investigators from dredging up potentially embarrassing collaborations. If there was no such thing as Nazi science, what is there to investigate? As an epidemiologist at Germany's National Cancer Center in Heidelberg once confessed: "1945 was a scientific *Stunde Null*, we don't look at what came before." This allowed scientists to argue that the very act of scientific research under Nazi rule was a form of resistance. It was often advertised as such, after the war.

Second, for *Jewish scholars forced from Germany*, there was also the unwillingness to believe that the system that had treated them so shoddily had continued to produce good science. This view was reinforced by the fact that fields in which Jews had been prominent (biochemistry and quantum mechanics, for example, but also medical specialties like dermatology) tended to be the fields most heavily gutted by Nazi policies. Fields with lesser Jewish representation—like veterinary medicine or surgery—generally speaking suffered less and therefore have drawn less critical historical attention because there were fewer emigrés in these fields [4].

Third, for *American military authorities*, the myth of flawed science also served to disguise the fact that even as U.S. officials were denouncing Nazi science, they were also busily trying to recruit Nazi talent for use in U.S. military projects. At least 1,600 German scientists came to the United States under the rubric of "Operation Paperclip"—including not just SS officers like Werner von Braun, but also a number of medical professionals, some of whom had been implicated in abusive human experimentation [5].

Finally, this myth, as I have identified it, served to reassure *the American public* that abuses like those of the Nazi era could never occur in a liberal democracy. Nazi science was pseudo-science, science out-of-control; American science was genuine science, secure within democratic institutions, obedient to the rule of law. Post-war ethical codes of conduct could even be dismissed as unnecessary—after all, weren't they designed to prevent abuses that could only occur in a totalitarian society? That, apparently, was the thinking of some of those involved in the radiation experiments investigated by the President's Advisory Committee on Human Radiation Experiments: for example, the Vanderbilt nutritionist William J. Darby, who from 1945 through 1947 supervised the feeding of radioactive iron to 829 pregnant women without their consent, when asked whether he recognized the legitimacy of the Nuremberg Code, responded that he did not, because the code applied only to "experiments of a medical nature committed by the Germans . . . a different setting entirely" [6].

Triumphs in Science

Germany was not a technical or medical backwater in the 1930s and 1940s. Anyone who has ever examined a V-2 engine will have little doubts about this, but there are many other examples. Nazi-era scientists and engineers were pioneers of television, jet-propelled aircraft, guided missiles, electronic computers, the electron microscope and ultracentrifuge, atomic fission, new data processing technologies, new pesticides, and the world's first industrial murder factories (including the use of gas chambers disguised as showers)—all of which were either first developed in Nazi Germany or reached their high point at that time. We should recall that the first magnetic tape recording was of a speech by Hitler, that the V-2 emerged from a plan for intercontinental ballistic missiles designed to be able to reach New York City, and that the nerve gases sarin and tabun were Nazi inventions. I have recently published a book arguing that German cancer research at this time was the most advanced in the world: Nazi-era health reformers built on this research base, introducing smoke-free public spaces, bans on carcinogenic food dyes, and new means of controlling dust exposure on factory floors. The period saw extensive work in the area of occupational carcinogenesis, and in 1943, Germany became the first nation to recognize lung cancer and mesothelioma as compensable occupational illnesses caused by asbestos inhalation [see 7, 8].

The story of science under German fascism must therefore be more than a narrative of suppression and survival; it must also tell how Nazi ideology *promoted* certain areas of inquiry, how projects and policies came and went with the movement of political forces. The frightening truth is that the Nazis supported many kinds of science, left politics (as we often think about it) out of most, and transformed but did not abandon ethics. There is an ethics of Nazi medical practice, sometimes explicit, sometimes not; sometimes cruel, sometimes not. This is important to understand if we are not to demonize the Nazi phenomenon as something absolutely alien and otherworldly.

Appreciating Nazi support for science and medicine can help us understand the appeal of Nazism within German intellectual culture. I also want to argue, though, that what went wrong in the Nazi period is not best understood as a subordination of the good of the individual to the good of the whole. Rather, one has to understand who was included within “the whole” and who was banished. It was not, after all, “the individual” in the abstract who suffered but particular kinds of individuals. Public health protections were extended to the “healthy” majority, while so-called “enemies of the people” were first excluded and then exterminated. Medicine was complicit in both ends of this moral scale: in public health reforms that brought the majority of Germans cleaner air and water, and in “health reforms” that involved sterilization and eventually wholesale murder.

