1

The German Physical Society under National Socialism in Context

Mark Walker

The history of the German Physical Society (*Deutsche Physikalische Gesellschaft*, DPG) is not, and cannot be, a comprehensive history of physics under National Socialism.[1] Although most physicists were members of this society, the DPG had little, if anything, to do with much of what these scientists did between 1933 and 1945. Most of these physicists had multiple affiliations – a position at a university, research institution, or private firm, perhaps membership in an academy of science, appointment to the editorial board of a journal, and so forth. Max von Laue is an example of a physicist who wore many different hats: associate professor[2] at the University of Berlin, member of the Kaiser Wilhelm Institute for Physics, member of the Prussian Academy of Sciences (*Preußische Akademie der Wissenschaften*, PAW), member of the advisory board of the Imperial Physical-Technical Institute (*Physikalisch-Technisch Reichsanstalt*, PTR), referee for the Emergency Society for German Science (*Notgemeinschaft der Deutschen Wissenschaft*; subsequently renamed the German Research Foundation[3] [*Deutsche Forschungsgemeinschaft*,

[1] The best single source for physics under National Socialism is Klaus Hentschel, *Physics and National Socialism: An Anthology of Primary Sources* (Basel: Birkhäuser, 1996), including his extensive introduction; for the history of the DPG in the Third Reich, also see Dieter Hoffmann and Mark Walker, "The German Physical Society under National Socialism," *Physics Today* (December, 2004), 52–58, Dieter Hoffmann, "Between Autonomy and Accommodation: The German Physical Society during the Third Reich," *Physics in Perspective*, 7/3 (2005), 293–329, and Hentschel, *Physics*, lxx, 407.

[2] *Außerordentliche*.

[3] For the German Research Foundation, see Karin Orth and Willi Oberkrome (eds.), *Die Deutsche Forschungsgemeinschaft 1920–1970* (Stuttgart: Franz Steiner Verlag, 2010).

DFG]), member of the editorial boards of several journals, and, of course, both a member of and an official in the DPG.

Many of the scientists who stayed in Germany during the period 1933-1945 and remained members of the DPG did not play an active role in the society. Others, including some of the most famous, such as Werner Heisenberg[4] and Carl Friedrich von Weizsäcker,[5] appear only briefly in the history of the society. Some members were not even physicists; for example, the radiochemist Otto Hahn was a member of the DPG, but his work on nuclear fission and his experiences under National Socialism as director of the Kaiser Wilhelm Institute for Chemistry are not very relevant for the history of the DPG.[6] Pascual Jordan only became a member so that he could receive the society's Max Planck Medal for Theoretical Physics. This book will focus more narrowly on the DPG, a rich subject that illuminates interesting and important aspects of the history of physics and science under National Socialism.

German history from the First World War to the post–Second World War era is an immense subject, but for the purposes of this introduction, a short list of important milestones in the history of National Socialism will be used to put the history of the DPG under Hitler into context:

1. 1933: The National Socialist "Seizure of Power" (*Machtergreifung*)
2. 1933: The purge of the civil service
3. 1934: The purge of the Storm Troopers (*Sturmabteilung*, SA), and Hitler as *Führer* ("Leader")
4. 1935: The Nuremberg Laws
5. 1936: Rearmament and the Four-Year Plan
6. 1938: "Night of Broken Glass"
7. 1939: The start of the Second World War
8. 1941: The German attack on the Soviet Union
9. 1941: The end of the Lightning War and the beginning of war with the United States
10. 1943: German defeat and surrender at Stalingrad
11. 1945: The unconditional German surrender
12. 1945: The division of Germany into zones of occupation

[4] See David Cassidy, *Beyond Uncertainty: Heisenberg, Quantum Physics, and the Bomb* (New York: Bellevue Literary Press, 2009).

[5] Konrad Lindner, *Carl Friedrich von Weizsäckers Wanderung ins Atomzeitalter. Ein dialogisches Selbstporträt* (Paderborn: Mentis, 2002).

[6] See Mark Walker, "Otto Hahn: Responsibility and Repression," *Physics in Perspective*, 8/2 (2006), 116–163.

13. 1949: The founding of the two German states
14. 1953: Full West German sovereignty

Not all of these events had a discernible effect on the history of the DPG under National Socialism, but when they did, the results were sometimes unexpected.

