ON FRANCO–GERMAN RELATIONS IN MATHEMATICS,
1870–1920

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Abstract

The first ICMs took place during an era when the longstanding rivalry between France and Germany strongly influenced European affairs. Relations between leading mathematicians of these two countries were also colored by this tense political atmosphere. This brief account highlights what was at stake by focusing on events in Paris and Göttingen from the period 1870 to 1920.

Introduction

Last year the Institut Henri Poincaré commemorated the hundredth anniversary of the death of Gaston Darboux, one of the greatest mathematicians of his time. On that occasion I tried to give an idea of how Darboux was viewed by some of his contemporaries who lived outside of France. In this paper, I will expand on that theme in order give a somewhat broader picture of Franco-German mathematical relations during the period bounded by two wars.

As the leading French geometer of his generation, Darboux was admired by many distinguished foreign mathematicians who knew his work well, including Sophus Lie, Julius Weingarten, Luigi Bianchi, and of course Felix Klein. Darboux met Klein and Lie already in 1870, and he corresponded with both quite regularly for many years afterward. He also wrote a warm obituary for Lie, Darboux [1899] after the latter’s death in 1899. So it might seem at first rather surprising that in 1917 it was not Klein, but rather his Göttingen colleague, David Hilbert, who wrote an obituary for Darboux, Hilbert [1917]. Perhaps even more surprising, given the ongoing slaughter on the battlefields, is that any mathematician in Germany would have chosen to write in honor of an esteemed French colleague at that time. In his autobiography Schwartz [2001], Laurent Schwartz commented that this would have been unthinkable in France, though I believe Schwartz was probably wrong.

MSC2010: primary 01A60; secondary 01A55.
when he wrote that chauvinism during the First World War was greater in France than in Germany.

Many French mathematicians would have known about Hilbert’s tribute to Darboux because it was reprinted in 1935 in the third volume of his collected works. Some would have read it long before, since Mittag-Leffler published a French translation in *Acta Mathematica* already in 1919. I will return to Hilbert’s wartime éloge for Darboux momentarily, but first let me say a few words about relations between French and German mathematicians in the wake of the Franco-Prussian War. Given the fact that Émile Picard’s father died during the siege of Paris and that Paul Appell’s family fled from Strasbourg to Nancy, one can easily imagine the impact the war had on their views of the new German state. Henri Poincaré and his family worried that a similar fate would befall Nancy when it was under occupation. A German military official was then stationed at their home, which gave the 16-year-old Poincaré the chance to pick up spoken German. In his *Dernières pensées* he wrote:

> When asked to justify rationally our love of country, we can be quite embarrassed, but our mind imagines our defeated armies, France invaded, we feel altogether nauseous, tears begin to flow and we listen no further. And if there are those today who repeat so many sophisms, it is most likely due to their lack of imagination. They are unable to imagine by themselves all this suffering, and if misfortune or some divine punishment fixed their eyes upon it, their soul would revolt as does our own. *Poincaré* [1913]

In Darboux’s case, I suppose he probably felt no differently, though he came, of course, from an older generation.

The Franco-Prussian War surely did have an impact on mathematical relations afterward, but of course its political fallout was nothing like the damage caused by the Great War. Klein already wrote a friendly letter to Darboux in February 1871, after which their mathematical correspondence took up a whole series of common interests (see *Tobies* [2016]). One can also read Hermite’s words of praise after he visited Göttingen in 1877 to attend the Gauss celebration. Probably no French mathematician could match Hermite’s enthusiasm for German mathematics, despite his difficulties with the language (see *Archibald* [2002]). By the 1880s, a handful of younger French mathematicians were going abroad to study at leading German universities. One of these was Paul Painlevé, who spent a year in Göttingen attending lectures offered by H. A. Schwarz and Klein. During the First World War when he served briefly as War Minister, Painlevé spoke out strongly against the German war machine. His words were long remembered by German mathematicians after the war.
Klein and Lie in Paris

Just before the Franco-Prussian War broke out in mid-July 1870, Klein and Lie sent a status report on French mathematics to the Mathematics Club at the University of Berlin. This contains many remarkable things, particularly when we consider that Klein was only twenty-one years old when he wrote it. The report also contains these remarks about Darboux’s new journal, *Bulletin des Sciences Mathématiques et Astronomiques*:

> We believe that such a journal is a very useful, but also very difficult undertaking whose goal can be fully achieved only if it has a large number of contributors who are well versed in the areas on which they report. The Bulletin is not yet in this fortunate situation. Nor, indeed, is it difficult to find evidence, in the issues which have appeared so far, of a number of flawed reviews. But the personality of the editor, G. Darboux, a man whom we consider exceptionally gifted (and whose gifts are precisely suited to this cause), seems to us to ensure that the Bulletin will continue to improve with time.¹

Klein and Lie found that Darboux’s reviews “stand out in their expertise and clear exposition,” and they compared these favorably with those written by Jules Hoüel for the *Nouvelles Annales*. They went on to underscore their support for Darboux’s undertaking, noting that his goal was “to familiarize French mathematicians with the modern branches of geometry and algebra, which have been relatively unknown in France up to now.”

