
The Rise and Fall of an “Aryan” Physicist

Without a doubt Johannes Stark is one of the most famous and infamous “Nazi” scientists. His Nobel Prize, irascible nature, and often vicious ideological attacks on modern physics and physicists make him both an intriguing subject and the perfect villain. Stark is perhaps best known for his infamous attacks on Werner Heisenberg, labeling him a “white Jew” in the *Schutzstaffeln* (SS) newspaper. But there is much more to this story. Therefore Stark’s relationship with National Socialism will be broken up into two chapters, “The Rise and Fall of an ‘Aryan’ Physicist,” which ends before the attack on Heisenberg, and “The Alienation of an Old Fighter,” in order to place his attacks on Heisenberg into context. Stark’s successes, but especially his failures, during the Third Reich tell us a great deal about the interaction of physics and National Socialism.



The Weimar Republic Stark was a talented and ambitious physicist. In 1909 he took up his first professorship at Aachen. The outbreak of World War I transformed him spiritually and ideologically into an extreme German nationalist.³ Although Stark may have been more extreme than most of his colleagues, in general, German scientists did rally uncritically behind the German war effort. Professional setbacks also influenced his development. Stark's relationship with the Munich theoretical physicist, Arnold Sommerfeld, degenerated into a bitter and unprofessional polemic over physics, which formed the basis for their subsequent antagonism. When Stark's hopes of being called to a professorship in Göttingen were dashed by the appointment of Sommerfeld's student, Peter Debye, in 1915, Stark blamed the "Jewish and pro-Semitic circle" of mathematicians and theoretical physicists there and its "enterprising business manager" Sommerfeld.⁴

In 1917 Stark moved on to Greifswald, where he experienced the revolution that followed the German defeat. The German surrender in the fall of 1918 took most Germans by surprise since their government had fed them propaganda, promising that victory was at hand. When the soldiers returned home—often with their weapons—they found a home front devastated by hunger and a power vacuum. Throughout Germany left-wing soldiers' and workers' councils took over political power at the local level. Many Germans believed that the country was going to experience a repeat of the Russian Revolution. Right-wing militias were formed to avert the Communist threat, plunging the country into a short, bloody civil war. An unlikely alliance between the German military and the Social Democratic Party with a new constitution in 1919 eventually brought some political stability, but not until many had died and a great deal of resentment had been caused.

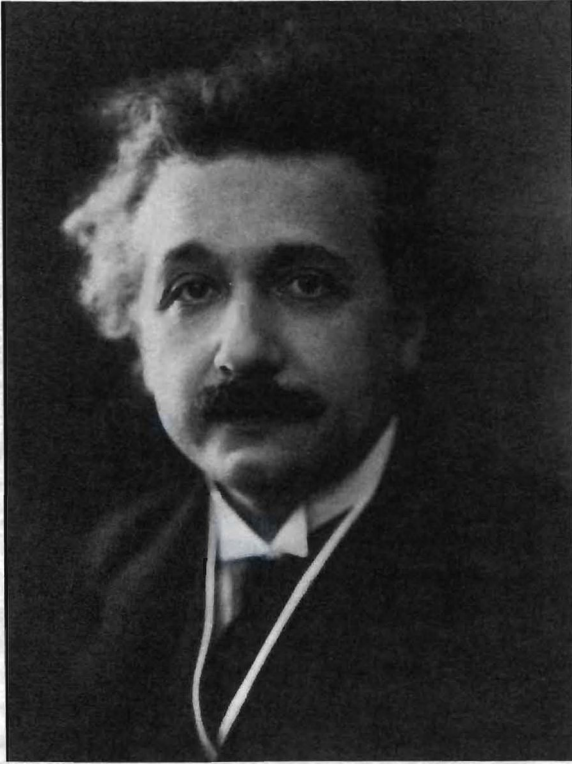
The atmosphere of Greifswald, a small university town, and in particular the extremely conservative and nationalistic faculty and student body appealed to Stark. When the socialists gained power in Greifswald, Stark actively opposed them and thereby

began his political career as a German nationalist and conservative long before anyone had heard of Adolf Hitler or the National Socialist German Workers Party (NSDAP).⁵

In 1920 Stark received the 1919 Nobel Prize for his discovery of the Stark effect—the splitting of spectral lines in an electric field—and moved on to the University Würzburg in his native Bavaria. He now became more active in the politics of the physics community. Berlin physicists, who tended to be more liberal, cosmopolitan, and theoretical, dominated the German Physical Society and had alienated more conservative physicists from other parts of Germany. In April 1920 Stark began soliciting members for his alternative German Professional Community of University Physicists, an organization Stark intended to dominate physics and control the distribution of research funds.

But Stark's efforts were thwarted. The Physical Society mollified most conservative scientists by electing as president, Wilhelm Wien, one of their number who was much easier to deal with than Stark. The two main funding organizations, the private Helmholtz Foundation and the state-run Emergency Foundation for German Science (*Notgemeinschaft der Deutschen Wissenschaft*, henceforth NG), also preserved their independence by lining up influential scientists and patrons.⁶ When Stark realized that his voice would be only one among many setting science policy, he withdrew. Stark's efforts in 1920 were a preview of the action he would take with political backing at the beginning of the Third Reich.

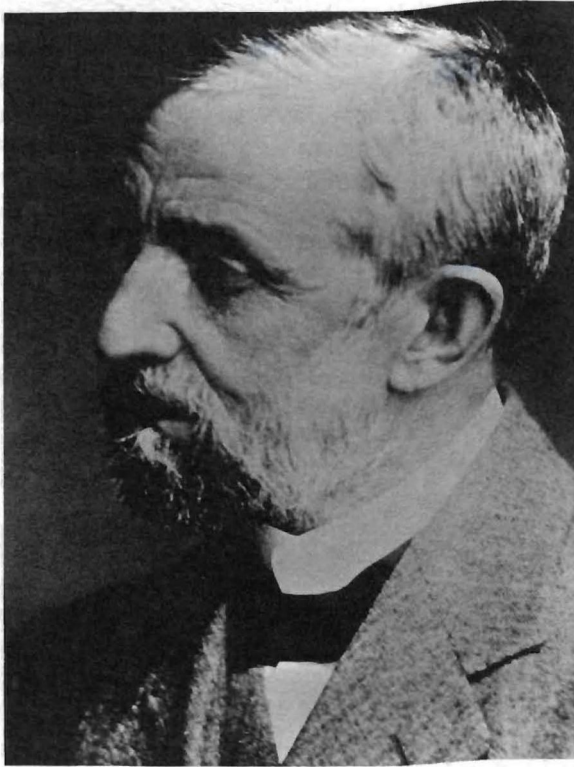
Scientific opposition to portions of modern physics, and in particular to theoretical physics, took on a more ominous tone in the early twenties. In 1921 Wilhelm Wien recognized that the general theory of relativity was engulfed by an unprecedentedly bitter and sometimes unprofessional debate which had left the realm of science and become entangled with politics and dogma.⁷ Indeed it was considered good form in the twenties for a scientist to distance himself from the political and ideological battles if he wanted to comment critically on Albert Einstein's work.⁸ Ironically, the postwar anti-Semitic attacks against Einstein as creator



Albert Einstein, 1922. (From the Burndy Library, Courtesy of the AIP Emilio Segrè Visual Archives.)

of the theory of relativity were an inversion of wartime foreign chauvinism. Einstein's work, the type of science which the French had criticized as typically "German" physics during World War I, was criticized by right-wing German conservatives as typically "Jewish" after 1919.⁹

Philipp Lenard, fellow Nobel laureate and professor of physics at the University of Heidelberg, was the first prominent German scientist to attack "Jewish physics" and call for a more



Philipp Lenard, 1936. (From Ullstein Bilderdienst, Courtesy of the AIP Emilio Segre Visual Archives.)

"Aryan" physics. In 1922 he published a word of warning to German scientists, accusing them of betraying their "racial allegiance" and noting that the transformation of an objective question into a personal fight was a "known Jewish characteristic."¹⁰

Lenard's arguments against the theory of relativity initially had nothing to do with anti-Semitism or personal antagonisms. Indeed Lenard had followed Einstein's career from the beginning with benevolent interest, calling him a deep, comprehensive

thinker in 1909. Lenard's opposition to the theory of relativity began in 1910, but did not include personal attacks on Einstein. As late as 1913 Lenard was toying with the idea of calling Einstein to a professorship of theoretical physics in Heidelberg. The discussion between the two physicists became sharper during the war, but remained within the bounds of scientific debate.¹¹

In 1920 a popular lecture series sponsored by the "Working Group of German Scientists for the Preservation of Pure Science" opposed to Einstein's theory of relativity was held in the Berlin Philharmonie. This organization probably never existed, except on paper, and was the invention of the fanatical Einstein opponent Paul Weyland.¹² Einstein's subsequent reply, "My Answer to Anti-Relativity Co.," appeared in a Berlin daily newspaper. His unfinished question, "if I would be a German nationalist with or without swastika instead of a liberal, internationalist Jew..." cut to the heart of the matter and raised the stakes in the debate.¹³

Before 1920 most physicists had taken care to keep their criticism of Einstein well within the bounds of professional discourse.¹⁴ Einstein's supporters were the first respectable scientists explicitly to use the word *anti-Semitism*, and ironically gave their opponents the opportunity to claim that it was Einstein who had introduced race and religion into a scientific debate. However, the floodgates were now opened.

Lenard began to incorporate anti-Semitism into his publications against Einstein and his theory in 1921. The lost war was certainly part of the reason, but perhaps just as important was Einstein's public criticism of Lenard in the aftermath of the anti-Einstein conference. Although Lenard had not taken part in the Berlin lectures and hitherto had only expressed his opinion in a professional fashion in scientific journals, Einstein's personal attack in the daily press deeply offended Lenard, who was seventeen years his senior.¹⁵ When Lenard refused to lower his institute flag after the assassination of Walther Rathenau, a Jewish German foreign minister and friend of Einstein, the conservative physicist was attacked and publicly humiliated by a mob. This experience

was an important factor in Lenard's turn towards more blatant racism and anti-Semitism.¹⁶

Ludwig Glaser, one of Stark's advanced students, was an ambitious and competent scientific entrepreneur, who edited his own technical journal and ran his own laboratory, which specialized in physical and chemical special investigations (optics, metallurgy, spectral analysis) as well as the assessment of patent applications and used scientific equipment. More importantly, Glaser was a convinced and determined opponent of Albert Einstein's theory of relativity. He had taken part in the Berlin conference, and thereby became personally involved in the controversy surrounding Einstein.

According to Max von Laue, an expert on the theory of relativity and friend of Einstein, Glaser restricted himself to professional arguments in his Berlin lecture, even though he did not succeed in convincing Einstein's scientific supporters. Von Laue only faulted him for being too one-sided.¹⁷ In contrast, Glaser complained about the demagogic, personal, and unscientific attacks made against the Berlin lecturers at the subsequent convention of German scientists in Nauheim.¹⁸ Glaser published several articles against Einstein's theory and called the expectations held by supporters of the theory of relativity premature and exaggerated. Stark's student stuck to scientific arguments, just like Lenard had at first. During the Weimar Republic there was no trace of the virulent anti-Semitism Glaser developed during the Third Reich.¹⁹

In the summer of 1921 Stark accepted a *Habilitationsschrift* (a sort of second Ph. D. thesis) from Glaser on the optical properties of porcelain. His Würzburg colleagues questioned whether such a topic really constituted a scientific advance. Some mocked Glaser's thesis as a "doctor of porcelain." However, objections were also raised because of Glaser's ties to the anti-Einstein group, and his participation in the Berlin conference had aroused such deep bitterness.

Stark considered the academic opposition to Glaser part of a conspiracy by Einstein's supporters. Furious, Stark resigned, returned to his original home, and invested his Nobel Prize money

in various industrial enterprises. Almost immediately, Stark regretted his decision to resign. He probably expected to be given the presidency of the Imperial Physical-Technical Institute (PTR), the German equivalent to the National Bureau of Standards, a promotion which would have allowed him to stay in the academic physics community. When he was passed over and thereby isolated, his bitterness grew.²⁰

If Einstein's scientific theory and support for internationalism, pacifism, and the Weimar Republic had not made him controversial enough, then the Nobel Prize he received in 1922 made him a target for vindictive abuse and attack from the radical right. Stark was now alienated if not enraged by Einstein's political stance.²¹ Stark's 1922 book, *The Contemporary Crisis in German Physics*, attacked modern physics—roughly speaking, quantum mechanics and relativity—as "dogmatic."