Adolf Hitler's appointment as German chancellor and the subsequent step-by-step consolidation of a monopoly of political power by the National Socialist movement did not significantly change the day-to-day business of the DPG until the eve of the Second World War and, with a few important exceptions, even then did not cause major changes in what the organization did or how this was carried out. The exceptions were as follows: (1) the introductory speeches made at conferences by DPG president Karl Mey, which were full of praise for Hitler and used some of the language of the National Socialist period,[7] what Victor Klemperer called the *lingua tertii imperii* (LTI)[8]; (2) the formal expulsion of Jewish members in 1938[9]; and (3) the political advocacy of the militarization of physical research during the war.[10]

The purge of the civil service caused by the National Socialist Law for the Restoration of the Professional Civil Service (*Gesetz zur Wiederherstellung des Berufsbeamtentums*) in spring 1933 had a profound effect on German physicists because most scientists outside of industry were civil servants.[11] Many physicists either lost their jobs or no longer saw any professional future in Germany and left the country.[12] However, this

[7] See Simonsohn's chapter in this volume.
[8] Victor Klemperer, *The Language of the Third Reich: LTI—Lingua Tertii Imperii. A Philologist's Notebook* (New York: Continuum, 2006).
[9] See Wolff's chapter in this volume, as well as Stefan L. Wolff, "Vertreibung und Emigration in der Physik – 1933," *Physik in unserer Zeit*, 24 (1993), 267–273 and Stefan L. Wolff, "Frederick Lindemanns Rolle bei der Emigration der aus Deutschland vertriebenen Physiker," *Yearbook of the Research Center for German and Austrian Exile Studies*, 2 (2000), 25–58, and most recently, Stefan L. Wolff, "Das Vorgehen von Debye bei dem Ausschluss der jüdischen Mitglieder aus der DPG," in Dieter Hoffmann and Mark Walker (eds.), *"Fremde" Wissenschaftler im Dritten Reich. Die Debye-Affäre im Kontext* (Göttingen: Wallstein, 2011), 106–130.
[10] See Hoffmann's chapter in this volume.
[11] See Wolff's chapter in this volume, as well as Alan Beyerchen, *Scientists under Hitler: Politics and the Physics Community in the Third Reich* (New Haven: Yale University Press, 1977), 12–50, Hentschel, *Physics*, 21–34, including the text of the Civil Service law, and Cassidy, *Beyond*, 205–217.
[12] For the emigration, see Hentschel, *Physics*, liii–lxiv, and Klaus Fischer, "Die Emigration von Wissenschaftlern nach 1933. Möglichkeiten und Grenzen einer Bilanzierung," *Vierteljahrshefte für Zeitgeschichte*, 39 (1991), 535–549.

did not necessarily have an immediate effect upon their membership in the DPG. Whereas professional organizations of chemists, engineers, and mathematicians forced their Jewish members out during the first years of the Third Reich (see later), the DPG and its officials tried hard to act as if nothing unusual was going on.[13] Indeed, very few German émigrés or foreign colleagues who were members of the DPG formally resigned; instead, those that left merely stopped paying their dues and were quietly removed from the rolls.[14]

The so-called Einstein affair was an exception to this rule. Einstein had been well known since the First World War as an outspoken pacifist and internationalist.[15] During the Weimar Republic, Einstein had become the target of anti-Semitic groups, and the physicist had publicly defended himself. For all these reasons, Einstein was a *political* threat to the National Socialist movement, and, among all German scientists (including all Jewish or politically active scientists), he was singled out for special treatment. Einstein was out of the country when the National Socialists were helped into power. He remained away and criticized National Socialist (NS) policies, including the purge of Jewish civil servants. Einstein recognized that his membership in German organizations was now a political issue, so he tried to resign voluntarily and discreetly.[16]

The nationwide boycott of Jewish businesses that began on April 1, 1933, sponsored by the National Socialist German Workers Party (*Nationalsozialistische Deutsche Arbeiterpartei*, NSDAP) and led by fanatical National Socialists and anti-Semites like Josef Goebbels and Julius Streicher, had to be cut short to a single day because of the lukewarm reception given to it by many Germans and the strong protests from outside of Germany. Immediately thereafter, many state agencies and institutions either came under pressure to make their own stances on the "Jewish question" clear or took the initiative without much prompting. The Reich Ministry for Science, Education and Culture (*Reichsministerium für Wissenschaft, Erziehung und Volksbildung*, REM), among

[13] See Deichmann's and Remmert's chapters in this volume, as well as Karl-Heinz Ludwig, *Technik und Ingenieure im Dritten Reich* (Düsseldorf: Droste, 1974), 105–160.

