

# Annals by Glenn C. Altschuler

## *The convictions of Peter Debye*

At the time of his death in 1966, Peter Debye was internationally renowned for his work on molecular structure, especially dipole moments (the interaction of a collection of charged particles with an electrical field) and the diffraction of X-rays and electrons in gases. For this work, he won the Nobel Prize in Chemistry in 1936. His name, Debye, is still used as the unit of measurement of a dipole moment.

Born in Maastricht in 1884, Debye was educated at the Aachen Institute of Technology and Munich University, where he received his Ph.D. in physics in 1908. Following appointments at Zurich University, Utrecht University, the

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University of Göttingen, and the University of Leipzig, Debye (in effect) replaced Albert Einstein as director of the Kaiser Wilhelm (now Max Planck) Institute for Physics in Berlin in 1934, serving until 1939. From 1937 – 1939, he was also president of the German Physical Society.

In 1939, he left his German positions and shortly afterwards emigrated to the United States, to join the faculty of Cornell University in Ithaca, New York, where he taught until 1952. By the time he retired, he had become a colleague respected by many on the Cornell campus, and a mentor to a number of young chemists, many of them now prominent in their fields. He was also a Foreign Honorary Member of the American Academy of Arts & Sciences, elected in 1927.

Given Debye's reputation, the publication in January 2006 of *Einstein in Nederland*, by science writer Sybe Izaak Rispens, came as a shock to academic communities on both sides of the Atlantic Ocean.

In Chapter Five of the book – and in newspaper articles he wrote to promote it – Rispens charged that Peter Debye, "one of the greatest Dutch scientists of the twentieth century," had contributed to "Hitler's most important military re-

search program.” Acknowledging that Debye was not a member of the Nazi Party, Rispens branded him an “extreme opportunist” and “willing helper of the regime” whose “hands are dirtier than is commonly assumed.”<sup>1</sup>

Rispens focused much of his attention on Debye’s activities in Berlin. Supported by a grant from the Rockefeller Foundation (made before the Nazis came to power), the Kaiser Wilhelm Institute boasted state-of-the-art research facilities and a staff of first-rate scientists. According to Rispens, Hermann Goering, the second most powerful man in the Third Reich, made sure Debye got all the resources he needed, especially after physicists Otto Hahn and Fritz Strassman discovered that a ‘fission’ bomb could release virtually unlimited energy. Debye received a large salary, which reached 40,000 marks in 1939, and a house in Berlin-Dahlem, where he lived with his German-born wife, Mathilde Alberer, and their two children.<sup>2</sup>

Debye retained his Dutch passport throughout the 1930s, Rispens asserts, because he believed that with the Nazis in power a German citizen was less likely to become a Nobel Laureate. Although he declined to formalize his German citizenship, he told physicist Max Planck that he was nonetheless a sturdy German nationalist. Debye made repeated inquiries, Rispens emphasizes,

1 Sybe I. Rispens, *Einstein in Nederland: Een Intellectuele Biografie* (Amsterdam: Ambo, 2006), 159–184; Sybe I. Rispens, “Nobelprijswinnaar met vuile handen,” *Vrij Nederland*, January 21, 2006. (Translations from the Dutch by Martijna Briggs, Piet Brouwer, and my dear friend Ben Widom, who also commented incisively on this essay.)

2 Rispens, *Einstein in Nederland*, 176; Rispens, “Nobelprijswinnaar.”

“about what people in power expected of him.”<sup>3</sup> Following the Kristallnacht pogrom against German Jews on November 9 and 10, 1938, he came under pressure to make the German Physical Society conform to Nazi ideology and practices by excluding all non-Aryan members. Debye might have resigned from the organization in protest, as the Dutch-born physicist Samuel Goudsmit had in 1937. Or protested to the Ministry of Education and Culture. Instead, in December, he wrote to members of the society: “Under the compelling overarching circumstances the abiding of Reich-German Jews in the German Physical Society can no longer be maintained in the sense of the Nuremberg Laws. In agreement with the Executive Committee I request all members who fall under this regulation to communicate to me their withdrawal from the Society. Heil Hitler!” Debye’s letter may well have been “half-hearted,” Rispens writes, but it was “nonetheless effective Aryan cleansing,” with about 10 percent of the society’s members excluded. And Debye, Rispens notes, often used the odious closing salutation, “Heil Hitler!” in his official correspondence.<sup>4</sup>