Although this argument did not yet include anti-Semitism, Stark did criticize *how* the theory of relativity was being propagated by Einstein and others. According to Stark, Einstein and his supporters had improperly publicized his scientific theory through newspaper articles and foreign lectures. Since the propaganda for Einstein's theory spoke of a revolution in science, Stark noted, it found fertile ground in the postwar period of political and social revolution. Einstein had betrayed Germany and German science with his internationalism.²²

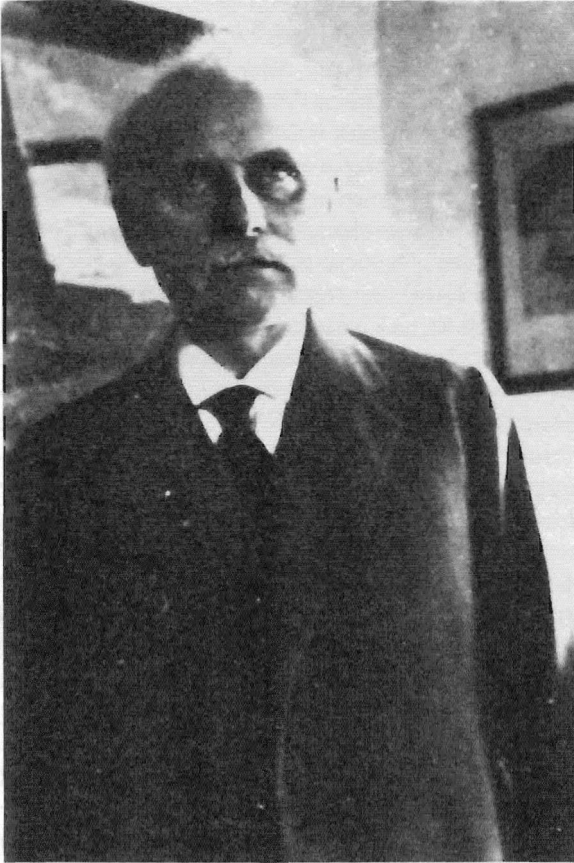
Stark's book did not go over well. Max von Laue's pointed review, which publicized the personal antagonism which now existed between Stark and himself, drew the battle lines for the subsequent struggle over Einstein's science: on one side, scientific support of the theory of relativity and opposition to the racist, political, and ideological attacks against its creator; on the other side, escalating personal attacks on Einstein and his work which had less and less to do with science and more and more to do with the National Socialist movement.²³

The long-standing cordial personal and professional relationship which Lenard and Stark had enjoyed now became a political collaboration. Both scientists began to engage in political

activity only after their professional work had diverged from the main path taken by modern physics.²⁴ Although they opposed all or part of quantum mechanics and the theory of relativity, for Lenard the distinction between "Aryan" and "Jewish" science was a matter of ideology; for Stark it was a weapon to use against those who had kept him a pariah for so long.²⁵

The *Deutsche Physik* movement they founded was the result of three different factors: the opposition of professionally conservative scientists to modern physics, often because they were not in a position to understand, appreciate, or use it; the opposition of anti-Semitic scientists to Einstein, other Jewish scientists, and the physics they created; and the opposition of right-wing, nationalistic scientists to the pacifist, internationalist stand taken by Einstein as well as his support of the Weimar Republic. When the three groups of professionally conservative, anti-Semitic, and nationalistic scientists overlapped, they formed *Deutsche Physik*, a political movement composed of scientists using the rhetoric of science. These physicists had nothing new to offer in the way of science, and are best characterized by what they rejected: modern theoretical physics, especially quantum mechanics and the theory of relativity, all of which came increasingly under the heading "Jewish physics."

The anti-Semitism of *Deutsche Physik* fit well into the political climate of Weimar Germany. As early as the autumn of 1923, in the aftermath of the "Beer Hall Putsch," Stark had publicly supported Adolf Hitler and his National Socialist movement. In November of that year Hitler had led a march from a beer hall in Munich designed to topple the city government in a coup and eventually lead to a national revolution modeled on Mussolini's successful march on Rome. The coup ended when Bavarian police fired on the marchers. Although Hitler did not distinguish himself by bravery when the march collapsed, he regained his composure at his trial for treason. Hitler managed to turn his trial into political propaganda, admitting guilt but rejecting the idea that his attempt to topple the Weimar Republic was a crime. His right-wing judges were sympathetic and gave him the most lenient sentence possible—five years with the understanding of early probation.²⁶



Johannes Stark, 1931, from his NSDAP party book. (From the Berlin Document Center.)

A year later, while Hitler was serving time in Landsberg prison for his part in the failed putsch, Stark and his wife invited him to recuperate with them after his release, an offer for which Hitler thanked him heartily.²⁷ In May 1924, Lenard and Stark

published an open letter supporting Hitler. Their mystical prose fit well into the Aryan-supremacist rhetoric of the day:

...the struggle of the spirits of darkness against the bearers of light ... [Hitler] and his comrades in struggle ... appear to us as gifts of God from a long darkened earlier time when races were still purer, persons still greater, spirits still less fraudulent.²⁸

Lenard's and Stark's overt support for National Socialism was unusual among academicians and rare among physicists.²⁹ Hitler was very grateful for the public support of two leading German scientists, coming as it did at a precarious time for his movement.

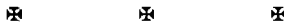
Stark joined the NSDAP (National Socialist German Workers Party) in 1930. He earned the title of an "Old Fighter" for Hitler's movement—someone who had joined before Hitler was appointed Chancellor in 1933, i.e., someone who could not have been a political opportunist.³⁰ National Socialist ideology was congenial to Stark, but his early activism for the National Socialists has an additional explanation: Stark found in National Socialist circles the honor and recognition as an important scientist that his fellow academics had denied him, despite his Nobel Prize.³¹

Stark was even willing to stop his scientific work in order to help Hitler in the National Socialist leader's final struggle to gain power. After Hitler emerged from prison and refounded the NSDAP, he proclaimed that he would henceforth take the "path of legality." In practice, this meant that the National Socialists would not try to seize power in Germany via a coup, but instead would work within the constitution as a political party. Hitler and other leading National Socialists often stated openly that, although they intended to come to power legally, once in power, they would tear up the constitution and end democracy. At the time few people took this threat seriously.

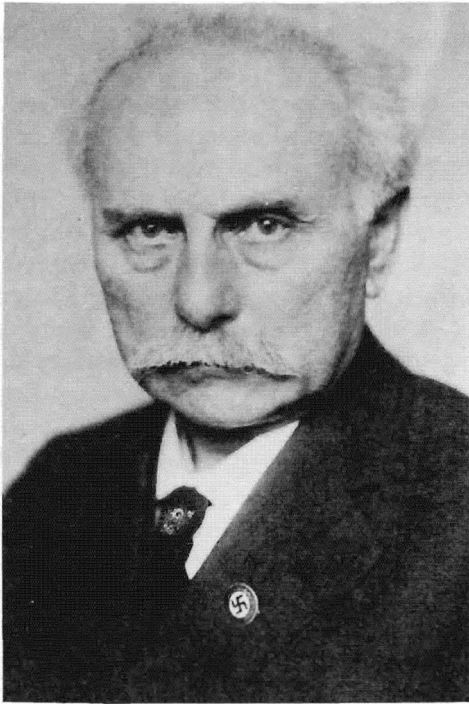
During the last three years of the Weimar Republic (1930–1932), the NSDAP mounted what amounted to a perpetual election campaign. In 1932 there were three national elections: two for parliament and one for the presidency. The National Socialists

were successful in large part because of the many dedicated members of their movement like Stark who mobilized voters at the local level, by writing political pamphlets and organizing and leading mass rallies. In 1932 Stark agitated for the National Socialist movement near Traunstein and his estate and repeatedly held large public meetings in the area.³² Hitler himself thanked Stark for his efforts on behalf of the NSDAP.³³ By the end of the Weimar Republic, Stark, who owned an estate in rural Bavaria, was seen by the population as a spokesman for the National Socialist party.³⁴

But from the very beginning, Stark was fundamentally ambivalent about the radical right. In the early twenties Stark told Lenard of his pessimism in regard to politicians on the far right. They were profiteers, ambitious, and rowdies. Although the National Socialist movement was his last hope for the resurrection of the German people, his optimism was vanishing and being replaced with a profound pessimism.³⁵ Stark seems to have shared a common attitude among supporters of Hitler's movement: he was disturbed by the behavior of the so-called "little Hitlers," the low-level National Socialist officials, but nevertheless simultaneously embraced Hitler himself as leader of the movement with uncritical admiration and trust. Hitler was aware of the credibility gap between himself and his party and both cultivated and exploited it: whenever there was credit to be taken, he took it; whenever things went wrong, the blame fell on the little Hitlers in the party.³⁶



The Third Reich The subsequent step-by-step "coordination" of every aspect of German society which followed Hitler's appointment as German Chancellor was unsettling if not deeply disturbing for most German physicists.³⁷ More than 15 percent of all academic physicists emigrated willingly or unwillingly after 1933, although the actual damage to physical research was much greater than this number implies.³⁸ Prestigious scientific research institutions like the semi-private Kaiser Wilhelm Society (KWG) (established early in the twentieth century in order to facilitate



Johannes Stark, 1933. (Courtesy of the Ullstein Bilderdienst.)

research outside of the universities) "coordinated" themselves in the hope of avoiding even tighter control from the National Socialist government.³⁹

The National Socialist revolution effectively purged the civil service of potential opponents to the new regime. Since all university employees were civil servants, this policy also purged German physics of "non-Aryans" and leftist scientists.⁴⁰ But that was not enough for the small group of physicists gathered around Lenard and Stark. They wanted to control all future university appointments, scientific publication, and funding of research. In other words, they wanted a "second revolution" in German physics in

order to accomplish what Lenard and especially Stark had failed to achieve in Weimar.⁴¹

Within a week of Hitler's appointment to German Chancellor, Stark enthusiastically wrote Lenard that the time had finally come when they could implement their conception of science and research. Stark used the opportunity of a congratulatory letter to his personal acquaintance, National Socialist Minister of the Interior Wilhelm Frick, to tell him that Stark and Lenard would be pleased to advise him. Stark had specific help in mind. He wanted the prize that had eluded him in the early twenties—the presidency of the Imperial Physical-Technical Institute.⁴²

Lenard went directly to Hitler and offered his services. There was a great deal to be done, Lenard told him, for the entire university system was in badly rotted condition. Although there were not enough really talented scientists to fill the openings, Lenard could find enough thoroughly German physicists who were good enough. Lenard himself was ready to help in checking, evaluating, influencing, and if necessary, rejecting and replacing candidates.⁴³

At first it appeared that the two leaders of *Deutsche Physik* would get their wish. In July 1933 von Laue complained to his colleague Walther Gerlach that his influence was now insignificant. To get something done one had to go through Lenard and Stark.⁴⁴ By November Lenard and Stark had been promised that they would be consulted before scientific professorships were filled.⁴⁵ Stark's almost boundless ambitions extended to the KWG, where he hoped that Max Planck, the current KWG president, would be forced to resign and make way for a National Socialist. But Stark first asked Lenard if he wanted the job.⁴⁶ His colleague replied that he was only interested in squashing and then completely rebuilding the society.⁴⁷ Stark was sympathetic. He did not want to take over the KWG presidency himself, but was very interested in the Emergency Foundation and distributing its considerable funds for scientific research.⁴⁸

Stark made his intentions for German science public at the September 1933 meeting of the German Physical Society in Würz-

burg. According to von Laue, Stark practically declared himself the dictator of physics. Many of his listeners found most disturbing Stark's plans for the physics publishing business. He wanted a general editorship for all physics journals, which would decide whether or not work would be published and in which journal it would appear. This editorship would, of course, be under his personal control. In effect, Stark was merely advocating the type of totalitarian control that Josef Goebbels' Reich Cultural Chamber had over newspapers and general literature, and which had become common in the Third Reich.

Von Laue and others rightly feared that if Stark's plan succeeded, then certain types of theoretical physics would effectively be silenced in Germany. The Würzburg conference probably reminded Stark of his self-inflicted professional isolation during Weimar, and he did not mince words: if the publishers did not go along, then he would use force. Although his plans certainly appeared to be a threat to intellectual and scientific freedom, Stark went out of his way to deny this in his Würzburg speech, either because he was employing the common but often effective National Socialist tactic of falsehood, or because in his own mind, "freedom of research" meant scientists were free only to do the sort of research he valued.⁴⁹

If Stark had hoped for the quiet acquiescence of his scientific colleagues, he was disappointed. Von Laue challenged him publicly at Würzburg by an implicit yet clear comparison of the contemporary fight against the theory of relativity with the Catholic church's trial of Galileo and subsequent attempts to ban the Copernican model of the planets moving around the sun. When von Laue noted that the earth still moves, his listeners knew exactly what he meant: despite the rhetoric of *Deutsche Physik*, the theory of relativity was true.⁵⁰ Stark was enraged by von Laue's speech, and subsequently reported to National Socialist officials that von Laue had received the enthusiastic applause of all the "Jews and their fellow travelers present."⁵¹ For his part, von Laue had carefully not attacked the National Socialist government or even Na-

tional Socialism, rather the *Deutsche Physik* campaign against Einstein.