[14] See Wolff's chapter.

[15] For Einstein, see David Rowe and Robert Schulman (eds.), *Einstein on Politics: His Private Thoughts and Public Stands on Nationalism, Zionism, War, Peace, and the Bomb* (Princeton: Princeton University Press, 2007).

[16] For Albert Einstein and the DPG, see the documents section, "Albert Einstein, Max von Laue und Johannes Stark," in the original German version of this book, Dieter Hoffmann and Mark Walker (eds.), *Physiker zwischen Autonomie und Anpassung – Die DPG im Dritten Reich* (Weinheim: Wiley-VCH, 2007), 530–548.

other things, wanted its subsidiary organization PAW to make a public show of anti-Semitism by throwing out Einstein.

As several historians have described, unfortunately Einstein had already resigned from the PAW, so an academy official had to take the further radical step of declaring that the PAW was glad that Einstein was gone.[17] The subsequent ambivalent responses of Einstein's respected colleagues Max von Laue and Max Planck are also well known. The ever-diplomatic Planck defended Einstein's scientific reputation and legacy but agreed that Einstein, through his political conduct, had made it impossible for himself to remain in the academy. Although Planck undoubtedly did not want Einstein to leave the academy, his public statement could be interpreted as agreement with the NS insistence that he go.[18] Max von Laue, in contrast, publicly one of Einstein's staunchest supporters, privately wrote Einstein and chided him for his "political" conduct.[19]

Here the contrast between the PAW and the DPG is stark. The DPG officials quietly removed Einstein's name from the membership list, apparently without any pressure from REM to do more. The overall strategy of the DPG was to avoid conflict and confrontation with the NS government.[20] Thus Einstein, one of the few scientists to grab and hold the attention of leading National Socialists, was gone from the DPG long before the society had to deal with the issue of Jewish members.

The "Einstein affair" was not typical. Alan Beyerchen in his path-breaking book has compared how Max Born, Richard Courant, and James Franck responded to the NS purge of the civil service.[21] In the end, all of the different responses, ranging from Born's quiet departure

[17] See Wolff's chapter in this volume, as well as Hentschel, *Physics*, 18–21, John L. Heilbron, *The Dilemmas of an Upright Man. Max Planck as Spokesman for German Science* (Berkeley: University of California Press, 1986), 155–159; Jürgen Renn, Giuseppe Castagnetti, and Peter Damerow, "Albert Einstein. Alte und neue Kontexte in Berlin," in Jürgen Kocha (ed.), *Die Königlich Preußische Akademie der Wissenschaften zu Berlin im Kaiserreich* (Berlin: Akademie-Verlag, 1999), 333–354, here 349–351; and Dieter Hoffmann, "Einsteins politische Akte," *Physik in unserer Zeit*, 35, No. 2 (2004), 64–69.

[18] For Planck, see Heilbron, Dieter Hoffmann, "Das Verhältnis der Akademie zu Republik und Diktatur. Max Planck als Sekretär," in Wolfram Fischer (ed.), *Die Preußische Akademie der Wissenschaften zu Berlin 1914–1945* (Berlin: Akademie-Verlag, 2000), 53–85, and Dieter Hoffmann, *Max Planck: Die Entstehung der modernen Physik* (Munich: Beck, 2008).

[19] See Heilbron, 70–73; also see the documents section, "Albert Einstein, Max von Laue und Johannes Stark" in Hoffmann and Walker, *Physiker*, 530–548.

[20] See Eckert's and Wolff's chapters in this volume.

[21] See Beyerchen, 15–39.

to Franck's public and defiant resignation, were ineffectual. No matter how many scientists resigned, there were competent and often quite good colleagues ready and willing to take their places. One physicist, Richard Becker, was transferred from the Berlin Technical University to the University of Göttingen against his will but nevertheless proved willing to teach once he got there.