The Example of Tobacco Research

If you ask most people when the first good evidence arose that tobacco was a major cause of lung cancer, they will point to a series of epidemiological studies by English and Americans in the early 1950s. If you ask when a medical consensus on this question first arose, they will most likely point to the 1964 Surgeon General's report, which took a strong stand on this question, or a similar report by Britain's Royal College of Physicians two years earlier [9, 10].

I have become convinced, however, that there is an earlier and overlooked consensus during the Nazi period. The Nazis had a powerful anti-tobacco movement, arguably the most powerful in the world at that time. Tobacco was opposed by racial hygienists who feared the corruption of the German germ plasm, by industrial hygienists who feared a reduction of work capacity, and by nurses and midwives who feared harms for the "maternal organism." Tobacco was said to be "a corrupting force in a rotting civilization that has become lazy." The Nazi-era anti-tobacco rhetoric drew from an earlier generation's eugenic rhetoric, combining this with an ethic of bodily purity and performance at work [11]. Tobacco use was attacked as "epidemic," as a "plague," as "dry drunkenness," and as "lung masturbation"; tobacco and alcohol abuse were "diseases of civilization" and "relics of a liberal lifestyle" [12].

Anti-tobacco research also flourished in the Nazi period. Animal experimental work demonstrated that the tar extracted from cigarette smoke could cause cancer, and physical chemists distilled tobacco tars to identify the carcinogenic components. The editor of Germany's *Monatsschrift für Krebsbekämpfung* organized animal experiments to test whether smoking causes lung cancer, putting rats in a "gas chamber" with cigarette smoke pumped in from the top—until the animals suffocated. The description of the dying rats, gasping and falling over one another, is chilling, given subsequent events [13].

Germans also pioneered what we now call experimental tobacco epidemiology, the two most striking papers being a 1939 article by Franz H. Müller of Cologne's City Hospital, and a 1943 paper by Eberhard Schairer and Erich Schöniger at Jena, presenting the most convincing demonstrations up to that time that cigarettes were a major cause of lung cancer [14, 15]. In his paper, Müller analyzed the smoking habits of 83 male lung cancer patients and compared these with the habits of age-standardized "controls" not suffering from lung cancer. His findings were clear-cut and striking: the lung cancer patients were much more likely to be heavy smokers and much less likely to be non-smokers. Sixteen percent of the healthy group were non-smokers, compared with only 3.5 percent for the lung cancer group. The 86 lung cancer patients smoked a total of 2,900 grams of tobacco per day, while the 86 healthy men smoked only 1,250 grams. Müller concluded that

tobacco was not just “an important cause” of lung cancer, but also that “*the extraordinary rise in tobacco use*” was “*the single most important cause of the rising incidence of lung cancer*” in recent decades [14, emphasis in original].

Müller’s work was taken one step further by Schairer and Schöniger, two physicians working at Jena’s Institute for Tobacco Hazards Research. The authors were aware that German lung cancer rates were on the rise, and that many of the non-tobacco explanations of the rise were flawed (the automotive exhaust theory, for example, failed to explain the fact that rural rates were also rising). The authors drew attention to the fact that a heavy smoker could inhale as much as four kilograms of tar over a lifetime, a frightening figure given Angel H. Roffo’s demonstration that animals painted with tobacco tars develop high rates of cancer [15].

Following closely the method pioneered by Müller, Schairer and Schöniger sent questionnaires to the relatives of 195 lung cancer victims, inquiring into the smoking habits of the deceased. An additional 555 questionnaires were sent to the families of patients who had died from other kinds of cancer—the presumption being that smokers would be more likely to develop certain kinds of cancer rather than others. Questionnaires were also sent to 700 male residents of Jena to determine the smoking habits among a population apparently free of cancer. The results again were clear: among the 109 lung cancer cases for which useable data were obtained, only three were non-smokers, a far lower proportion than among the population as a whole (about 3 percent, versus 16 percent for the non-cancer controls). The smokers were not necessarily “cancer prone,” because when other kinds of cancer were looked at—stomach, for example—smokers were found to be no more likely to develop cancer than non-smokers. Their conclusion: smoking was very likely a cause of lung cancer, but much less likely a cause of other kinds of cancer. The results were of the “highest” statistical significance; a 1994 reevaluation of the study showed that the probability that the results could have come about by chance was less than one in ten million [16].