After Germany invaded Poland in September 1939, the Nazis brought the Kaiser Wilhelm Institute directly under the control of the war ministry. To remain as director, Debye was told he must become a German citizen. Intent on keeping “all options open,” Debye negotiated a leave of absence. Perhaps, Rispens speculates, he thought he might be able to return in six months, after the Germans conquered Europe with their blitzkrieg. In any event, the decision hinged

3 Rispens, *Einstein in Nederland*, 175; Rispens, “Nobelprijswinnaar.”

4 Rispens, *Einstein in Nederland*, 180.

“least of all on his aversion to the Nazi regime.” And although he did not return as director, Debye remained on the payroll of the Kaiser Wilhelm Institute until 1943.<sup>5</sup>

Debye left Germany in January 1940, having accepted an invitation to deliver the Baker Lectures in Chemistry at Cornell University in Ithaca, New York. When Einstein learned that Debye was headed to Cornell, Rispens suggests, “he did something he had not done before.” Instead of arranging employment, as he had for dozens of European refugees, Einstein wrote a letter to J. G. Kirkwood, chairman of the chemistry department, and Cornell President Edmund Ezra Day, which “opened up Debye’s baptismal record.” A “reliable source,” Einstein indicated, had revealed that Debye “maintained close contacts” with the Nazis. Einstein asked Cornell’s scientists to do “their duty as American citizens.” In the end, Rispens notes, “Cornell did not act against Debye,” who received his tenured appointment, became chairman of the department, and retired in 1952 as emeritus professor.<sup>6</sup>

Nonetheless, even as the German armies “trampled over half of Europe,” Rispens concludes, Debye still “longed for his research institute.” On June 23, 1941, long after the invasion and occupation of the Netherlands, Debye sent a telegram to the General Consulate in Berlin, declaring that he was “always ready and willing to take upon myself again, on the basis of the old conditions, the directorship of the Kaiser Wilhelm Institute.” For some reason, the telegram “remained unnoticed” and Debye “waited in vain until the end of the war

for an answer to his repeated question, if and when he can return . . . .”<sup>7</sup>

Rispens’s case against Debye produced a firestorm in the Netherlands, which, of course, was especially sensitive to the behavior of its citizens during World War II. In February, the universities at Maastricht and Utrecht took action. Maastricht announced it would no longer award a Peter Debye Prize and asked the sponsor, the Edmond Hustinx Foundation, for permission to confer it under a different name. Utrecht deleted Debye’s name from its Institute of Physics and Chemistry of Nanomaterials and Interfaces.

In press releases, both universities explained that the action followed verification of Rispens’s sources (though not his judgments) by the prestigious Netherlands Institute for War Documentation. Although the administration at Maastricht agreed that “there has been insufficient research to paint a full picture of Debye in Nazi Germany,” officials were convinced that Debye “insufficiently resisted the limitations on academic freedom.” His behavior was “difficult to reconcile with the example function connected to the naming of a scientific prize.” Ludo Koks, a spokesman for Utrecht, agreed that Debye may have been forced to expel Jews from the German Physical Society. Removing his name, he noted, “had quite an emotional impact,” generating debate about whether Debye should be disgraced without more definitive information. But “we had to make a decision . . . . When an institute is named after someone, this person has to have the highest reputation.”<sup>8</sup>

5 Ibid., 181; Rispens, “Nobelprijswinnaar.”

6 Rispens, *Einstein in Nederland*, 182–183; Rispens, “Nobelprijswinnaar.”

7 Rispens, *Einstein in Nederland*, 183–184.

8 Links to the press releases can be found at <http://www.deye.uu.nl/>. See also Arthur Max, “Universities Strip Nobel Laureate’s Name