Perhaps most disturbing is how the NS regime exploited the natural and quite justifiable efforts by the German physicists untouched by the civil service law to rebuild their discipline. Both Planck and Heisenberg, for example, sought out colleagues who were "Aryan" enough to be acceptable to the Third Reich but were good physicists. However, the unintended consequence was that Planck and Heisenberg thereby apparently accepted and justified the racist policy of firing Jews and only hiring Aryans.[22] Unfortunately, little is known about industrial research in this regard. German physicists who lost their academic jobs usually did not move to German industry, presumably because they were not welcome there. The example of Nobel laureate Gustav Hertz, who was forced out of his professorship at the Technical University of Berlin and subsequently accepted an offer to lead a research laboratory at Siemens and worked on military research during the war, was not typical.

Perhaps the one event most often mentioned as an example of scientists resisting National Socialism is The Haber Memorial Service in 1934.[23] Fritz Haber became a Nobel laureate for his work on the fixation of nitrogen from the air.[24] During the First World War, he transformed and greatly expanded his Kaiser Wilhelm Institute for Physical Chemistry into a research and development center for chemical weapons. Haber's institute had an unusually large number of Jewish chemists and physicists, including Haber himself, when the National Socialists came to power. Similar to Einstein as a person, Haber's institute became a target for the National Socialists in REM. Haber was ordered to fire almost all of his staff. He did so and then publicly resigned.[25] Haber was temporarily

[22] See Cassidy, *Beyond*, 215–217.

[23] For the Haber Memorial, see Beyerchen, 67–68, Heilbron, 162, Kristie Macrakis, *Surviving the Swastika: Scientific Research in Nazi Germany* (Cambridge, MA: Harvard University Press, 1993), 68–72, John Cornwell, *Hitler's Scientists: Science, War and the Devil's Pact* (London: Viking, 2003), 138–139; see the documents section, "Der Haber Feier," in Hoffmann and Walker, *Physiker*, 557–561.

[24] For Haber's biography, see Dietrich Stolzenberg, *Fritz Haber. Chemiker, Nobelpreisträger, Deutscher, Jude* (Weinheim: VCH, 1994), and Margit Szöllösi-Janze, *Fritz Haber 1868–1934* (Munich: Beck, 1998).

[25] For Haber's resignation, death, and subsequent reaction by colleagues, see Hentschel, *Physics*, 44–45, 63–65, 76–79.

replaced by a scientist imposed by Army Ordnance, which was very interested in using the institute for chemical weapons research. Eventually a candidate more acceptable to the Kaiser Wilhelm Society (*Kaiser-Wilhelm-Gesellschaft*, KWG), Peter Adolf Thiessen, became director and devoted a significant amount of the institute's effort to chemical weapons.

Haber died in exile in 1934. A year later the KWG, with the support of the DPG and the German Chemical Society (*Deutsche Chemische Gesellschaft*, DChG), honored his memory with a private ceremony. This was of course controversial. Officials in REM bristled at honoring a Jew who had protested their policies. REM forbade anyone under their jurisdiction from attending. Planck and DPG officials responded by insisting that no protest or criticism of governmental policies was intended. Minister Rust in turn offered to grant exemptions for scholars who wished to attend.

The university professors stayed away, although some of them sent their wives. Only one member of the DChG tried to get the exemption promised by Rust, but he was turned down. In contrast, the Union of German Chemists (*Verein deutscher Chemiker*, VdC) forbade its members from attending. Several VdC members protested against this prohibition. However, this internal protest did not translate into a public statement against NS policy.[26] Planck and Hahn (both DPG members) spoke at the private ceremony for Haber. In the end, this represented the high point of (quasi) public protest of or opposition to NS policies toward scientists. Although the DPG was listed as one of the sponsors, no DPG officials participated, but they also did not tell anyone else not to go.

Perhaps the best known and most infamous example of physics under National Socialism is the so-called Aryan physics (*Deutsche Physik*) movement founded and led by the Nobel laureates Philipp Lenard and Johannes Stark.[27] This small clique called loudly for a more "Aryan" and a less "Jewish" physics, and Stark sought to control appointments, funding, and publishing in physics – and thereby threatened the DPG. Lenard and Stark gave Hitler and his movement strong public support at a time when his fortunes appeared poor. Stark had actively campaigned for the

[26] See Deichmann's chapter in this volume.