Many of you will know the story about how Darboux travelled to Fontainebleau to free Sophus Lie from prison. The Norwegian had been detained there at the outset of the war on suspicions that he might have been a German spy. Lie happened to be carrying letters from Klein, written in what seemed like a strange German code language with words like Linien- und Kugelkomplex, etc. Darboux wrote about this incident in his obituary for Lie, noting that he was relieved on meeting him to see that his friend was not at all angry with the police who had arrested him [Darboux 1899]. Soon after his release, Lie wrote to a friend, “the sun has never seemed to me to have shone so clearly, the trees have never been so green as those I saw yesterday as a free man on my way to the Fontainebleau station” (Stubhaug [2002], p. 147).

Lie’s Line-to-Sphere Mapping

Only shortly before this time, Lie had found his famous line-to-sphere mapping, a contact transformation with many interesting properties. A pretty example comes from the image

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of a quadric surface given by one of its families of generators. These lines map to a family of spheres that envelopes a Dupin cyclide. One can picture this most easily by taking three skew lines in space which then map to three spheres. The set of lines that meet these mutually skew lines form the generators of a quadric surface, and since Lie’s mapping is a contact transformation these lines go over to a one-parameter family of spheres tangent to three fixed spheres. Since the second system of generators has the same property, the analogy with a Dupin cyclide becomes clear: these are surfaces enveloped by two families of spheres. Moreover, this mapping has the property that the asymptotic curves of the first surface go over to the curvature lines of the second. In this case, the generators themselves are the asymptotic curves, and these then correspond to the circles of tangency of the Dupin surface (see Lie and Scheffers [1896], pp. 470-475). There is an important connection here with Darboux’s mathematics that I should briefly mention.

![Figure 1: Historical model of a hyperboloid of one sheet by Theodor Olivier.](image)

In 1864 Darboux and Theodore Moutard began work on generalized cyclides, which they studied in the context of inversive geometry.² Klein and Lie learned about this new

²For a detailed account of this theory and related work by Darboux and others, see Croizat [2016].
French theory when they met Darboux just before the Franco-Prussian War broke out. Darboux later developed the theory of generalized cyclides by introducing pentaspherical coordinates Darboux [1873].\(^3\) These cyclides are special quartic surfaces with the property that they meet the plane at infinity in a double curve, namely the imaginary circle that lies on all spheres. Darboux also found that their lines of curvature are algebraic curves of degree eight. This finding set up one of Lie’s earliest discoveries, communicated to Darboux at that time. This came from Lie’s line-to-sphere mapping, when he considered the caustic surface enveloped by lines in a congruence of the second order and class Rowe [1989].

A few years earlier, these special quartics had been studied by the Berlin mathematician Kummer, and they soon came to be called Kummer surfaces. Lie found that these Kummer surfaces will map to the generalized cyclides of Darboux, and since the curvature lines of the latter were known, he immediately deduced that the asymptotic curves on a Kummer surface are algebraic of degree sixteen. In early July 1870, Lie communicated these findings to the Norwegian Scientific Society in Christiania, but this note was only published by Ludwig Sylow in 1899, the year of Lie’s death (Lie [1934], pp. 86-87). Lie and Klein discussed this breakthrough in detail, as Klein gradually came to understand

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\(^3\)Darboux had already worked out many of these ideas when Klein and Lie met him, but it took him another two years to develop the whole theory in detail and publish it in Darboux [1873]. For further background on his early career and mathematical research, see Croizat [2016].
Lie’s line-to-sphere mapping. He then quickly realized that Lie’s claim was correct because he had already come across these same curves of degree sixteen in his own work. Klein had found these curves while studying quadratic line complexes that share the same Kummer surface as their surface of singularity, but he had not realized that they were its asymptotic curves. Little more than a week later, Klein had to flee from Paris, but he soon reported to Lie that he was able to trace the paths of these asymptotic curves and to describe their singularities. He did so by studying a physical model of a Kummer surface made by his friend Albert Wenker.