Questions of Interpretation

How do we interpret such studies? How do we explain the fact that Nazi Germany was home to the world’s foremost tobacco-cancer epidemiology, the world’s strongest cancer prevention policy, or the world’s first recognition that asbestos could cause lung cancer? Do we say that “pockets of innovation” existed in Nazi Germany, resistant to ideological influence?² What if we find, on closer inspection, that Germany’s anti-tobacco research flourished not just *despite* the Nazis, but in large part *because of* the Nazis? Is it kosher then to cite such studies?

2. On the “pockets of innovation” thesis, see [17, 18].

I ask this last question, partly because the tobacco studies mentioned above have, in fact, been occasionally cited, though rarely with any mention of the social context within which they arose. (A notable exception is [19].) There is never any mention, for example, of the fact that the founding director of Schöniger and Schairer's Institute was Karl Astel, president of the University of Jena and a vicious racial hygienist and SS officer. There is never a mention of the fact that the grant application for the Institute was written by Gauleiter Fritz Sauckel, chief organizer of Germany's system of forced labor, a man hanged after the war for crimes against humanity. (Most leaders of Germany's anti-tobacco movement were silenced in one way or another after Germany's defeat. Müller disappeared in the war, Hans Reiter lost his job, Astel and Leonardo Conti committed suicide, etc.) No mention is ever made of the fact that funding for Astel's institute came from a RM 100,000 personal gift from the Führer, himself an ardent anti-smoking activist. It is clear to anyone who follows the money trail that Schairer and Schöniger's study would not have been undertaken had it not been for Hitler's interest, and the interest of several of his underlings. I might also point out that Hitler at one point even attributed the rise of German fascism to his quitting smoking: the young and struggling artist smoked a couple of packs a day until 1919, at which time he threw his cigarettes into the Danube and never reached for them again. In a 1942 conversation, the Führer said that Germany owed its liberation (i.e., the triumph of Nazism) to his quitting smoking—though I guess one could say, contra Hitler and with a hint of Freud, that sometimes giving up smoking is just giving up smoking.

What do we make of the fact that Nazi ideology in this case (and there are others) appears not just not to have hindered research, but actually to have promoted it?

In drawing attention to such studies, my intention is not to argue that there was “something good” that came from the Nazi era. I have no desire to rescue the honor of this era, or to “balance the historical record” for balance's sake. You cannot balance the heavy weight of genocide against a few flashy epidemiological studies or a glitzy V-2 engine. That is not the point—and I should add that I have little sympathy for those who argue that republishing brutal Nazi experiments may mean, as some have argued, that the victims of such experiments “may not have died in vain.” They did die in vain, and a better designed life preserver or Saturn V rocket is no compensation.

My point is, rather, that it does us little good to caricature Nazi medicine as irrational or anti-science *in the abstract*. What we have to look at more carefully is the relationship between science and ideology at this time. I do not believe, for example, that the papers on tobacco epidemiology I have cited were uninfluenced by Nazi ideology. The anti-tobacco program was motivated by Nazi ideals of bodily purity and racial hygiene: there is a kind

of “homeopathic paranoia” pervading Nazi ideology that led many to believe that tiny, corrosive poisons were infiltrating the German *Volkskörper*, sapping its strength, causing harm. Appreciating this helps us understand how Nazi medical ideologues could argue that lead, mercury, asbestos, Jews, and tobacco tars were all a menace to the German body. I don’t believe that doctors were “doubling” when they sought to cleanse the German population of those elements; nor do I believe that we can identify a sharp boundary between the science and the politics in this process. The two are painfully intertwined.

Why were German doctors such avid fans of fascism? I don’t think it was the tirades of Julius Streicher in *Der Stürmer* that caught their eye, but rather the promises of Nazi leaders to solve Germany’s problems medically, surgically. The Nazi state was supposed to be a hygienic state; Nazism was supposed to be “applied biology.” (Fritz Lenz coined this widely cited phrase in his popular human genetics textbook of 1931 [20].) Hitler was celebrated as the “Robert Koch of politics” and the “great doctor” of German society. The seductive power of National Socialism lay in its promise to cleanse German society of its corrosive elements—not just communism and Jews, but pollutants in the air and water, along with TB, homosexuality, and the “burdensome” mentally ill—maladies which could all be traced, in the Nazi view of the world, to the “false humanitarianism” of previous political regimes. The doctors in this process were not victims but co-conspirators, seduced by the powers being offered to them and the promises of an orderly, hygienic state.