The first tangible fruits of Stark's long-standing support for Hitler's movement came in May 1933, when he was appointed president of the Imperial Physical-Technical Institute—despite being rejected unanimously by the scientists consulted.⁵² Stark had been waiting for more than a decade for this opportunity. He threw himself into plans for an extensive reorganization and massive expansion of the PTR and took steps to ensure a more National Socialist institution. However, the PTR administration had already fired all its Jewish employees in April, before Stark became president.

Stark did cut off certain lines of basic research associated with modern physics, although much valuable research continued. The Institute took on a distinctly National Socialist flavor when Stark implemented the "leadership principle." Each individual had a specific position in a strict hierarchy. He had to follow all orders received from above without question, but in turn could expect unquestioning obedience from anyone below him. In the summer of 1933 the new PTR president fired the "Jews and leading figures of the previous regime" from the PTR advisory committee, which itself soon disappeared as well.⁵³

The new president had gigantic, if not absurd, plans for an expanded PTR, including fifty large institutes, three hundred labs, and thousands of scientific workers. Initially Stark was able to win Hitler's personal support for his plans. However, the proposed move to Munich or Potsdam fell victim to bureaucratic in-fighting, the passive opposition of the Reich Ministry of Finance, and shortage of funds. Nevertheless Stark did expand the PTR significantly, concentrating on military or military-relevant research.

In his infamous speech in Würzburg, Stark trumpeted that the new PTR would have great importance for science, the economy, and the national defense. A memo he wrote at the same time described the PTR as a central organ providing scientific support for the entire economy and national defense. By 1937 the PTR was working closely with the military, especially the Air Force and

Army Ordnance. The PTR had originally been created to establish national standards for science and technology; it now set the standards for armaments of all types, thereby taking on a key responsibility for the armed forces. Such a concentration on military research inevitably meant that there was less time and resources for basic research.⁵⁴

There was not enough money to go around in the Third Reich. At first science was not a high priority for the National Socialists, so Stark almost immediately encountered personal and bureaucratic resistance to his ambitions. In October 1933, Stark asked the NG for 200,000 Reich Marks (the official exchange rate paid 4.2 "Gold Marks" to the dollar) in order to begin accelerated research important for the economy and rearmament. Moreover, he argued that physical research throughout Germany had to be organized and channeled into the national defense.⁵⁵

An inter-ministry meeting was called to discuss Stark's exceptional request and included Erich Schumann from the Defense Ministry, representatives from the Finance and Interior Ministries, and Friedrich Schmidt-Ott from the Emergency Foundation. The official from the Ministry of the Interior began by asking Stark for precise details of the tasks to be funded. Stark responded instead with a long presentation in which he argued that a series of investigations had to be started immediately in the interest of national defense. He needed several hundred thousand Reich Marks, although at the moment Stark admitted that he could not provide a precise budget.

Schumann responded that most of this work was already being carried out elsewhere under the authority of the Army. Schmidt-Ott added that other projects mentioned by Stark were being done by the Transport Ministry with funding from the Emergency Foundation. Indeed all the subjects mentioned by Stark were already being examined, either by the Army Ministry, the Transport Ministry, Ministry for Aviation, the Postal Ministry, or the national Train Company. Stark responded by promising to submit a detailed written proposal.⁵⁶

The Ministry of Interior decided that this request could not be granted for legal reasons alone, never mind the fact that Stark's similar request in July for 100,000 Reich Marks had already been refused. The president of the PTR was clearly planning to use his institute to streamline and centralize research in Germany as much as possible, even though the other bureaucrats saw no need for a third such institution alongside the Emergency Foundation and KWG. The ministerial officials concluded from this case and others that Stark wanted to extend the influence of his institute further than was necessary. If Stark wanted funds, they decided, then he should apply to the Emergency Foundation like everyone else.⁵⁷

Such internal bureaucratic conflict was typical of the "poly-cratic" nature of the National Socialist state. Despite the National Socialist rhetoric of a disciplined government organized along the lines of the leader principle, Germany in fact now consisted of several power blocs which both cooperated and competed for power.⁵⁸ Apparently Stark never bothered to submit the promised description of his proposed research program.⁵⁹ Even though ultimately Stark somehow managed to go over the heads of these bureaucrats and receive the money he wanted, this episode made clear how and why he was making many enemies among the National Socialists now running the state bureaucracy.⁶⁰

Moreover, Stark's ideological enemies and half-hearted party comrades sometimes worked together against him. When the Prussian Academy of Sciences (PAW) considered admitting Stark in the late autumn of 1933, his old adversary, von Laue, managed to abort the nomination. Some governmental officials did push Stark's candidacy, but others in the Reich Ministry of Education (REM), who could have forced the PAW to admit the physicist, chose not to interfere.

Stark found time to continue his fight against modern physics, but at first he focused more on international opinion. In late 1933 Stark advised REM that a new debate over Einstein's theory of relativity in Germany would be superfluous, claiming that the scientific community had already made up its mind and there was hardly any more interest in such a debate.⁶¹ Shortly thereafter,

Stark took his case against "Jewish" science to the readership of the prestigious British scientific weekly *Nature*. Stark's letter to the editor asserted that the National Socialist government had not directed any measure against the freedom of scientific teaching and research. On the contrary, Germany's new leaders wanted to restore this freedom, which had been restricted by the preceding democratic government. The political measures which had been taken against Jewish scientists and scholars were necessary, he argued, in order to curtail the great influence they had but did not deserve.⁶²

The subsequent critical letters to the editor provoked another letter from Stark, a curious mixture of falsehood and insight. The National Socialist government had not persecuted Jewish scientists or forced them to emigrate, he insisted. It had merely reformed the civil service, including all kinds of officials, not just scientists. No government, Stark asserted, could be denied the right to reform its own civil service, and no group of officials, including scientists, could be granted an exception to such a law.⁶³ Stark was dishonest about the treatment of Jewish scientists, but he was right to point out that what was happening in Germany was not directed against science in particular. The "non-Aryan" scientists who lost their jobs and often were hounded out of Germany were persecuted because they were Jewish or for political reasons, not because they were scientists.

Stark took care to report his international propaganda efforts to the responsible German officials, noting that the National Socialist campaign against Jewish influence in German culture had provoked a strong response by Jews all over the world. Moreover, Stark added, the friends of Jewish scientists were trying to influence influential figures in the German government by arguing that Jewish scientists and especially their "Aryan" friends and allies in Germany had to be treated gingerly in order to pander to foreign opinion. Stark was mainly interested in using this opportunity to attack his favorite enemies, including the "sponsors of scientific Jewry" and friends and sponsors of Einstein who remained in their influential positions, specifically KWG president Planck, Berlin

university professor von Laue, and Munich university professor Sommerfeld.⁶⁴

But Stark did not attack all of his "non-Aryan" colleagues. In late 1934 the National Socialist Teachers League contacted Stark with regard to the experimental physicist Gustav Hertz. They wanted a scientific, pedagogic, political, and character assessment, and were especially interested in information regarding his *momentary* indispensability.⁶⁵ Stark responded that there was nothing Jewish about Hertz's statements, conduct, or scientific activity. In Stark's opinion, he was one of the few first-class German physicists, a Nobel laureate, and the nephew of the great physicist Heinrich Hertz. It would be stupid, Stark argued, to remove Hertz's right to teach just because his grandfather was a Jew. Moreover, Stark was convinced that Hertz would not take such humiliation quietly, rather would go abroad where he would be welcomed with open arms.⁶⁶

Hertz lost his professorship nevertheless, and retreated into a research position in German industry, where during the war he devoted himself to military research. Stark subsequently went out of his way to assist Hertz and his co-workers.⁶⁷ Stark was certainly anti-Semitic, but the Hertz affair illustrates that there is more to the story. Like many people during the Third Reich, Stark made his own definition of who was or was not a "Jew." Thus Stark could both assert that someone like Hertz was not really "Jewish" even though he fell under the legal definition of "non-Aryan" used by the National Socialists (having a grandparent who had belonged to the Jewish religious community), and attack others who were legally "Aryan" as "Jewish in spirit." However, the fact that Stark's racism was sometimes opportunistic does not make it any better. His anti-Semitism nevertheless remained virulent and vicious.

Stark did not always take the initiative himself in his efforts on behalf of National Socialism. In the summer of 1934 a high-ranking official in the Ministry of Propaganda suggested that Stark arrange a public declaration of support for Adolf Hitler by the twelve "Aryan" German Nobel laureates.⁶⁸ Stark sent telegrams to his fellow laureates and asked them to sign the following text: "In

Adolf Hitler we German natural researchers perceive and admire the savior and leader of the German people. Under his protection and encouragement, our scientific work will serve the German people and increase German esteem in the world."⁶⁹

Werner Heisenberg's return telegram tried to refuse without saying no. Although he personally agreed with the text, he considered it improper for scientists to make political statements and therefore he refused to sign.⁷⁰ The rest of the laureates responded similarly. Stark reported his failure to Goebbels himself and went out of his way to damn his colleagues while underscoring his own zeal by forwarding on his colleagues' answers as well as his criticism of their unwillingness to help the National Socialist cause.⁷¹

Stark's greatest assets were his few direct lines of communication to the highest levels of the National Socialist state. On 30 April 1934, Stark sent an outline of his proposals for the reorganization of German science directly to Hitler. The Reich Research Council he proposed would set guidelines for all research, control all funding, and oversee all research institutions.⁷² Less than a year later, the head of the Reich Chancellery, Hans Lammers, invited Stark to assess the organization of German research.⁷³ Shortly thereafter Stark tried to enlist the support of the Army for his plans to give the PTR a monopoly over technical testing and standards.⁷⁴

Initially, Stark's lobbying paid off. In the spring of 1934 he was appointed the president of the German Research Foundation (DFG), the renamed successor to the Emergency Foundation and the clearinghouse for most governmental funding of scientific research. When Minister of Education Bernhard Rust fired the foundation president Schmidt-Ott, he told him that Hitler had personally ordered Stark's appointment.⁷⁵ Stark happily told Leonard that together they could now develop the universities and scientific research in a Germanic sense.⁷⁶ Indeed this appointment had an immediate effect on physics: Stark stopped funding theoretical work after he became head of the Research Foundation, and henceforth only funded certain types of experimental research.⁷⁷

Lenard congratulated his colleague and celebrated the success of *Deutsche Physik* in the pages of the National Socialist daily *Völkischer Beobachter* (literally translated as "The People's Observer"):

It had grown dark in physics ... Einstein has provided the most outstanding example of the damaging influence on natural science from the Jewish side ... One cannot even spare splendid researchers with solid accomplishments the reproach that they have allowed the 'relativity Jews' to gain a foothold in Germany [The] theoreticians active in leading positions should have watched over this development more carefully. Now Hitler is watching over it. The ghost has collapsed; the foreign element is already voluntarily leaving the universities, yes even the country.⁷⁸

Lenard's article is typical of the tactics employed by *Deutsche Physik* in that he simply asserted without any proof that the "relativity Jews" had threatened German science and Germany itself.

Unfortunately for Stark, his two presidencies were offset by other developments in National Socialist science policy. Stark had enjoyed excellent connections to Interior Minister Frick, but in August 1934 responsibility for scientific research was transferred from his ministry to Bernhard Rust's REM.⁷⁹ Henceforth, Stark would see many of his efforts to reorganize and control German science sabotaged, diverted, or taken over by hostile REM bureaucrats.⁸⁰

Early in 1935 Stark was forewarned of an intrigue against him by an unexpected source. On 26 January KWG president and—using Stark's own label—"friend and sponsor of Einstein" Max Planck was called in by Rust, who read Planck part of an anonymous letter accusing Stark of making derogatory remarks to "non-Aryan" scientists about the policy of the Reich government. Such "anonymous" letters were often fabricated by the National Socialists themselves. Rust then asked Planck if he knew of such remarks and whether Stark had discussed the matter with him. Planck

replied with great care that he would have to describe the account given in the letter as tendentious.

The Education Minister then directed Planck to put down in writing the facts as he knew them. According to Planck, Stark had remarked that, with regard to the effects of the "Aryan paragraph" in the new civil service law, which effectively fired all Jewish civil servants, in a few cases a somewhat milder process would be desirable in the interest of science. Moreover, Planck told Rust that he agreed with this opinion. Within a few days of his audience with Rust, Planck brought this matter to Stark's attention. If someone tried to use Planck's letter against Stark, then he now would know precisely how and why.⁸¹

This episode is significant for three reasons: it illustrates bureaucratic intrigue in the Third Reich; it demonstrates how scientists like Planck were exploited in such intrigues; and it, along with the Gustav Hertz affair, reveals that despite his *Deutsche Physik* rhetoric, Stark was willing to make exceptions when it came to his "non-Aryan" colleagues. Yet the few examples of Stark's compassion are outweighed by the much more common and prominent vindictiveness he showed to his self-appointed enemies.