As the debate raged on in the Netherlands, it reached the United States. The American Chemical Society, which presents a Peter Debye Award in Physical Chemistry, announced it was monitoring “the developing story.” The spotlight landed as well on Cornell, which had established a professorship in Debye’s name and displayed a bust of him near the main office of the Department of Chemistry and Chemical Biology. As department members began discussing what action, if any, to take, evidence had already accumulated to warrant a reconsideration of Sybe Rispen’s brief against Peter Debye.<sup>9</sup>

Historian Mark Walker has provided an analytical framework for evaluating Debye’s actions as chairman of the German Physical Society and director of the Kaiser Wilhelm Institute in Physics. The principal concerns of many scientists in Germany in the 1930s, Walker argues, were their professional scientific reputations and relative autonomy to do their work. Some “opposed limited and isolated aspects of National Socialism, supported others, and acquiesced in, or were unaware of, a great many more.” Regarding themselves as apolitical, they could be – and often were – opportunistic when faced with political pressure, and often did not fully comprehend the “danger until it was too late.” The motivations of these scientists, Walker believes, is less important than what they did. Judging those who neither “resisted nor joined Hitler’s movement” but stayed and worked for the government often involves applying shades of gray.

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from Honors After Discovery of Nazi Links,” *Associated Press Worldstream*, March 3, 2006.

9 William Schulz, “Debye Accused of Collaboration,” March 6, 2006, at <http://www.cen-online.org>.

Those who stayed and then left, as Debye did, constitute the hardest cases.<sup>10</sup>

Walker and historian Dieter Hoffmann have also provided the context in which Debye acted as chairman of the German Physical Society. With his Executive Committee demanding a purge of Jewish members, Debye complied, they acknowledge, but in a “relatively gentle and respectful way,” eschewing the pro-Nazi, anti-Semitic rhetoric employed, for example, by the chairman of the German Chemical Society, and providing a mechanism for withdrawal rather than expulsion. In doing so, Hoffmann demonstrates, Debye spent some political capital. Wilhelm Othmann, an insurgent in the Society, charged that Debye’s first sentence (“Under the compelling overarching circumstances I must regard . . .”) “was so formulated that it could be misunderstood.” Debye stood his ground by taking responsibility for the wording and asking, as if to highlight the intended ambiguity, that it “be understood in the way that it is meant.” Wilhelm Schutz, another young, outspoken Nazi in the Society, claimed that Debye’s treatment of “the Jewish question” proved “that for political questions the necessary understanding fails him, as is expected. I strove in vain at that time to bring about a clear statement of the Chairman and thus a definitive solution to the problem.” And the news service of the Reich Lecturer Leadership lambasted the leaders of the German Physical Society, who “seem obviously to be very far behind and to hang very much on the dear Jews.” Little wonder, then, Hoffmann concludes, that many in

10 Mark Walker, *Nazi Science: Myth, Truth, and the German Atomic Bomb* (New York: Plenum Press, 1995), 1–4, 269–271; Mark Walker, *German National Socialism and the Quest for Nuclear Power, 1939–1949* (Cambridge: Cambridge University Press, 1989), 1–12, 229–233.

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the Society sought a new chairman “who corresponded better than Debye to the political profile of the Third Reich.”<sup>11</sup>

That Debye ended his letter to Society members with “Heil Hitler!” is not surprising to scholars of National Socialism. In 1933, the Interior Ministry issued detailed instructions about the proper use of ‘Hitlergruss’ – verbally, physically, and in official communications. Bureaucrats even specified alternatives for those unable to use their right arms. A school custodian, who had mocked the Fuhrer by raising his fist and shouting “Heil Moskau” and “Rotfront,” lost his pension, even though he argued that he was drunk at the time. Thus, as long as they were in Germany, civil servants, including professors, used “Heil Hitler!” in work-related correspondence. Even the physicist Max von Laue, an outspoken critic of the regime, used the salutation. To do otherwise was to put one’s employment at risk, at the very least.<sup>12</sup>

Debye’s letter to the members of the Physical Society came a few months after he helped spirit Lise Meitner, a world-class physicist and an Austrian

11 Dieter Hoffmann and Mark Walker, “The German Physical Society Under National Socialism,” *Physics Today* 57 (December 2004): 55; Dieter Hoffmann, “Between Autonomy and Accommodation: The German Physical Society During the Third Reich,” *Physics in Perspective* 7 (2005): 302–306.