[27] For Aryan physics, see Beyerchen, 79–167, Hentschel, *Physics*, 7–10, 100–116, 119–129, 152–161, Freddy Litten, *Mechanik und Antisemitismus. Wilhelm Müller (1880–1968)* (München: Institut für Geschichte der Naturwissenschaften, 2000), and Cornwell, 178–190; Michael Eckert, *Die Atomphysiker. Eine Geschichte der theoretischen Physik am Beispiel der Sommerfeldschule* (Braunschweig: Vieweg, 1993), 196–203; for Stark and Aryan physics, see Mark Walker, *Nazi Science: Myth, Truth, and the German Atomic Bomb* (New York, Perseus Publishing, 1995), 5–63.

National Socialists during the last hectic years of the Weimar Republic. When Hitler became chancellor, these two physicists were rewarded. Lenard, who was already retired, mostly received honors. Stark became president of both the PTR and the DFG and intended to dominate the DPG as well.[28]

Although many scientists inside and outside of Germany took Stark's influence at the start of the Third Reich and his attempts to take over physics as proof that the National Socialists wanted to dominate and transform science, it is now clear that this was not true. There was no conscious, coordinated, and deliberate attempt on the part of the NS leadership to damage, control, distort, or alter science – although contemporary observers both inside and outside of Germany can be forgiven for believing that this was so. In fact, most leading National Socialists did not consider science important enough to be a priority for their *Gleichschaltung* (coordination or synchronization) of German society. It is also true that Stark's ambitions were normal for a member of the NS elite. Throughout the German state, National Socialists fought with each other to carve out satrapies and assert a monopoly of power over a given area. For example, Josef Goebbels sought to control propaganda, and Max Amman sought to control newspaper publishing. It should have been no surprise that Stark tried to do the same in physics.

Arguably, the true business of physics takes place in its journals and other professional publications such as textbooks and handbooks. Thus, Stark was right to try to seize control of the publication of research at the beginning of the Third Reich via his attempt to dominate the DPG. Many of these journals, the *Zeitschrift für Physik*, for example, were published in the name of the DPG, and although they were really influenced more by their respective editors than by the society as a whole, this is precisely what Stark could have changed. Most journals remained remarkably free from overt political influence.[29] Research topics like the theory of relativity never disappeared. Physicists continued to cite and discuss articles by émigrés such as Einstein. The ideological debate between "Jewish" and "modern" physics rarely emerged, and when it did, it was handled in a discreet way. The few adherents of Aryan physics had their own journal, the *Zeitschrift für die gesamte Naturwissenschaft*, for ideological attacks,

[28] See the documents section, "Albert Einstein, Max von Laue und Johannes Stark," in Hoffmann and Walker, *Physiker*, 530–548.

[29] See Hentschel, *Physics*, xvi–xvii, and Simonsohn's chapter in this volume, as well as Gerhard Simonsohn, "Physiker in Deutschland 1933–1945," *Physikalische Blätter*, 48 (1992), 23–28.

but when their works did appear in the professional journals, they were limited to publishing old-fashioned physics, not politics.[30]

Along with journals, the business of physics is also expressed in funding. Here, Stark's control of the DFG was a good opportunity to steer research into particular channels, but he soon squandered his influence by fighting with other influential National Socialists in the government, the bureaucracy, and the NSDAP.[31] In 1936, he was forced to resign and was succeeded by the chemist and REM official Rudolf Mentzel. Stark's presidency of the PTR was not much better. In 1936, he lost control over his budget, and in 1939 he had to retire and was succeeded by Abraham Esau. Although Stark had stopped supporting research in modern physics, his policies were not very different from those of his successors: Stark, Mentzel, and Esau all supported some basic research while emphasizing applied, often military, research. In contrast to Stark, during the war physicists such as Esau and his successor Walther Gerlach became very influential serving as the Plenipotentiary for Physics in the Reich Research Council (*Reichsforschungsrat*, RFR), an institution founded to help coordinate scientific research for the war effort and closely linked to the DFG. Had Stark succeeded in controlling physics publications and research grants, he truly could have influenced what sort of physics was done in Germany. But he failed, mainly because he had as many enemies as friends among the NS elite and had not gained support for the reforms he proposed.