The most prominent scientist attacked by Stark as "Jewish in spirit" was the young theoretical physicist Werner Heisenberg, the student of Stark's hated rival Sommerfeld and one of the creators of the quantum mechanics, in other words, of part of "Jewish physics." At first Stark did not single out Heisenberg for abuse like von Laue, Sommerfeld, or Planck. Since the latter three physicists had influential positions in German science, they stood in Stark's way; Heisenberg did not. That all threatened to change dramatically when Sommerfeld announced his retirement and the University of Munich requested Heisenberg as his replacement. The "Sommerfeld succession"⁸² quickly was politicized and made into a prestige object in the struggle between "Jewish" and "Aryan" physics.

In the summer of 1934, when it appeared that Sommerfeld's Munich chair in theoretical physics would soon become free, Na-

tional Socialist officials connected with the University of Munich contacted Stark and asked for his assistance in finding a suitable successor. Since the university faculty was under the influence of "pro-Semitic" forces, the party officials would be grateful if Stark could name a productive and militant National Socialist.⁸³ Stark responded immediately that the Munich appointment was very important to him.⁸⁴

But Lenard's and Stark's desire to control university appointments and fill them only with candidates they found acceptable was complicated by their almost universal contempt for German physicists. In 1934 Lenard could hardly name ten physicists who would be suitable for science in the Third Reich.⁸⁵ Stark agreed wholeheartedly and argued that a professorship should be left vacant rather than be filled with the wrong person.⁸⁶ Finally, in a taste of what was to come, when Stark first tried to influence the Munich appointment in 1934, his party comrade and REM bureaucrat Theodor Vahlen politely declined, cynically arguing that regulations forbade any outside intervention in the search to fill a professorship. What Vahlen really meant was that only REM personnel would be allowed to manipulate and influence such matters.⁸⁷

Lenard and Stark now began spreading their gospel in other ways. Lenard's four volume textbook on *Deutsche Physik* (1935)⁸⁸ argued that everything created by man, including science, depends on blood and race. Thus the Jews had developed their own physics, which was very different from *Deutsche Physik*—which, Lenard noted, could also be called "Aryan" or "Nordic" physics.⁸⁹ Jewish physics could best be characterized by the work of its most outstanding representative, the "pure-blooded Jew Albert Einstein" and his theory of relativity.⁹⁰

The pompous renaming of the Heidelberg physics institute as the Philipp Lenard Institute in December 1935 provided an opportunity for Stark to rail against Jewish physics and Heisenberg.⁹¹ Einstein had now disappeared from Germany. But unfortunately his German friends and supporters were still active in his spirit: Einstein's main supporter Planck was still president of the

KWG, and his interpreter and friend Max von Laue was still the physics expert in the Prussian Academy. And Heisenberg, "spirit of Einstein's spirit," Stark noted pointedly, was supposed to be distinguished by an academic appointment.⁹²

Part of Stark's speech was subsequently used by a physics student named Willi Menzel in an article in the National Socialist newspaper *Völkischer Beobachter*: Einstein's theory of relativity, Heisenberg's matrix mechanics, and Schrödinger's wave mechanics were all dismissed as opaque and formalistic.⁹³ Heisenberg recognized the seriousness of Menzel's article and wrote his own piece for the National Socialist daily. But his article was accompanied by a counterattack by Stark. Heisenberg was still advocating "Jewish physics," and indeed expected that young Germans should take Einstein and his comrades as role models.⁹⁴ From this point onward, Heisenberg was the focal point for Stark's attacks on "Jewish physics."

Willi Menzel's role in the concerted campaign of character assassination against Heisenberg is significant because the National Socialists were most concerned with winning over German youth. One of the most effective methods for grabbing and holding the attention of university students were mandatory political reeducation camps, often devoted to specific topics within the context of the National Socialist "People's Community": the new national, and racially homogeneous community which would eliminate class distinctions and social inequality. This community was often more propaganda than reality, but many Germans had to make at least symbolic gestures towards a classless society. University professors were pressured to attend indoctrination camps where they would mingle with Germans from all classes and professions. If a young scientist wanted to get a teaching job or perhaps a promotion, then in practice he was forced to attend a similar camp as well.

In early 1936 a "physics camp" was held at Darmstadt for university students from throughout the Reich. The teaching staff was dominated by four adherents of *Deutsche Physik*, all of whom had received teaching positions during the first years of the Third

Reich: Alfons Bühl, professor at the Technical University at Karlsruhe, Prof. August Becker, Lenard's successor at the University of Heidelberg, Rudolf Tomaschek, professor at the Munich Technical University, and Prof. Ludwig Wesch, also at the University of Heidelberg. They were joined by three other physicists, including Dr. Wilhelm Dames from the Education Ministry.⁹⁵ Menzel was one of the students attending the camp. He wrote the official report on the camp's accomplishments, and sent a copy to Stark.

Alfons Bühl told the assembled physics students that physicists had gotten a bad reputation because they had not paid enough attention to practical matters. Physics had to be made relevant for society at large. The training of science teachers was fundamentally wrong: teachers knew the laws of quantum physics and wave mechanics, but little of applied and experimental physics. The influence of Jewry had made the physicist into a desk physicist. Perhaps most important for the students, Bühl argued, was the historical study of physics through Lenard's *Deutsche Physik*, including examinations of the influence exerted by Catholicism and Jewry, as well as the worldview of "Nordic" physics.

The adherents of *Deutsche Physik* did not forget to attack "Jewish physics." Science had been greatly affected by the influence of Jewry since the end of the first world war, they claimed. Jewish research was little more than mathematical formulas. The theory of relativity was mental acrobatics. While the "Aryan" physicist drew pleasure from nature, the Jewish physicist relied on self-made formulas. Mathematics was merely an auxiliary aid. Finally, Bühl brought up Heisenberg in this context: he possessed a mathematical, constructive, and "Jewish" mind.

Dames, who represented REM and was neutral on the subject of *Deutsche Physik*, argued that a physicist had three tasks: long-term research; immediate applications—for example, the use of physicists in World War I; and political and ideological work. Pure science was insufficient, rather applications were required. When Heisenberg's name was mentioned, a student from Leipzig said

that the physicist was a genius. Dames replied that Heisenberg was interested only in pure science and therefore was seen as a genius.

But in careful contrast to Bühl, Dames allowed that one day Heisenberg might abandon his one-sidedness and appreciate practice. Dames took care to echo National Socialist ideas even while distancing himself from the specific doctrines of *Deutsche Physik*. The National Socialist ideology of physics was based upon militarism and racial solidarity.⁹⁶ This physics camp is important because it makes clear that the *Deutsche Physik* of Lenard and Stark had no monopoly on "Nazi physics." The Third Reich was interested in science that would help further their long-term goals of racial purity and military expansion. As Dames made clear, even Heisenberg would be acceptable, if the National Socialist state found his physics valuable.

Although Stark's career and the fight against "Jewish physics" appeared to be going well, his attention was diverted by a serious political threat from Adolf Wagner, one of the most ruthless and powerful of the National Socialist regional party leaders. Stark became embroiled in local party politics and challenged Wagner's authority by accusing a local party leader, Endrös, and a local mayor, Karl Sollinger, of improper conduct and damaging the prestige of the NSDAP.

In early 1934 Stark told Wagner that the Endrös matter was so important that Stark felt obligated to make a formal written complaint. Endrös had misused his position as local party leader to intervene illegally in a financial matter and thereby shield an acquaintance who had defrauded both the local government and a widow. Such a man should at least be removed at once from his Party offices. Moreover, since Endrös used lies and slander against his enemies, Stark assumed that he was also using them against him.⁹⁷ Nothing happened to Endrös, but this matter was just the beginning of Stark's struggle with the party officials in Stark's home town of Traunstein and the surrounding region of Upper Bavaria.

Less than a year later Stark intervened again in the local politics of Wagner's region, with serious consequences. Karl

Sollinger, Traunstein mayor and city leader of the NSDAP, had been arrested on the authority of Justice Minister, Franz Gürtner, who significantly was not a member of the NSDAP but rather was one of the many representatives of the old order who had helped Hitler into power and who shared power with the National Socialist movement during the first years of the Third Reich. Wagner contacted Gürtner immediately. Although Wagner admitted that the offenses of Sollinger and comrades should not be condoned, they should merely be warned. The state had no interest in the carrying-out of his sentence, since the desired goal could be achieved merely by announcing and suspending the sentence.⁹⁸

Gürtner responded by going over Sollinger's offenses in detail. Sollinger had been sentenced by the special court in Munich in October 1934 to eight months imprisonment for resisting the state's authority and causing dangerous bodily harm. On 20 August 1934, when police commissioner Betz announced the curfew in the local tavern, Sollinger refused to go home. Betz was then brutally beaten and stabbed by Sollinger and others. Wagner advised Sollinger to ignore the sentence. When the party leader told Gürtner that the sentence could not be carried out at that time for reasons of state and party, the Justice Minister agreed.

Sollinger was subsequently sentenced again by a Traunstein court to six months prison and 50 Reich Marks penalty for embezzling from the Winter Relief Fund. This fund was a supposedly voluntary collection taken up by the National Socialist movement, but in fact was a type of coercive tax designed to raise funds and force people into making public shows of support for the National Socialist cause. Fortunately for Sollinger, this sentence was eliminated in the general pardon decreed by Hitler on 7 August 1934—but his guilt remained clear.

Sollinger's conduct and his apparently successful attempts to avoid punishment had caused considerable unrest in the area of Traunstein. This had gone so far that Stark, who owned an estate in the Traunstein area and was considered a party spokesman by the local population, had repeatedly come to Gürtner and argued that it was an urgent necessity in the interests of state and party

that Sollinger's sentence be carried out. Gürtner had nevertheless been willing to let Sollinger go unpunished, but the latter finally forced Gürtner's hand. Stark informed the Justice Minister that Sollinger had once again clashed with the police by refusing to obey the curfew. Moreover, Sollinger had bragged about his power, claiming that he would never obey the police, and that his friend Wagner would always protect him. Worst of all, Wagner had hushed up this incident.⁹⁹

Once Wagner's staff knew that their party comrade Stark had denounced Sollinger, they began a concerted campaign of character assassination. First, they told Hitler's personal chancellery that although Stark did have the confidence of a portion of the local population, these were the people who were hostile to National Socialism. Stark wanted to shake up the Traunstein leadership merely because the local leader had once alienated him. In any case, Stark did not have the right to interfere in party political matters. He could not judge whether or not the punishment of Sollinger was in the interest of the state or party. This decision could only be made by the responsible party and state authorities. Stark knew very well, Wagner's staff added, that both the local and regional authorities had always backed Sollinger.¹⁰⁰

Wagner's own reaction was swift and severe. He began legal proceedings to throw Stark out of the NSDAP. If Stark wanted to complain about the conduct of a party comrade, then he should have made his report to his regional leader. Moreover, Stark had known that Wagner had taken Sollinger's side against the Justice Ministry. By taking a party matter to the Ministry of Justice—which was not controlled by a National Socialist—Stark had caused considerable public damage to the image of both Wagner and the party.

Wagner provided a cynical and hypocritical justification for the process against Stark: a party comrade should not treat another party comrade badly or damage the image of the party.¹⁰¹ When Wagner's staff submitted their application for Stark's expulsion to the Berlin party court, they also referred to a February 1936 decree by Rudolf Hess, Hitler's personal representative for party affairs

and the highest ranking official in the NSDAP: every party comrade who filed complaints in party matters to external state authorities would be expelled.¹⁰²

The Bavarian Party leader then contemptuously told off Gürtner. Wagner had asked Hitler for a pardon for Sollinger, whom Gürtner had imprisoned due to Stark's intrigues. The Justice Minister had no idea of the damage he had done to Hitler's political movement and the National Socialist state. Now action had been taken to throw Stark out of the NSDAP for imprisoning a party comrade by denunciation. Moreover, there was no doubt in Wagner's mind what the outcome of this process would be. Stark's days in the party were numbered.¹⁰³

Stark's first reaction to his threatened expulsion was to demand that the court secure and examine the files from the previous court cases he had brought against Endrös and the counter-suit Endrös had brought in turn, as well as the Sollinger records. Stark suspected that these documents would reveal that Wagner's representative Nippold had intervened illegally on Endrös' side.¹⁰⁴ A few days later Stark went further and applied for Wagner's expulsion from the NSDAP, an extremely unlikely outcome which either demonstrated Stark's fearlessness, his rage, or his naiveté.