12 Jane Caplan, *Government Without Administration: State and Civil Service in Weimar Germany* (Oxford: Clarendon Press, 1988); Mark Walker, Presentation to the Department of Chemistry and Chemical Biology, Cornell University, Ithaca, N.Y., March 23, 2006. As J. L. Heilbron has noted, Debye did cite “the fuhrer principle,” which made him a virtual dictator in the laboratories under him, to justify hiring and retaining researchers for their scientific abilities rather than their politics. J. L. Heilbron, *Max Planck and the Fortunes of German Science* (Cambridge, Mass.: Harvard University Press, 2000), 177.

Jew well known to the Nazis, out of Germany. After the ‘Anschluss’ between Germany and Austria in March 1938, Meitner’s situation became untenable. She did not have valid travel documents, and Jews were forbidden from transferring funds out of Germany. Nonetheless, on June 6, Debye assured Niels Bohr that there was no great urgency for Meitner to get out.<sup>13</sup> By the end of the month, however, he had joined an effort to get her a position in the Netherlands or Sweden. In Berlin, only Debye, Otto Hahn, Max von Laue, and Paul Rosbaud knew about the secret plan. Debye exchanged coded messages with Dirk Coster, a Dutch physicist who had assisted German Jewish refugees since 1933, about a job for a male “assistant.” In early July, Debye invited Coster to stay with his family in Berlin, and “if you were to come rather soon – as if you received an SOS – that would give my wife and me even greater pleasure.” A few days later, as the tension mounted, he sent another telegram: “Without answer from Coster. Clarification urgently requested.” In mid-July, after spending the night with the Debyes, Coster met Meitner and accompanied her across the border into the Netherlands.<sup>14</sup>

A little more than a year later, Debye negotiated his leave of absence from the Kaiser Wilhelm Institute. Then – and later – he gave as the reason his desire to retain his Dutch citizenship. Thus, Rispen’s claim that he was not motivated by an “aversion to the Nazi regime”

13 In his treatment of the episode, Rispen underscores Debye’s naiveté, obtuseness, and relative indifference to political realities. Rispen, *Einstein in Nederland*, 178–180.

14 Ruth Lewin Sime, *Lise Meitner: A Life in Physics* (Berkeley: University of California Press, 1996), 192–193, 200–204.



is difficult to evaluate. Family matters, however, surely complicated Debye's situation – and may explain why he did not elaborate on his decision to leave Germany. In July 1939, his son Peter entered the United States on a visitor's visa. When war broke out, Peter decided to remain in the United States. Eventually, he became a student at Cornell. In 1941, Peter married Marian Morrison of Oberlin, Ohio. But Debye's wife, eighteen-year-old daughter, and sister-in-law, all German citizens, did not accompany Debye to the United States, perhaps because he had not yet secured a permanent position there. They received his salary while he was on leave and lived in the director's house.

When President Day offered Debye a tenured position, his wife used the Dutch passport she had obtained in 1939 to travel to Switzerland, where she remained from June to October 1940, waiting for a U.S. immigration visa. Day and Karl Compton, president of MIT, interceded to overcome State Department objections to aiding a German national, and she rejoined her husband in Ithaca in January 1941. The Debyes' daughter, also named Mathilde, did not accompany her. By then, she had a German boyfriend, Gerhard Saxinger, whom she married in 1942. The couple had their first child in August 1942. Family lore has it that Mrs. Debye tried without success to secure a German exit visa for Mathilde, but it is also possible that the young woman did not want to leave. She stayed in Berlin, as did her aunt, until the end of the war.<sup>15</sup>

15 Nordulf Debye, "Peter Debye Chronology," personal communication to Glenn Altschuler, April 23, 2006. The family believes that while Mathilde was in Switzerland, the Nazis tried to lure Debye to a scientific meeting in Europe, but "sensing an attempt to recapture him," Debye demurred. Nordulf Debye, personal com-

An FBI investigation of Debye in 1940, initiated at the request of the National Defense Research Committee (NDRC), sheds more light on the warning Einstein sent to Cornell. According to the agent who interviewed him, Einstein indicated that he knew Debye well enough not to trust him on matters unrelated to science. Debye was extraordinarily intelligent, shrewd, versatile, and "knows what to do to obtain immediate and personal advancement." Einstein believed Debye had not helped Jewish colleagues "in securing positions elsewhere."