Nazi Medical Ethics

We often hear that the Nazis abandoned ethics. A recent Israeli film on the euthanasia operation says that Nazi doctors’ overzealous scientific curiosity led them “to abandon all moral sense in the pursuit of medical knowledge” [21]. The image is of the unfettered quest for knowledge, a kind of scientific zealotry reminiscent of the Faustian bargain, of science practiced “without limits” or of an overly “aggressive search for the truth.”

The problem with this view is that there were in fact ethical standards at this time. Medical students took courses on medical ethics, and medical textbooks from the time treated medical ethics.³ There are discussions in German journals of the obligations of physicians to society, to the state, and sometimes even to the individual. Nazi medical philosophers were critical of the ideal of “neutral” or value-free science, which was often equated with apathetic ivory-tower liberal-Jewish “science for its own sake.” Science was supposed to serve the German Volk, the healthy and productive white

3. An example of Nazi medical ethical discussion is [22]. The most widely cited medical ethics text at this time was [23].

ances of Europe. We have to distinguish between no ethics and a lot of bad ethics, between chaos and evil.

Surprisingly, there never has been a systematic study of medical ethics under the Nazis. We know a lot about the postwar rationalizations of physicians facing death at the hands of Allied prosecutors [24, pp. 133–34], but we need to know more about the implicit and explicit norms of the era; we need to know more about bedside manners and student-teacher relations, and what kinds of things were discussed when medical malpractice suits went to court. Such questions are especially intriguing, given that Germany prior to the Nazi era had taken steps to protect patients' rights in the experimental context. The 1900 code promulgated by the Prussian Ministry of Religion, Education, and Medical Affairs, for example, was the world's first official regulation of human experimentation, barring non-therapeutic interventions without voluntary consent, along with experiments on minors and others judged vulnerable or incompetent. Experiments had to be authorized by the director of the institution involved, and records had to be kept in writing [24, p. 127].

A 1931 code issued by the Reich Health Office strengthened sanctions against inappropriate human experiments. The edict was issued in response to a growing public clamor about experimental abuses—most notably the deaths of 75 children in Lübeck in the course of testing an experimental TB vaccine. The 1931 guidelines banned experiments on the dying and on anyone under the age of 18 if it posed a risk. The document has been called the world's most comprehensive code governing human experimentation; in certain respects it is stricter even than the subsequent Nuremberg Code or Helsinki Accord [24, pp. 121–44].

Medical ethical discourse continued throughout the Nazi period. On 24 November 1933, for example, a law for the protection of cruelty to animals was passed, barring experimentation causing pain or injury to animals. The law specifically disallowed experiments involving exposure to cold, heat, or infection. Hermann Göring threatened to toss vivisectionists into a concentration camp, though it is unclear whether this ever took place. Jewish doctors were commonly accused of excessive experimental zeal: Erwin Liek, a kind of spiritual godfather for many Nazi physicians, linked abuses in this sphere with the “Jewish abstract scientific spirit” [25, 26].

There was also a great deal of discussion of physicians' duties and responsibilities—especially their obligations to serve (“unflinchingly”) the Volk and the Führer. Doctors were instructed to counsel their patients against tobacco use [27], and were enlisted in the task of safeguarding public and genetic health. The job of maintaining labor productivity fell to physicians, who also were asked to devote increasing attention to neonatal care. There are discussions of who should be allowed to practice medicine—whether natural healers were to be barred from treating cancer patients, for example (they were) [28]—and there are discussions of the limits of medical

confidentiality and of medical disclosure. A 1943 article in a leading cancer journal cited the “demands of medical ethics” to inform patients of the severity of their diseases, and in at least one case a physician was prosecuted for failing to inform a woman she had cancer [29].

We also know that doctors did not stand idly by when they thought things were going wrong. There was a culture of complaint in the Nazi period: doctors complained that sterilizations were going too fast or too slow, that too many people were being X-rayed or too few, and so forth. Physicians complained about the use of fancy-sounding obfuscatory Latin to characterize diseases (doctors were supposed to use plain German, so patients could understand the nature of their illness), and thousands of women were said to be needlessly dying from lack of access to preventive care (e.g., regular, cost-free gynecologic exams, proposed by many Nazi doctors) [30, 31].