The physicist accused Wagner of vile defamation of character and damaging the prestige of National Socialism in the Sollinger case. Wagner had told the regional court in Upper Bavaria that Stark had already been thrown out of the NSDAP by the party leadership. The same claim was disseminated in the region of Traunstein by local party officials. Wagner's obviously untrue claim had defamed Stark's character in Traunstein. Moreover, this internal party matter spilled over to Stark's professional reputation. Wagner had also spread this falsehood in REM and thereby questioned Stark's character within the ministry. Indeed Wagner's slander had even become known among Stark's employees at the PTR. This character defamation was especially incriminating for Wagner because he knew that Stark had publicly supported Hitler as early as 1924 and had worked hard for the National Socialist movement during the last years of the Weimar Republic.

Stark reminded the court that he had held many large public rallies for the National Socialists near Traunstein. He thereby won the confidence of many people in the region for himself and the National Socialist movement. Therefore, Stark felt responsible for seeing that NSDAP functionaries were held to the fundamental principles of National Socialism, for which he had fought. In particular, Stark had certainly done more for National Socialism than either Endrös or Sollinger. Since Stark had gone to Wagner twice with no result, the latter had no right to be upset that the physicist did not go to him a third time. Stark had always acted loyally and correctly, while Wagner had failed in his duty by doing nothing. Even though Sollinger had almost killed the policeman, Stark emphasized, Wagner immediately freed him from jail.¹⁰⁵

The party court in Berlin examined the Stark case, but told the highest party court in Munich that a trial against Stark appeared unjustified. How could the party completely back one political leader, who had been found guilty by state courts, and simultaneously expel another party comrade, who from a party standpoint had not gone through the proper channels and thereby acted incorrectly, but at least had acted with a clear conscience?¹⁰⁶ The Munich court decided to handle the Stark matter itself.¹⁰⁷ Martin Bormann, Hess' second-in-command, now took a personal interest in the Stark case, most likely because of the physicist's standing as one of Hitler's earliest supporters.¹⁰⁸

The conflict with Wagner and looming expulsion from the NSDAP made Stark vulnerable. In February 1936, Rust told Hitler that Stark, who was already overwhelmed by his two presidencies, had also offered his services as president of the KWG.¹⁰⁹ Stark fought back by telling Lenard that Rust was a liar. Stark would not become Planck's successor even if he was asked. Rust clearly found it useful to portray Stark as power-hungry¹¹⁰ and certainly did not want to see him become president of the KWG.

Stark had now fought for nearly two years against what he considered the criminal intentions of Rust's subordinates in the hope that the minister would finally come to his senses. But Stark's patience had come to an end, he wrote Lenard on 11 April. If his

desired changes were not made by the end of the month, then he would ask Hitler's permission to retire from his two presidencies. Under the present circumstances, Stark said, his work had been made impossible.¹¹¹ Lenard asked Stark to wait at least until the presidency of the KWG had been decided.¹¹²

But on 29 April, Stark wrote him that the situation had now deteriorated. Rudolf Mentzel, an influential bureaucrat in the Ministry of Education who, in Stark's words, was young, narrow-minded, unscrupulous, and power-hungry, enlisted Vahlen's assistance to cut the Research Foundation budget from 4.7 to 2 million Reich Marks. Furthermore, Mentzel retained power over 1 million of that, and would transfer the remaining million to Stark only on a case-by-case basis, each time requiring Stark to seek Mentzel's approval. Stark had now been made superfluous and felt that the only honorable thing for both him and German science was to resign. Any appeal to Rust would be pointless.¹¹³

Stark had a knack for making enemies, both within the scientific community and the National Socialist movement. As if he did not have enough problems, in the following months he managed to alienate the Ahnenerbe, the scientific research branch of the SS. Stark denied the SS research DFG funds because he did not consider their projects scholarly enough.¹¹⁴ The subsequent internal SS report to chief Heinrich Himmler spelled out the problem. Although Stark was a National Socialist, the SS official noted that he did not have the slightest comprehension of politics within the National Socialist movement.

Unfortunately for the SS, Stark believed that science should serve the National Socialist state, but was nevertheless an objective search for truth pursued according to international standards. In other words, what was good science would be determined by the international scientific community according to traditional requirements for research and publication. In Stark's mind there was no contradiction between this stance and his *Deutsche Physik*.

The SS took the position that science, like everything else in the Third Reich, should obey the National Socialist leadership and be determined by the requirements of politics and ideology. Good

science was research that provided Himmler with the results he wanted and needed. Thus when the Ahnenerbe complained that Stark did not have the slightest understanding for those sciences which had been reinvigorated during the last three years by National Socialism, it was in fact referring to the physicist's rejection of pseudo-science designed to serve National Socialist ideology and policy. Stark had no problem with the ideology or policy, but he refused to fund pseudoscience with funds from the German Research Foundation.

The SS feared that if the combined pressure of Himmler and Rust could not make Stark and the DFG appreciate the work of the Ahnenerbe, then the SS would have to finance the research by itself.¹¹⁵ In fact there was a third solution: force Stark to resign. The physicist had never had the support of the scientific community for his presidency, had alienated REM and the SS, and was fighting to stay in the NSDAP. Mentzel had effectively reduced the DFG president to a figurehead. All that remained was an excuse to push Stark out to pasture, for despite what Stark had told Lenard, he now clung to power.

The opportunity came when one of Stark's funding decisions blew up in his face. He invested considerable sums of Research Foundation money in order to subsidize a scheme to refine gold from peat, but the process was worthless and the peat bogs had no gold.¹¹⁶ Stark was forced to resign by the threat of a public scandal. REM offered him a deal: if he resigned from the DFG, then he could keep the presidency of the PTR. Mentzel, one of Rust's most powerful aides and an honorary SS member willing to support the Ahnenerbe research, was his successor.¹¹⁷

As usual, Stark did not hide his frustration from Lenard, his comrade-in-arms. Now that he was rid of the heavy burden of the DFG presidency, he wrote Lenard in November of 1936, he felt psychically and physically relieved and was pleased to be able to devote himself more to scientific work. For two and a half years Stark had fought as president of the DFG, not only for German science, but also against what he called its bureaucratization.¹¹⁸

In other words, Stark saw himself as having been fighting almost single-handedly for a second revolution in German science which would go far beyond the initial National Socialist purge of the civil service. His real opponents were not the "friends of the Jews," rather the National Socialists now running the state bureaucracy. But by now the leadership of the Third Reich had little tolerance for such uncoordinated, unsolicited, and unwelcome agitation. In the summer of 1934 Hitler had used the SS to purge the SA (*Sturmabteilung*, translated as Stormtroopers) leadership in the "Night of the Long Knives," murdering Ernst Röhm and other officials who had threatened Hitler's position by their persistent calls for a far-reaching second National Socialist revolution.¹¹⁹

Stark did have allies and sympathizers who offered their solace. A member of Hess' staff was shocked by the news of Stark's resignation and asked for the details so that he could pass them on to his boss.¹²⁰ Another letter of condolence cast some light on Stark's mismanagement of the Research Foundation. Although a colleague from Alfred Rosenberg's party office was personally moved by the news of Stark's resignation, he was very surprised by the form which the physicist chose for expressing his thanks: a check from the DFG account. Since the Rosenberg official was already compensated for his work in Rosenberg's office and the DFG funds were limited, he returned the check.¹²¹ Not everyone turned down Stark's offer. A staff member at Hans Frank's ministry noted Stark's resignation from the DFG with sincere regrets and great concern. The check the physicist had sent him was further proof of his great generosity.¹²²

Stark's successor Rudolf Mentzel was not pleased by the physicist's last minute generosity with DFG money and subsequent threat to cut off all cooperation between the PTR and DFG unless Mentzel provided the PTR with additional funds. Mentzel replied that, since Stark had left him 1.8 million Reich Marks in commitments but only 1.5 million in the bank, it would not be possible to spend more money anytime soon.¹²³ Stark softened his tone and assured Mentzel that, if he could count on the understanding and cooperation of the Research Foundation in the future,

then he was prepared to support the DFG.¹²⁴ The PTR president even went so far as to make the token gesture of transferring 3000 Reich Marks from his special president's fund back to the DFG. Mentzel welcomed the transfer as evidence of Stark's willingness to cooperate.¹²⁵

By the time of this last exchange in February 1937, the party court proceedings against Stark were already underway.¹²⁶ Stark testified that he had gone to the Reich Ministry of Justice with the Sollinger case out of concern for the prestige of the party and state. It was in their interest that Sollinger serve at least a token sentence. Shortly thereafter Stark had visited Hans Frank, a leading National Socialist lawyer, and said the same thing. Stark had spoken once with Wagner and twice with Endrös on this matter, as well as sending Wagner a letter. When Stark went to the Justice Ministry, he had been unaware that he was going against Wagner's will, although this became clear later.

In short, Stark denied that his discussion with the Justice Ministry was in any way undisciplined. He had been doing a service for both the party and the state. If Stark had known that all such complaints should have gone through Hess in his function as Hitler's personal representative for party matters, then Stark would have done so.

But Stark's real and most effective defense was his long-standing and valuable service to Hitler's movement. As he reminded the court, in 1932 and early 1933, the physicist had made countless political campaigns in Traunstein and the surrounding region for the NSDAP and thereby gained prestige as a spokesman for National Socialism. When the glaring injustice of the Sollinger case took place, Stark believed that he was obligated to ensure that this matter would be handled in a way which corresponded to the interests of the party and the state.¹²⁷ The Sollinger case threatened to expose a double standard: party comrades and non-party comrades were being treated differently. Finally, Stark took care to tell the court once again that Wagner had spread lies about him and demanded an expulsion process against the regional leader.¹²⁸

The court could not tell after hearing Stark's testimony whether the physicist had consciously gone against Wagner's will, or had been proceeding with a clear conscience.¹²⁹ Wagner in turn angrily denied the scientist's claim of ignorance. Although Stark had repeatedly pushed the Party leader to do something about Sollinger, Wagner had always refused. But that was not the point. Even if Stark's claim had been true, Wagner insisted that, as a long-standing National Socialist, the physicist should have known that a National Socialist did not sell out a party comrade to the Ministry of Justice. However, Wagner now saw fit to be forgiving. Since Stark had fortunately lost the presidency of the DFG, he had been punished enough. Wagner was prepared to halt the expulsion process, so long as Stark recognized his error and apologized to both Wagner and Sollinger in writing.¹³⁰

Johannes Stark began the Third Reich with a great deal of political influence, perhaps more than any other German scientist. But he had already squandered most of his power by 1937, before he made his famous public attack on Heisenberg. Thus this attack was not the result of Stark's success in the Third Reich, rather of his failure.

The Alienation of an Old Fighter

The "White Jew" Stark's situation in the summer of 1937 was grim. He had been forced to resign from the DFG after years of struggle with party comrades in REM. Since Stark refused to humiliate himself by apologizing to Wagner, his case before the highest party court threatened to throw him out of the NSDAP. After having lost so much already in the Third Reich, Stark decided to fight for what he had left—the purity of *Deutsche Physik*. Once again, Stark adopted a strategy of character defamation in order to deny the Munich professorship to Werner Heisenberg, but this time Stark took the consequential step of allying himself with forces within the SS.

By the middle thirties Stark had become contemptuous of the "dogmatic" theoreticians of his time, who he claimed were no longer capable of understanding experimental physics.¹³¹ Such theoretical physicists produced work which conflicted with reality

and remained silent about uncomfortable facts.¹³² But it was the combination of Stark's long-standing feud with Arnold Sommerfeld, the fact that Munich lay in his native region of Bavaria and was the capital of the National Socialist movement, where Hitler's movement had gotten its start, and Stark's recent setbacks that pushed him beyond his previous ideological excesses and led to vicious and dangerous personal attacks on Heisenberg. If he could not defeat his party enemies, he could at least try to gain some satisfaction in the fight for the ideological purity of physics.

In February 1937 the Bavarian Ministry of Culture requested that Heisenberg be called to the Munich professorship.¹³³ But the head of the Reich University Students League appealed Heisenberg's appointment. Ludwig Wesch hoped that if Heisenberg could be kept out and the call of the *Deutsche Physik* adherent Rudolf Tomaschek to the Munich Technical University went through (as it subsequently did), then there would at least be one stronghold of "Nordic research" standing guard in Munich.¹³⁴

Stark was now forced to ask the hated REM for assistance. He called Dames in June 1937 concerning the Munich appointment, but he was told that as an outsider he could not be granted access to the files or the candidate list submitted by the Munich faculty. However, REM would be pleased to hear Stark's suggestion for the post.¹³⁵ Stark now took a step designed to force REM's hand and keep Heisenberg out of one of the few *Deutsche Physik* strongholds: he used the SS to attack Heisenberg's character.