But then Einstein hedged. He acknowledged that "he has never heard anything wrong concerning Debye" and did not believe Debye had done work for the military in Germany. Debye "may be all right," but if his "motives are bad he is a very dangerous man." Einstein suggested that the United States government ascertain whether Debye had severed all relations with German officials before sharing military secrets with him. But "now that he knows that Debye has a son with him in the United States perhaps Debye does not intend to return to Germany."<sup>16</sup>

Other scientists interviewed by the FBI evinced varying degrees of confi-

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munication to Glenn Altschuler, April 14, 2006.

16 Interagency Working Group of the Military Records Section, Declassified Records, Record Group 319, Army Staff, IRR Personnel Files, File X1107206, FBI Report 77-148, September 14, 1940 (in U.S. National Archives II, College Park, Md.). On June 19, 1940, Einstein wrote to Professor Kirkwood, chairman of the Chemistry Department, "I did not know what to do with that letter, throw it in the paper basket or forward it. I forwarded it." Cited in Gijs van Ginkel, "Debye and the Trustworthiness of Sybe Rispen," personal communication to Glenn Altschuler and others.

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dence or skepticism about Debye. Debye defenders, including Compton, Charles Smythe of Princeton, and George Scatchard of MIT, asserted that “his family in Germany could be in liability” and that, even so, they had heard him say Germany was “the enemy.” And no hard evidence against Debye surfaced. Even Samuel Goudsmit, the Dutch physicist who had triggered the NDRC inquiry by charging that Debye might be in Ithaca working on gases for the Nazis, indicated that his concern “has no basis in fact.”<sup>17</sup>

Despite the FBI investigation, Debye’s situation in the United States was relatively secure by the end of 1940. He assured Einstein that he had had no contact with any German official and had decided “that in no case do I want to return to Germany.”<sup>18</sup> Why, then, did he send a telegram in 1941, offering to take up his post at the Kaiser Wilhelm Institute? Debye’s telegram, according to his defenders, has not turned up in the archives, as per Rispen’s citation. Other documents refer to it, however, so, although we cannot be certain precisely what Debye said, it seems likely he communicated with the Nazis about the possibility of returning to Berlin.<sup>19</sup>

17 Interagency Working Group of the Military Records Section, Declassified Records, Record Group 319, Army Staff, IRR Personnel Files, File X1107206, FBI Report 77-148, November 23, 1940; FBI Report 62-745, October 24, 1940; FBI Report 62-1132, September 27, 1940. Most of his critics deemed Debye mercenary. According to H. B. G. Casimir, the average physicist, Debye’s contemporaries joked, was paid in milli-Debyes. See H. B. G. Casimir, *Haphazard Reality: Half a Century of Science* (New York: Harper & Row, 1983), 197.

18 Rispen, *Einstein in Nederland*, 182.

19 Van Ginkel, “Debye and the Trustworthiness of Sybe Rispen.”

Debye’s leave of absence was scheduled to expire at the end of April 1941. Debye may have believed that by appearing to keep open the option of returning, he could extend his leave and secure the sustenance and safety of his daughter and sister-in-law. If this was his aim, he succeeded. His request was approved. In August 1941, two months later, Debye filed official papers of his intention to become a citizen of the United States, thus beginning the mandatory five-year waiting period.<sup>20</sup> Other than the telegram, no evidence has surfaced that Debye considered leaving the United States at any time during the war.