The Nazi medical profession, in other words, was not without its ethics. Nazi medical ethics was typically sexist and racist, but there was also stress on cleanliness, punctuality, orderliness, and obedience to legal authority, especially the supreme authority of Adolf Hitler, the beloved Führer. Nazi medical ethics tended to reduce morality to efficiency, economics, and aesthetics, relegating to the trash heap everything that was seen as ugly and a burden. Preventive medicine was emphasized, as was Nordic (and especially Germanic) supremacy, cost-efficiency, the natural lifestyle, and the superiority of the productive worker over persons deemed inferior or burdensome.

Ethical norms are implicit even in the most horrific experimental practices of the camps: how else does one explain the fact that “healthy” German citizens were never experimented on? Those subjected to human experimental violence were invariably people judged less than fully human in the Nazi scale of values. Jews and Gypsies were considered diseased races, tumors in the German body politic; Russian POWs were vermin deserving enslavement or extermination; the unproductive handicapped were encumbrances on the German Volk, warranting “euthanasia.”

It is important not to make a caricature of Nazi ideology. The doctors who exploited prisoners at Buchenwald or Dachau were not morally blind or devoid of the power of moral reflection. Upholding such a view would almost render the guilty parties not responsible for their actions: you cannot hold guilty parties accountable if they are lunatics devoid of morals. Some of the worst were thinking men, acting consistently within a frame of callous and often criminal logic.

Research Integrity versus Research Ethics

The U.S. Office of Research Integrity (ORI) defines “scientific misconduct” to include “fabrication, falsification . . . or other practices that seri-

ously deviate from those that are commonly accepted within the scientific community for proposing, conducting, or reporting research.” The NSF similarly defines misconduct as “fabrication, falsification, plagiarism, or other serious deviation from accepted practices in proposing, carrying out, or reporting results from activities funded by the NSF” [32]. What is interesting about these definitions is that they avoid the difficult issue of how one deals with large-scale, deeply ingrained prejudices that may be widely accepted in both the scientific community and the society as a whole. Narrow definitions of scientific misconduct say nothing about whether a given research practice may be abusive, or racist, or sexist—nothing about its larger context or implications.

Some of the worst Nazi research cannot even be considered misconduct according to such definitions. Most Nazi doctors did not lie, or cheat, or misrepresent their credentials. They did not falsify or fabricate data to an unusual degree, and there is little evidence of plagiarism. The evil must be sought elsewhere.

The primary failing of Nazi medicine, I would argue, was the failure of physicians to challenge the rotten, substantive core of Nazi values. Too many physicians were willing to go with the political flow; too many were unwilling to resist, to “deviate” from “commonly accepted” practices. The ORI definition of “misconduct” misses this larger point entirely. Ian Kershaw reminds us that “the road to Auschwitz was paved with indifference”; I would only add that conformist urges blocked the many side paths leading in other directions. Doctors should have acted up, broken with convention, defended their patients against the long arm of the law.

The Black in White, the White in Black

My point is not to rescue the honor of medicine in its darkest hour, but rather to stress its subtlety and complexity. The history of medicine in this period is a history of both forcible sterilization and herbal remedies; we cannot forget the crimes of a Karl Brandt or a Hermann Voss [33], but we also should not forget that the SS built the world’s largest botanical medical garden in Dachau, or that German nutritionists mandated the production of whole-grain bread. Fascist physicians willfully murdered their handicapped patients, but organic farming and species protection were also going concerns. The question is not one of balance, but of the proper understanding of origins, context, continuities, and contradictions. It is part of the horror of this period, that such an “advanced” technological society could fall so far into butchery and barbarism.

I do not believe there is an inherently totalitarian tendency in modern science, but I do think it is important to recognize that, just as the routine practice of science is not incompatible with the routine exercise of cruelty, so the dictatorial and murderous aspirations of fascism were not necessar-

ily at odds with the promotion of cutting edge science and progressive public health—at least for certain elements of the population. The exclusive focus on the heinous aspects of Nazi medical practice makes it easy for us to relegate the events of this era to the monstrous or otherworldly, but there is more to the story than “medicine gone mad.” The Nazi campaign against carcinogenic food dyes, the world-class asbestos and tobacco epidemiology, and much else as well, are all in some sense as fascist as the yellow stars and the death camps. There is sometimes white in black, and black in white; appreciating some of these subtler speckles and shadings may open our eyes to new kinds of continuities binding the past to the present. It may also help us better see how fascism triumphed in the first place.⁴

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