On 15 July 1937 an anonymous article appeared in the SS weekly *Das Schwarze Korps* (literally translated as "The Black Corps") shamelessly¹³⁶ attacking Heisenberg as a "white Jew" and the "Ossietzky of physics."¹³⁷ The chilling term "white Jew" described an "Aryan" who had been tainted or contaminated by Jewish spirit. The equally threatening label "Ossietzky of physics" referred to the socialist and pacifist Carl Ossietzky, who had provoked Hitler's rage by receiving the Nobel Peace Prize while imprisoned in a concentration camp—where he died.¹³⁸ Such personal attacks were exceptionally dangerous for the individual

target, but in the long run proved ineffective as far as official policy towards physics was concerned.¹³⁹

Friedrich Hund, a colleague of Heisenberg at the University of Leipzig, told the rector that the purpose of the *Schwarze Korps* article was clearly to hinder Heisenberg's call to Munich.¹⁴⁰ Stark's own contribution, "'Science' Has Failed Politically," immediately followed "White Jews in Science" and made clear who was behind the attack. Stark pointed out that German science had manifestly failed to rally to Hitler's cause. Even though the Jews were gone, Stark cautioned that most of the Jews' "Aryan" comrades and students remained in their positions. Finally, Stark dismissed arguments that these scientists were indispensable for the economy and national defense.¹⁴¹

In fact, the physicist had not overcome the hostility the SS had for him. Somehow Stark had gained only the assistance of the rather independent editor of *Das Schwarze Korps*. But it certainly appeared to the general public that the SS had now thrown its weight behind *Deutsche Physik*. Several leading British scientists brought the article in *Das Schwarze Korps* and in particular Stark's remarks on "White Jews in Science" to the attention of the editor of *Nature*, who wrote Stark on 11 October that he hesitated to make any reference to this report without confirmation that it accurately represented Stark's considered opinion upon the subject of "White Jews." The scientific world, the *Nature* editor added, would be interested in knowing Stark's views on the "relation of a certain group of people to scientific progress."¹⁴²

Stark was flattered by this request and immediately replied that he would be pleased to provide *Nature* with an article on the influence of Jews in German science.¹⁴³ *Nature* responded quickly in turn and requested an article of 1,000 to 1,500 words on the subject of "Jewish influence on science in Germany or elsewhere." The editor assured Stark that he was completely independent of either Jewish or anti-Jewish influence, and only desired to promote international cooperation in pursuit of the principles of truth and the progress of natural knowledge.¹⁴⁴ *Nature* may have chosen to contact Stark before publishing any criticism of the articles in *Das*

Schwarze Korps because its editor feared that his journal might be banned in Germany. Indeed in late 1937 *Nature* was proscribed in German libraries¹⁴⁵ after it had been attacked as an atrocity journal.¹⁴⁶

Stark proceeded cautiously. After his manuscript was finished, he sent it first to a party comrade and high-ranking official in the Ministry of Propaganda for approval. Stark told him that he had been leading a tough and bitter struggle against the "Jewish spirit" in science. It was very important to Stark that Heisenberg, who he called the champion of Jewish influence, not be honored with a call to the university in Munich. This goal had been served by the article which appeared in *Das Schwarze Korps* and which had incited international Jewry against Stark even more than before. Jews and their comrades were now attacking Stark in *Nature*, a journal with a world-wide distribution. Fortunately, its editor had been decent enough to contact Stark. The enclosed article had been written with scientific objectivity and in Stark's own words was pitched to the Anglo-Saxon and "non-Aryan" psyche. Of course, Stark hastened to add, when he wrote other publications for Germans, he naturally was clearer and more concrete.¹⁴⁷

Stark's article, "The Pragmatic and the Dogmatic Spirit in Physics,"¹⁴⁸ provides a good opportunity to examine his often tortured arguments concerning "Aryan" and "Jewish physics." In his *Nature* article he could not simply use National Socialist slogans and threats in order to silence opposition, but rather had to limit himself as much as possible to rational argument and logical persuasion. Stark admitted that physical science itself is international, that is, the laws of nature are independent of human existence, action, and thought, and are the same all over the world. However, he insisted that the manner in which physical research is carried out depended on the spirit and character of the scientists involved.

There were two principal types of mentality in physics, the "pragmatic" and the "dogmatic." The pragmatic scientist wants to discover natural laws by means of experiment. He may use theoretical conceptions, but if they do not agree with the experimental

results, then the theory is abandoned. The pragmatic goal is to establish reality. In contrast, the dogmatic scientist begins with a theoretical conception based on ideas he has created, uses mathematics to elaborate them, and finally seeks to give them physical meaning.

If they agree with experimental results, then the dogmatic scientist emphasizes this agreement and implies that these experimental results could only have been established and only have scientific importance because of his theory. But if the experimental results do not support his theory, then he questions their validity or considers them so unimportant that he does not even mention them. Furthermore, Stark claimed that dogmatic physicists imply that their theories and formulas cover the whole range of phenomena. They do not see any further problems in this field, rather their formulas freeze any further thought or inquiry.

According to Stark, this difference between pragmatic and dogmatic physics has important consequences. Whereas the "pragmatic spirit" leads to new discoveries and knowledge, the "dogmatic spirit" cripples experimental research and is comparable to the theological dogmatism of the Middle Ages. Stark then put faces to these labels. The German experimental physicist Philipp Lenard and his British counterpart Ernest Rutherford were pragmatic. Both had made important experimental discoveries, the former for the connection between the electron and light, the latter in radioactivity and the nuclear structure of atoms. In contrast, Stark labeled the theoretical physicists Max Born, Pascual Jordan, Werner Heisenberg, Erwin Schrödinger, Arnold Sommerfeld, and more importantly, Albert Einstein, dogmatic. Their work was arbitrary and "physical-mathematical acrobatics."

But what disturbed Stark the most was not the dogmatic theories themselves, rather *how* they had become influential,¹⁴⁹ the same criticism he had made in 1922. The pragmatic physicist did not conduct propaganda for his research results. But the protagonists of the dogmatic spirit were very different. They did not wait to see whether or not their theories might prove to be inadequate or incorrect. Instead they use articles in journals and newspapers,

textbooks, and lecture tours to start a flood of international propaganda for their theories, sometimes almost before they have even been published. Neither Lenard nor Rutherford used lecture tours to promote their results, Stark noted, but propaganda for Einstein's theory of relativity had been carried to a wide public around the world.

Stark now turned to the specific situation in Germany. During the previous three decades the representatives of the dogmatic spirit had become dominating with the help of the governmental bureaucracy, in particular by acquiring many physics professorships. This domination of academic physics, together with lively propaganda for modern dogmatic theories, meant that much of German academic youth was educated in the dogmatic spirit. Stark had repeatedly observed the crippling and damaging effect this domination had had on the development of physical research in Germany.

Finally, Stark turned to the matter of the Jews. He had opposed the damaging influence of Jews in German science because they were the chief exponents and propagandists of the dogmatic spirit. According to Stark, the history of physics demonstrated that the founders of physics research, and the great discoverers from Galileo and Newton to the physical pioneers of his own time were almost exclusively "Aryans," "predominantly of the Nordic race." Thus Stark concluded that men of the "Nordic" race were predisposed towards pragmatic thinking. In contrast, the originators, representatives, and propagandists of modern dogmatic theories were predominantly "men of Jewish descent." Moreover, Jews had played a decisive part in the foundation of theological dogmatism and were mainly responsible for Marxism and communism. Thus Jews were naturally inclined to dogmatic thought.

Stark finished his article with several qualifications. Of course there were "Aryan" scientists who were dogmatic, and there were Jews who could produce valuable experimental work in the pragmatic spirit. "Aryans" could become accustomed by training and practice to dogmatism and Jews to pragmatism. Stark would welcome scientific achievement and new discoveries no

matter who made them. He combated the harmful influence of the dogmatic spirit in physics whenever he encountered it, whether the culprit was a Jew or not. Moreover, Stark noted that he had been fighting this battle since 1922, not 1933.

In other words, Stark's juxtaposition of pragmatic and dogmatic physics had two complementary sides: (1) an experimental physicist's rejection and lack of appreciation of modern theoretical physics, compounded by his own personal and professional bitterness; (2) his own personal brand of anti-Semitism and support of National Socialism. Stark thereby rejected the two most common National Socialist attitudes to physics (or indeed to science): either (1) an opportunistic approach, whereby if scientists and science were useful for the state, then they would be used; or (2) an idealistic approach, whereby a Jewish scientist was a Jew first—and therefore an enemy of Germany—and scientist second. Since Stark fell in neither camp, he could be sure of support from neither.

When his comrade-in-arms Lenard criticized Stark for publishing in what he called the "Jewish journal" *Nature*, Stark's growing alienation and bitterness became crystal clear. Stark's struggle against the "Jewish spirit" had been systematically boycotted by the influential German authorities. Indeed influential forces in the National Socialist state had begun to forsake him and instead either line up behind scientists like Heisenberg or remain neutral. In 1936 Alfred Rosenberg stopped taking Stark's articles in the *Völkischer Beobachter* and in Stark's opinion had become "the protector of the friends of the Jews." *Das Schwarze Korps* no longer accepted Stark's articles as well. The SS began an investigation of Heisenberg immediately after the 1937 article attacking "white Jews," which ended with Heisenberg's political rehabilitation. Under these conditions Stark had to be grateful to the editors of *Nature* for the invitation to bring the influence of Jews and the Jewish spirit before a large international public.¹⁵⁰

Ironically, the articles in *Das Schwarze Korps* and *Nature* convinced very many people inside and outside of Germany that Stark was very powerful indeed, perhaps even the dictator of physics he claimed. In fact, when the *Nature* article was published in the

spring of 1938 Stark's influence had peaked and was fading fast. In particular, the main result of the article in *Das Schwarze Korps* was that the head of the SS, Heinrich Himmler, threw his support behind Heisenberg and forbade any further attack.¹⁵¹ As the head of the SS explained to his subordinate, Germany could not afford to lose Heisenberg, who was relatively young and could train another generation of scientists,¹⁵² something Stark and Lenard obviously could not do.

Since Stark had refused to apologize to Wagner, the supreme party court scheduled his trial to begin in the fall of 1937.¹⁵³ Stark's trial had been repeatedly delayed because the court records of the relevant previous trials in Bavaria had not arrived. Wagner had apparently hindered their transmission in the hope that Stark's case would be decided without them. When the Highest Party Court made clear that they would not proceed before they arrived, the local court officials in Wagner's region finally relinquished them.¹⁵⁴

Stark described this trial as the tragic end of his fourteen year struggle for Hitler and his movement¹⁵⁵ and flatly rejected the charges against him. Appealing to the Justice Ministry was no offense against the NSDAP and the fact that a regional leader disagreed did not make it so. Stark was not responsible to Wagner and the latter's opinion was hardly identical to that of the NSDAP. Indeed Wagner had demonstrated through his conduct that he, not Stark, did not deserve to belong to the NSDAP.

The PTR president and old fighter was shaken by the fact that the Highest Party Court began a trial against him for conduct which he had felt obligated to do precisely in the interest of the party. Stark had been fighting longer for Hitler and the NSDAP than had Wagner, and could judge for himself what benefited or damaged the party. Moreover, the physicist had no intention of taking his expulsion quietly: he would inform Hitler personally of the tragic end of Stark's struggle for the NSDAP and its *Führer* (Hitler's title, literally translated as "leader"). Hitler, Stark was convinced, would not judge his conduct as an offense against the efforts of the party.

Once again, the physicist went down the list of his distinguished service to National Socialism. Stark began supporting Hitler publicly in 1923 and in particular when the National Socialist leader was imprisoned after the failed Beer Hall Putsch. In 1930 Stark sacrificed his scientific work in order to help put Hitler and the National Socialists over the top. The *Führer* subsequently thanked the physicist heartily in the name of the party for his work. Even after the National Socialists came to power, Stark continued to fight for Hitler and National Socialism, for example in his *Nature* articles. Scientists outside of Germany, Stark claimed, considered him both the most respected and most hated "Nazi Professor."

Lately Stark had been fighting within Germany against the scientific influence of Jews and their comrades. This struggle had led to a cowardly conspiracy against him, whereby influential party comrades harassed Stark and tried to stain his reputation. Wagner's efforts against him were all the more bitter because the Party leader had been Stark's student in Aachen where the professor had benevolently assessed Wagner's examination, i.e., had given Wagner a grade he really did not deserve.¹⁵⁶ Finally, when Stark came to the end of his statement, he did not merely ask to remain in the party. He demanded again that the court give him satisfaction and expel Wagner.¹⁵⁷

After careful consideration of all the testimony and evidence, the Munich court saw no point in proceeding with Stark's trial. There was no doubt that Stark truly believed that Sollinger should have been disciplined. Stark could be punished only for not going through official party channels to Hess with his complaints. Since Sollinger had not been punished in any way—and obviously would not be—and Stark had already lost the presidency of the Research Foundation, the court intended to stop the proceedings—if Hess agreed.¹⁵⁸

The NSDAP leadership agreed that the trial should be quashed. Indeed, Hess' office remained one of the few forces within the National Socialist state that continued to support Stark, possibly because he was an old fighter.¹⁵⁹ Although the physicist should have taken his complaint to Hess, the court had to agree

with Stark that the Sollinger affair had hurt the image of the party. Stark may also not have known that he should have gone through Hess. Thus he had very little guilt. The court decreed that no punishment was necessary, especially since the accused had performed valuable services to the National Socialist movement during the "time of struggle," as the National Socialists described the Weimar Republic.¹⁶⁰ Stark could now stay in the party, even though he had already become an outsider. In many respects the struggle with Wagner left him a broken man.