Debye made substantial contributions to the Allied military effort throughout the war. In his authoritative history, *The Making of the Atomic Bomb*, Richard Rhodes points out that the letter sent to President Roosevelt by Einstein and fellow physicist Leo Szilard, which was the catalyst of the Manhattan Project, reviewed the state of uranium research in Germany, “about which they had learned from the physical chemist Peter Debye.”<sup>21</sup>

In 1942 Bell Telephone Laboratories recruited Debye to assist on war-related research. Since he was still a Dutch citizen and had not received a security clearance from the Navy, Debye was accompanied by a uniformed policeman to all “sensitive areas.” An expert in solid-state chemistry and materials science, with a special interest in the emerging field of polymers, Debye played an important role in the development of synthetic rubber to replace the Hevea sources of natural rubber then controlled by Japan. He designed a method

20 Nordulf Debye, “Peter Debye Chronology.”

21 Richard Rhodes, *The Making of the Atomic Bomb* (New York: Simon & Schuster, 1986), 331–332.

to determine the precise molecular weight of the polymers, and evaluated existing theories of high elasticity and explanations of stress-strain curves for rubbery substances. Debye's understanding of the behavior of dielectrics and ferroelectrics, such as electrical-filter elements, also helped improve Allied radar systems.<sup>22</sup>

Debye's defenders claim that it is difficult to reconcile these actions with the man portrayed in Sybe Rispen's book. To be sure, questions about the personal convictions of Peter Debye persist. What did he really think of Nazism? Did he have qualms about serving the Third Reich – and if so, when did they surface? Why didn't he accept the offer of a professorship at the University of Amsterdam extended to him in 1938? Would he have taken a leave from the Kaiser Wilhelm Institute if it had not come under the control of the war ministry? Would he have done war-related work for the Nazis if they had allowed him to retain his Dutch citizenship?

Despite these questions, it seems clear that the convictions of Debye by the universities at Maastricht and Utrecht were premature. *Einstein in Nederland* is, at best, a flawed book, with important information omitted, taken out of context, and perhaps even distorted. Martinus Veltman, the distinguished scientist who wrote the preface for Rispen's book, has had second thoughts and asked that it be removed from new editions and translations.<sup>23</sup> For these reasons, "based on the

22 W. O. Milligan, ed., *American Chemistry: Bicentennial*, Proceedings of the Robert A. Welch Conferences on Chemical Research, vol. 20 (Houston: Robert A. Welch Foundation, 1977), 154–200.

23 M. Veltman, personal communication to board of directors and employees of the Debye Institute of Utrecht University, May 5, 2006.

information, evidence and historical record known to date," the Department of Chemistry and Chemical Biology at Cornell University decided in May 2006 that any action to dissociate Debye's name from the department was unwarranted.<sup>24</sup>

The case of Peter Debye, of course, is not yet closed.<sup>25</sup> The Dutch Institute for War Documentation has undertaken a thorough evaluation, and biographies of Debye are likely to become a cottage industry in the Netherlands, and perhaps in the United States as well. Chemists at Cornell promise to monitor all reviews and revisions closely. And so should the rest of us, for the role of scientists in the Third Reich is fascinating, disturbing, and instructive, illuminating moral and political choices in the service of the State.

24 The statement by the Department of Chemistry and Chemical Biology will be published in *Chemical and Engineering News*.

25 A resident of Debijeweg, a street in Rotterdam, asked that the name be changed in the wake of Rispen's book. The request was denied, according to F. Cossee-de Wijs, deputy secretary of the Rotterdam Committee of Advice Concerning Streetnames: "A basic rule in the Rotterdam way of giving street names is: once named never changed. This is to prevent decisions following 'delusions of the day.'" See F. Cossee-de Wijs, personal communication to Nordulf Debye, June 7, 2006. More importantly, the administrators at the University of Utrecht have suppressed a booklet prepared by Gijs van Ginkel, the director of the former Debye Institute at the University of Utrecht, which defends Debye and criticizes the University's decision to change the name of the Institute. Copies in circulation have been recalled. The Institute's director and the University have agreed that the parts of the booklet containing an analysis of Rispen's allegations will be published at a later date. See "New Case of Censorship in Utrecht," *De Volkskrant*, June 20, 2006; and Martin Enserink, "Blocking a Book, Dutch University Rekindles Furor Over Nobel Debye," *Science* 312 (June 30, 2006): 1858.