Aryan physics was a political movement of scientists within the NS movement.[32] In particular, "it was above all the local politics, that is, those of the community of physicists."[33] The very few successes of Stark,

[30] See Simonsohn's chapter and Walker, *Nazi Science*, 43–47.

[31] Walker, *Nazi Science*, 5–63; also see Sören Flachowsky, *Von der Notgemeinschaft zum Reichsforschungsrat. Wissenschaftspolitik im Kontext von Autarkie, Aufrüstung und Krieg* (Stuttgart: Franz Steiner Verlag, 2008), 163–200.

[32] See Mark Walker, *German National Socialism and the Quest for Nuclear Power, 1939–1949* (Cambridge, Cambridge University Press, 1989), 60–73.

[33] See Beyler's chapter in this volume for this quotation, as well as Richard H. Beyler, "'Reine' Wissenschaft und personelle 'Säuberungen.' Die Kaiser-Wilhelm/Max-Planck-Gesellschaft 1933 und 1945," in Carola Sachse (ed.), *Ergebnisse. Vorabdrucke aus dem Forschungsprogramm "Geschichte der Kaiser-Wilhelm-Gesellschaft im Nationalsozialismus*, No. 16 (Berlin: Forschungsprogramm, 2004), Richard H. Beyler, Alexei Kojevnikov, and Jessica Wang, "Purges in Comparative Perspective: Rules for Exclusion and Inclusion in the Scientific Community under Political Pressure," in Carola Sachse and Mark Walker (eds.), *Politics and Science in Wartime*, Volume 20 of *Osiris*, (Chicago: University of Chicago Press, 2005), 23–48, and Richard H. Beyler, "Maintaining Discipline in the Kaiser Wilhelm Society during the National Socialist Regime," *Minerva*, 44/3 (2006), 251–266.

Lenard, and their adherents were eventually revealed as Pyrrhic victories. The outcome of the struggle over Aryan physics should be seen as a successful attempt to reassert the extant patterns of authority within the boundaries of the physics community.[34] What is arguably more important is what this movement tells us about science, and particularly physics, during the Third Reich. Science policy and management under National Socialism reflected the polycratic nature of the regime, whereby many different and competing sources of authority, funding, and other forms of support swirled around immediately below Hitler's dictatorship. Thus, when Stark found a particular patron among the highest levels of the NS state, physicists threatened by Stark's ambitions had to find their own patrons, in particular individuals or groups more sympathetic to the importance of modern physics. They did this, eventually becoming very successful, far more than Stark had been.

This had a price, however, for the patrons supported these scientists because the patrons expected something in return. Stark's conflict with the DPG, just like his battles with the established physics community in general, represented a struggle for authority within the physics community in the context of the pressures exerted on the external boundaries of that community by the NS state.[35] The final fate of Aryan physics was analogous to the fate of the NS Storm Troopers, the SA. Under its leader Ernst Röhm, the SA was very useful, if not indispensable for the National Socialists in their quest to gain and consolidate political power. However, at some point the SA's calls for a "second revolution" – because in their eyes the first one had not gone far enough – became counterproductive for Hitler and the rest of the NS elite. The SA leadership was then silenced and the masses of SA men reigned in. Although no advocate of Aryan physics fared as badly as Röhm, their movement had a similar experience. At the start of the Third Reich, the calls for an "Aryan science" in physics, mathematics, and other disciplines facilitated the NS *Gleichschaltung* of these disciplines. However, within a few years, the most important and influential members of the NS elite were far more concerned about how science and engineering could be useful to them than about its ideological purity, and Stark and his followers were silenced as well.[36]

[34] See Beyler's and Eckert's chapters in this volume.
[35] See Beyler's chapter in this volume.
[36] See Monika Renneberg and Mark Walker, "Scientists, Engineers, and National Socialism," in Monika Renneberg and Mark Walker (eds.), *Science, Technology, and National Socialism* (Cambridge: Cambridge University Press, 1993), 1–17, 339–346.