All that Stark had left was the fight to deny the Munich professorship to the "dogmatic" "white Jew," Heisenberg. In the end the public attack in *Das Schwarze Korps*, together with the steadfast opposition of Hess' office, killed the appointment despite Himmler's support of Heisenberg. The main party office first rejected Heisenberg, then argued that it could not change its mind for reasons of prestige. REM had previously offered the job to Heisenberg, but now fell in line behind the Party Chancellery. Even Himmler was only willing to promise Heisenberg a prestigious appointment somewhere other than Munich.¹⁶¹ Heisenberg and Sommerfeld had little choice but to acquiesce.

But who would succeed Sommerfeld? In early 1938 Stark asked Bruno Thüring, astronomer and *Deutsche Physik* adherent, to take over the professorship for theoretical physics temporarily. If all went well, he might be able to succeed Sommerfeld. Stark was not worried by the fact that Thüring was not a theoretical physicist. Indeed Stark argued that it would be easy for his younger colleague to give reasonable, not too detailed lectures on theoretical physics. Most importantly, Thüring would bring a new spirit into the Munich faculty. If he was interested, then Stark would suggest him to REM.¹⁶²

Thüring discussed Stark's suggestion with the local National Socialist officials in Munich and replied that, for political reasons, he was prepared in principle to take over the professorship temporarily as a last resort. However, he had more professional scruples than Stark and was unwilling to take the job permanently. He was an astronomer, not a theoretical physicist. Moreover, it was

well known that Thüring was already involved in the fight to keep Heisenberg out of Munich. If Thüring would now take the job, then he feared that his future career would be tainted with the stigma of a cold-blooded careerist, which would not help their fight against "Jewish physics."¹⁶³

The Munich position finally went to Wilhelm Müller, another supporter of *Deutsche Physik*. Stark had been very influential in Müller's career during the Third Reich. In 1934 Stark threw his support behind Müller's appointment at the Technical University of Aachen.¹⁶⁴ Less than a week after the article in *Das Schwarze Korps*, Stark confidentially asked an Aachen colleague about Müller, whom he intended to recommend for a professorship.¹⁶⁵ Müller was eager and willing to join the fight against Einstein and "Jewish physics."¹⁶⁶

After a long and Byzantine bureaucratic conflict between the Party Chancellery, REM, the University of Munich, and supporters of *Deutsche Physik*, Müller succeeded Sommerfeld on 1 December 1939, three months after the start of World War II.¹⁶⁷ Müller's appointment has often been seen as proof of the power and dangerous nature of *Deutsche Physik*. In fact, it was a Pyrrhic victory. By the end of 1939, *Deutsche Physik* occupied six of the eighty-one professorships available in Germany and Austria. Henceforth their numbers would only decline.¹⁶⁸

The year 1939 was an ambivalent year for Stark. Müller's appointment was his final success, but in the same year Stark retired from the PTR, returned to his estate in Traunstein,¹⁶⁹ and thereby lost the last political or scientific influence he had left in the Third Reich. Stark and his *Deutsche Physik* became less and less relevant for the Third Reich as the war progressed. Even the appointment in 1939 of Wilhelm Führer, a follower of Lenard and Stark, to an influential position in REM only delayed the fall of *Deutsche Physik*. For example, although Führer strenuously opposed the appointment of the astronomer Otto Heckmann in Hamburg, he eventually had to admit defeat and give him the professorship, due in large part to Heckmann's successful efforts to make himself and his science palatable to National Socialism.¹⁷⁰

The established physics community also launched a counter-attack against *Deutsche Physik*. Meetings between the two sides sponsored by National Socialist officials in Munich in late 1940, and in Seefeld two years later, practically silenced calls for a more "Aryan" physics. The followers of Lenard and Stark who attended were forced to discuss physics rather than politics, with the result that a party agency officially recognized relativity theory and quantum mechanics as acceptable science and embraced neutrality on the issue of modern physics.¹⁷¹ After the Munich meeting Heisenberg wrote his mentor Sommerfeld and expressed satisfaction with the outcome. Thüring and Müller, the most fanatical advocates of *Deutsche Physik*, had left before the compromise agreement was signed.¹⁷² Rudolf Tomaschek, considered one of Lenard's best students,¹⁷³ had already noticed that the wind was changing.¹⁷⁴

This victory was only possible because Heisenberg and other supporters of modern physics were willing to make the distinction Himmler had required when he backed Heisenberg's political rehabilitation: Einstein had to be separated from his theory of relativity. Sometimes he was attacked as a Jew, sometimes (unfairly) as a plagiarist, and still other times physicists like Heisenberg merely argued that the theory of relativity would eventually have been discovered by someone else.¹⁷⁵

A few years later, after Heisenberg's political rehabilitation by the SS had sunk in, after he had become a valuable goodwill ambassador for German science outside of Germany,¹⁷⁶ and after his secret work on applied nuclear fission brought him the support of influential figures in the armed forces and Albert Speer's Ministry of Armaments, Heisenberg was given two prestigious appointments: the directorship of the Kaiser Wilhelm Institute for Physics and professor of physics at the University of Berlin. These appointments were widely seen as a victory over *Deutsche Physik*¹⁷⁷ and no doubt perfected Stark's bitterness towards his enemies within the National Socialist leadership.

Müller's appointment in Munich also turned sour, in part because he was not even a physicist, rather an engineer who had

taught applied mechanics at Aachen. He had never published in a physics journal.¹⁷⁸ In 1941 the eminent aeronautical engineer Ludwig Prandtl complained to SS leader Himmler, Reich Marshall Hermann Göring, and high-ranking officials in the armed forces that Müller taught only aeronautical and engineering mechanics.

Although students should learn these things, Prandtl argued that they were denied an essential part of a physics education and their necessary education was thereby sabotaged.¹⁷⁹ Müller's weakness in this regard was symptomatic of a fundamental flaw in *Deutsche Physik*: its ideological hostility towards modern science and technology ensured that it could not compete with its rivals when the German state became more interested in economic and military power than ideological purity.¹⁸⁰

Stark's exchange with Thüring demonstrated that the senior scientist was not really interested in whether or not Sommerfeld's successor was a theoretical physicist, rather only whether he was willing and able to fight the "dogmatic" spirit in German physics. However, Müller's obvious and fundamental incompetence made him a lightning rod for the attacks by the growing forces arrayed against *Deutsche Physik*. At first it appeared that Müller was holding his own, thanks to political backing from local party officials. REM agreed to transform the Munich institute into an institute for theoretical physics and applied mechanics,¹⁸¹ thereby undercutting the criticism that Müller taught only mechanics. In the spring of 1941 Müller was named dean of the scientific faculty. When Stark congratulated his younger colleague, he noted with pleasure that only a few years ago this faculty was dominated by the "little Jew-descendent Sommerfeld."¹⁸²

The fight against "Jewish physics" continued, with Munich now replacing Heidelberg as the stronghold of *Deutsche Physik*. But local advocates like Müller and Thüring lacked originality and only repeated what Stark and Lenard had already said. In particular, Müller differed from Lenard and Stark only in the violence of his language, describing the theory of relativity as "magical atheism," "pseudophysics," "swindle," "Talmudic inflation-physics,"

“unscrupulous falsification of reality,” and the “great Jewish world-bluff.”¹⁸³

However, it soon became clear that Müller did not have the nerve to lead the fight against “Jewish physics,” especially when he became the victim of the same sort of tactics *Deutsche Physik* had used against their enemies. Sommerfeld’s institute mechanic, Karl Selmayer, remained loyal to Sommerfeld and began to torment Müller, who denounced his mechanic in turn as the tool of the “Jew-comrades” Sommerfeld and Gerlach. Since Selmayer was also an Old Fighter in the NSDAP and enjoyed the support of National Socialist university officials, there was little Müller could do except complain, which he did profusely.¹⁸⁴ By the end of 1941, conditions in Munich had deteriorated so much that Müller threatened to leave Munich if the harassment of him and his co-workers was not stopped.¹⁸⁵

Müller demanded support from the local party leadership and complained about the rumors which were being used against him. Within a little more than a half a year, emissaries of the university rector pressured Müller to resign as dean. He told the rector that recent events had hit him so hard that he was afraid of a complete nervous breakdown.¹⁸⁶ In the fall of 1942 Müller’s complaints to his party allies took on a pathetic tone. From the beginning Müller’s appointment in Munich had been a sacrifice which he had accepted freely as a National Socialist because Müller believed that he was serving a holy cause.¹⁸⁷ If personal wishes had been most important, Müller told Stark in 1943, then he would no longer be in Munich.¹⁸⁸ Müller managed to hold out in Munich to the end of the Third Reich, but then ironically was one of the very few scientists to lose his chair through the official postwar Allied policy of denazification and be barred from academia. After the war both Sommerfeld and Selmayer went out of their way to damn Müller before the American Occupation authorities. In contrast, Sommerfeld worked to clear Selmayer’s name.¹⁸⁹

In April 1944 Müller congratulated Stark on his seventieth birthday with the following rather pathetic praise. There were more followers of *Deutsche Physik* than the “dogmatists” wanted

to believe. Many independent-thinking engineers and physicists, Müller claimed, were only waiting to be liberated from dogmatism. Unfortunately, the current state of the war hindered the victorious continuation of their struggle, but as Stark had often told Müller himself, it would be rekindled after the war. Müller assured Stark that after their struggle was finally victorious, those men would be remembered who had instinctively carried the flag forward, undaunted by persecution and slander during the early years of struggle and under the harshest "Jewish domination" and who had paved the way towards a future freedom in science.¹⁹⁰

One of Müller's many problems in Munich was Ludwig Glaser, Stark's former student at Würzburg. Müller immediately hired Glaser as his assistant when he succeeded Sommerfeld, probably at Stark's suggestion. A year previously Stark had asked Glaser to describe the Würzburg events in writing and offered to help Glaser reenter higher education.¹⁹¹ Glaser's track record as an early opponent of Einstein,¹⁹² the subsequent opposition to his *Habilitation*, and the fact that he joined the NSDAP before the National Socialists came to power should have ensured a successful career under National Socialism.¹⁹³ Officials at Hitler's personal chancellery believed that Glaser had a political past in the best sense, was self-confident, tough, and courageous in the service of National Socialism.

During the Weimar Republic, Glaser had restricted his opposition to the theory of relativity to scientific arguments, but he was now more than willing to use virulent anti-Semitic and racist rhetoric in the struggle against "dogmatic" physics. He spoke at eight party functions during his first year in Munich and gave many lectures before groups of the armed forces.¹⁹⁴ His publications during this period were just as enthusiastic:

The remainder of the Jews, the Jewish half-breeds, and those with Jewish blood have vanished from the academies, libraries, and the lecture halls, and where else they had clung to because of their supposed indispensability ... We thank our leader Adolf Hitler, that he has liberated us from the Jewish plague.¹⁹⁵

Perhaps more interesting was his apparently unconscious use of National Socialist imagery in an otherwise strictly professional physics article. Glaser described energy quanta as "foreign bodies" in physics. Their "elimination"¹⁹⁶ would be a deliverance.¹⁹⁷

Unfortunately, Glaser had become too enthusiastic and extreme in almost every way. In June 1941 Bruno Thüring told Müller that Glaser was now a liability to the *Deutsche Physik* movement. He was eccentric. The more his professional prospects improved, the wilder he became. He was an elephant in a china shop. Worst of all, he could not keep his mouth shut. In short, Glaser was a "psychopath."¹⁹⁸ Müller agreed with this judgment and hastened to help Glaser find other employment. Glaser was not saying anything different from Müller or other advocates of *Deutsche Physik*, but he was too much of an idealist to submit to the discipline of either the *Deutsche Physik* movement or the NSDAP.

First, there was an aborted attempt to send Glaser to the reestablished Reich University of Strassburg, a university re-founded in what had been French territory as a showcase for National Socialist scholarship.¹⁹⁹ Glaser ended up instead at the eastern counterpart of Strassburg, the Reich University of Posen set up in what had previously been Poland. Glaser was made the provisional director of the institute for applied physics and began a six-part series of lectures on the "Jewish question in science" and the racial nature of science.²⁰⁰ Ironically Glaser's lectures at Posen demonstrated how bankrupt the idea of a *Deutsche Physik* was. When Glaser, perhaps one of the most extreme followers of Lenard and Stark, finally got an opportunity to teach German youth, he ended up lecturing not on physics, rather on a racist form of history or philosophy of science. There was no uniquely "Aryan" physics which could be taught in a physics course.

Müller soon warned a colleague in Posen to watch Glaser carefully.²⁰¹ Müller's assistant had stirred up a lot of trouble for his boss in Munich, but worst of all Glaser had both taken Munich equipment with him to Posen without permission²⁰² and ordered a wind tunnel—coincidentally from a firm where Glaser's brother

was employed and stood to benefit from the deal—without authorization or being able to pay for it. Müller was left holding the bag. When he protested, Glaser reacted by blaming everything on the friends of Jews.²⁰³ Glaser soon wore out his welcome in Posen and had to move on to yet another National Socialist university set up in occupied Europe, the Reich University in Prague. According to postwar records, Glaser disappeared there at the end of the war. Perhaps he died fighting the invading Red Army, a fate befitting a true follower of *Deutsche Physik*.

The failures of Müller and Glaser ruined the only real triumph of *Deutsche Physik*, denying Heisenberg the Munich chair, and brought Stark full circle back to the personal and professional alienation he had felt during the early twenties in Würzburg. Then he had rejected the German republic and his academic colleagues; now he no longer believed in National Socialism and rejected his party comrades. In 1942, when most Germans still believed that Germany could win the war, Stark told Lenard that he was considering leaving the NSDAP because of his struggle with Wagner. Lenard responded with a telegram urging him to reconsider, even though Stark's senior colleague had also been alienated by National Socialism. Hitler, Himmler, and other influential National Socialists listened to the advocates of pseudoscience like the "World Ice Theory," not Nobel laureates like Lenard.²⁰⁴

By the end of the war Stark and Lenard had been taught a hard lesson about using political and ideological means to influence science and scientists. National Socialist science policy was a volatile mixture of technocracy and irrational ideology.²⁰⁵ The technocrats or technocratic institutions in the Third Reich rejected *Deutsche Physik* in favor of science and scientists that were more useful. There were also National Socialist leaders who were unwilling or unable to appreciate high-quality and useful scientists, but such individuals were hardly likely to appreciate even Lenard and Stark. The two senior physicists wanted to have it both ways: to be able to use political and ideological means to attack other scientists, but to have the National Socialist state nevertheless honor, respect, and cherish their own scientific credentials.

There were many instances where Stark did not get his way in the Third Reich, not due to resistance to *Deutsche Physik* within the scientific community, but instead because he was hopelessly outmatched when it came to political in-fighting within the National Socialist state. Stark saw this clearly and early, and knew who to blame. In April 1934 he told Lenard that it would be difficult for he, Stark, to fight for their conception of science and like-minded colleagues. He did not fear the Jews and their other opponents, rather the arrogance, jealousy, and intrigue in the leading National Socialist circles.

They had to see things as they truly were, he emphasized to Lenard. People like Lenard and Stark were not honored by the National Socialist leadership. First, the two physicists were too old and for that reason alone were mediocre. Second, Lenard and Stark had achieved something in their lives, and in the anti-intellectual climate of the Third Reich many of the men around Hitler considered this a disgrace. Third, Hitler was fundamentally unsympathetic towards science. When Lenard and Stark offered their help to the National Socialist leadership, the latter considered the scientists a burden and made sure that Lenard and Stark were aware of their feelings.²⁰⁶

The depth of Stark's frustration and bitterness was revealed in the steps he took towards the end of war to leave the National Socialist movement.²⁰⁷ Stark's son Hans, a National Socialist of even longer-standing than his father,²⁰⁸ was arrested by the Gestapo for treating a Polish forced laborer too well and then subsequently drafted and sent to the front. When Stark was threatened by local party officials, he and his wife used this as an excuse to submit their resignations from the NSDAP. The matter was referred to the Munich regional leader, who forced Stark to remain in the party by threatening Stark's son.

This sequence of events may subsequently have saved Johannes Stark's life. Towards the very end of the war an SS officer who was quartered at Stark's estate decided that he wanted to keep it. But when he tried to get rid of the Nobel laureate, the local party official refused to support sending such a long-standing party

comrade to a concentration camp. At the beginning of May 1945 Stark's house was abandoned by the SS and taken over by representatives of the American military government, who in turn arrested Stark.²⁰⁹



Postwar After the war the Allies agreed that Germany and Germans should be "demilitarized" and "denazified." All Germans had to fill out a detailed questionnaire on their activities during the Third Reich. A minority of Germans subsequently had to defend themselves in denazification court and risked being convicted of complicity in the crimes of National Socialism. Although the overwhelming majority of German physicists managed to pass through denazification and retain or regain a university position by the early fifties at the latest, the adherents of *Deutsche Physik* were quickly purged from the German universities and kept out.

Since Philipp Lenard, a very old man at the end of the war, died in 1947, Stark had to defend *Deutsche Physik* in denazification court. When the physicist filled out his denazification questionnaire, he argued that he should be cleared of all charges. Instead, the denazification court at Traunstein convicted and sentenced him as a major offender to four years of hard labor. Stark, seventy-three years old and in failing health, appealed.²¹⁰

The Munich court of appeal subsequently reversed the Traunstein judgment. The court broke down the charge against Stark into three parts: conflicts with people in the region of Traunstein; support of Hitler and National Socialism before 1933; and activity as Research Foundation president from 1934 to 1936 and PTR president from 1933 to 1939. The first charge was disposed of quickly, since Stark's accusers were less credible than the accused. The second charge was undeniable, but the Munich court accepted the argument that support of Hitler before the National Socialists came to power was not necessarily support of the subsequent National Socialist dictatorship. Moreover, the court believed

Stark's claim that he had resigned from the party before the end of the war.

The third charge was complicated by the apparently false testimony given in Traunstein that Stark had employed only party comrades as scientists at the PTR. This sweeping claim was revealed to be an exaggeration, although relative to other institutions the PTR may well have had a high percentage of NSDAP members. Furthermore the Munich court heard testimony that Stark had run the PTR in a professionally correct manner.²¹¹

But the third charge also included Stark's attacks on the supporters of "Jewish science," so the Munich court solicited statements from Einstein, Heisenberg, and others on Stark's anti-Semitism and opposition to the theory of relativity. Ironically the court thereby mirrored the postwar apologia employed by the German physics community. After the war Heisenberg and many other physicists implied that the advocates of *Deutsche Physik* had been the only physicists who had collaborated with the Third Reich and that the collaboration of physics with National Socialism had been limited to the anti-Semitic campaign against Einstein and his theory of relativity.

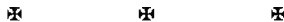
The followers of Lenard and Stark were anti-Semitic and did oppose relativity, but this in no way constitutes the total perversion of physics by National Socialism. After the war all German physicists were anxious to document their purely academic activities during the National Socialist era and to assert that, by adhering to professional values, they had opposed National Socialism. But such adherence was no opposition.²¹² Their activities had not been exclusively academic and their professionalism had merely facilitated greater collaboration with the Third Reich.

Heisenberg was asked two very narrow and specific questions about his conflict with Stark. Was the difference between "dogmatic and pragmatic physics" grounded in anti-Semitism, or in professionally justifiable research methods? Did Stark play a role in the rejection and prohibition of the theory of relativity during the Third Reich?²¹³ Heisenberg told the court he believed that the attack by Stark on him as a "white Jew" was not due to

personal antagonism. Stark had wanted to block Heisenberg's call to Munich.²¹⁴ Einstein characterized Stark as paranoid and opportunistic, but not sincerely anti-Semitic.²¹⁵ In fact, both Nobel laureates doubted that anti-Semitism had been at the root of Stark's actions. Rather Stark's bitterness at not having been appreciated by his colleagues and government—at least in Stark's mind—had caused what Heisenberg called his preposterous behavior. However, Heisenberg did make clear who was responsible for *Deutsche Physik*. The campaign against the theory of relativity, led by a small National Socialist clique, had been due almost exclusively to the activity of two people. Lenard and Stark, Heisenberg added, had successfully seduced young party members into attacking "senile and Jewishified" physics.

The Munich court of appeals determined that the *Deutsche Physik* controversy was a scientific debate which the court could not judge—ironically the same argument the National Socialist bureaucracy made in 1942, when it rehabilitated Heisenberg—and placed Stark in the group of lesser offenders and fined him 1,000 German Marks.²¹⁶ Stark himself went to his grave convinced that he had fought for the freedom of research against REM, that he had only accepted the burden of the Research Foundation presidency in order to forestall its politicization, and that his problems with Wagner proved that he had fought against the injustice of National Socialism.²¹⁷

Thus Stark was able to convince himself that even the very fight for *Deutsche Physik* had been a fight against National Socialism. He was hardly alone. After the war almost all scientists managed to convince themselves (not to mention others) that they had resisted the evil of National Socialism. The eighty-three-year-old Stark died unrepentant in 1957.



The Death of Deutsche Physik In his study of scientists under Hitler, the historian Alan Beyerchen argued that the *Deutsche Physik* movement failed because it was neither able to gain backing from political sources nor to win the support of the pro-

fessional physics community.²¹⁸ Lenard, Stark, and their small group of followers remained isolated during the Third Reich and lost what little political influence they had because they were unwilling or unable to serve National Socialism effectively as scientists. Most of the usefulness of *Deutsche Physik* to the National Socialist movement ended when Einstein and the rest of the Jewish physicists had been hounded out of Germany.

For the established physics community under Hitler, a fundamental issue was the extent to which compromise with the regime was necessary in order to retain the greatest possible degree of professional autonomy.²¹⁹ But *Deutsche Physik* threatened this autonomy far more than did the National Socialist leadership. Beyerchen notes that the leading figures in the physics community did not seek to embrace National Socialism on its own terms.²²⁰ But neither did Lenard and Stark.

Embracing National Socialism required far more than merely railing against "Jewish physics" and the "friends of the Jews" in science. It also meant a willingness to participate in the cynical politics of the National Socialist state, where principles of any kind had little place, and once the war began, both a willingness and ability to contribute to the German military and economic expansion into Europe and the Soviet Union and thereby to participate in the policies of persecution, exploitation, and genocide.

In the past, emphasis on the "evil Nazi" has often been used—consciously or unconsciously—for apologia, to divert attention from or to deny the responsibility and complicity of the overwhelming majority of German scientists under National Socialism. Similarly, an exaggerated juxtaposition of the good with the bad can be misused to portray life and science under National Socialism simplistically as a series of clear choices between right and wrong, made by individuals who themselves fell clearly on one side or the other of the line between "Nazi" and "anti-Nazi."²²¹

The historian Dieter Hoffmann has argued that if some of the scientists in the middle of the spectrum are critically examined—as this book intends—then there is a danger that they will be lumped together with the "real Nazis" and that the real differences be-

tween individual cases will be obscured.²²² In fact it must be possible both to criticize individuals standing somewhere between the two poles and nevertheless distinguish them from the more extreme examples at the spectrum's end. It must be possible to criticize or honor anyone according to objective criteria, no matter where they stand on the spectrum.

The political scientist Joseph Haberer characterized the behavior and self-image of scientists like Heisenberg as "resistance through collaboration."²²³ In fact both sides of the struggle between "Aryan" and "Jewish" physics collaborated with the Third Reich. The former group supported the racist, anti-Semitic policies of National Socialism. The latter group helped the Third Reich wage its genocidal war. After the war both sides were convinced that they had thereby resisted the evil side of National Socialism.

If there ever was a "Nazi physicist," it was Johannes Stark. But despite his best efforts, in the end his science was not accepted, supported, or used by the Third Reich. In other words, his science was not "Nazi science." By the end of the Third Reich the followers of *Deutsche Physik* saw themselves as persecuted with any and all means.²²⁴ Stark spent a great deal of his time during the Third Reich fighting with bureaucrats within the National Socialist state. Most of the National Socialist leadership either never supported Lenard and Stark or abandoned them in the course of the Third Reich.

Ironically Stark was just as concerned with science as with racism or political ideology. The race, nationality, or political standpoint of a physicist he attacked was at least in part a welcome excuse to be used to discredit a particular type of physics.²²⁵ Stark's story also illustrates his stubbornness in pursuit of his goals. His science policy objectives in the Third Reich were practically the same ones he had had in the early twenties—except now combined with anti-Semitism and National Socialist rhetoric. The claims he made after the war of having fought against the excesses of National Socialism and for the freedom of research faithfully reflected his conviction that, during both the Weimar Republic and the Third Reich, he had done precisely that.