Klein imparted this information to Lie in a letter from 29 July, possibly one of those that left the sentries in Fontainebleau suspicious when Lie tried to tell them this was only mathematics. By this time, Klein realized that what he he had told Lie earlier in Paris about the singularities of these asymptotic curves was, in fact, incorrect. After giving the necessary corrections, he wrote:

I came across these things by means of Wenker’s model, on which I wanted to sketch asymptotic curves. To give you a sort of intuitive idea how such curves look, I enclose a sketch. The Kummer surface contains hyperboloid parts, like those sketched; these are bounded by two of the six conics ($K_1$ and $K_2$) and extend from one double point ($d_1$) to another ($d_2$). Two of the curves are drawn more boldly; these are the two that not only belong to linear complexes but also are curves with four-point contact. They pass through $d_1$
and $d_2$ readily, whereas the remaining curves have cusps there. This is also evident from the model. At the same time, one sees how $K_1$ and $K_1$ are true enveloping curves.\footnote{Klein to Lie, 29 July 1870, \textit{Letters from Felix Klein to Sophus Lie, 1870-1877}, Heidelberg: Springer-Verlag, scheduled to appear in 2019.}

By the “hyperboloid parts” on a Kummer surface, Klein meant those places where the curvature was negative. Only in these regions were the asymptotic curves real and hence visible. He later reproduced the same figure in the note that he and Lie sent to Kummer for publication in the \textit{Monatsberichte} of the Prussian Academy \cite{KleinLie1870}.
These were obviously exciting times, both mathematically and politically, and for many years afterward Klein and Lie hoped to meet again in Paris. In 1882, that chance finally looked possible, but then Klein suffered a major collapse in his ongoing effort to compete with Henri Poincaré, who published five long papers on the theory of automorphic functions in Mittag-Leffler’s new journal, *Acta Mathematica*. So Lie visited Paris on his own, but he reported on his various conversations with French mathematicians in three letters written to Klein. I would like to cite just a few passages from these letters, which give a vivid picture of how Darboux and others were seen by Lie at the time. Private correspondence has, of course, the decided advantage that people will write things they would never put in print, least of all in an obituary for a distinguished figure.

So here is a little gossip from Paris in 1882 Rowe [2018b]:

I have spoken now with Hermite about all kinds of things. He has a very amiable nature, but I still don’t know how much of it is genuine. People here say it is certain that he can’t read a word of German, which indeed explains a number of things. The most remarkable thing he said was the following (which I communicate to you in confidence): Mittag-Leffler told him that the German mathematicians hate the French mathematicians. Nor did he want to hear anything of my protests against this. That is certainly strong. He was eager to hear about friction between German mathematicians, whereas he described the situation in Paris as idyllic in this regard. Probably it is no better in Paris than in Germany.

In another letter, Lie wrote that he regretted telling Klein about Mittag-Leffler’s remark, which, in any case, was clearly an overstatement. The rivalries within Germany were at this time in many cases more significant than those between leading mathematicians of these two countries. Klein continually advised young Germans to visit Paris, and quite a few of his students and protégés did so, including Ferdinand Lindemann, Walther Dyck, Eduard Study, and Hilbert. We should also keep in mind that Darboux and Jordan had both met Klein and Lie back in 1870 when their ideas had considerable influence on Klein’s Erlangen Program (see Rowe [1989]). This circumstance makes the following remarks by Lie quite surprising:

Poincaré mentioned on one occasion that all of mathematics was a matter of groups. I told him about your [Erlangen] Program, which he did not know. Halphen, Darboux, and Stephanos spoke with the highest praise about you. Until now I have spoken very little with Jordan, whose mother died recently.

And then a little later, Lie wrote:
In the meantime I have spoken at length with Jordan. He finds your investigations difficult to understand. Poincaré said that at first it was hard for him to read your work, but that now it goes very easily. A number of mathematicians, such as Darboux and Jordan, say that you make great demands on the reader in that you often do not supply proofs. I am trying to report on this as correctly as possible.

Lie also commented on how leading French mathematicians reacted to his own work:

So far as my own things go, I am more or less satisfied. Darboux has studied my work with remarkable thoroughness. This is good insofar as he has given gradually more lectures on my theories at the Sorbonne, for example on line and sphere geometry, contact transformations, and first-order partial differential equations. The trouble is that he continually plunders my work. He makes inessential changes and then publishes these without mentioning my name. Now he is starting on the surfaces of constant curvature. I must therefore rework my papers from Christiania [present day Oslo] for the Mathematische Annalen just as soon as possible.

Finally, there is this remark about Victor Mannheim, the inventor of the modern slide rule:

Mannheim is friendly as always. He is really a good fellow and warns me constantly about Darboux, for which he really has good reason. But I must speak with Darboux, as he is the one who understands me the best. And for the pleasure I must pay something. In any case, he is promoting mathematical science.

Franco-German Relations after the Outbreak of the Great War

Darboux later had several dealings with Klein, as both were highly involved in promoting various national and international projects. A year after the Paris ICM, Darboux succeeded Joseph Bertrand as perpetual secretary for the mathematical sciences section of the academy. By then, he and Klein had emerged as the two most active and visible mathematicians in their respective countries. Their contacts ended, however, with the outbreak of the Great War. Let us recall how, right at its outset, 93 German intellectuals attached their names to a manifesto that proudly announced full support of all actions taken by the German army, beginning with its invasion of Belgium. Quite a number of the signatories were prominent natural scientists – including Max Planck, Fritz Haber, Walther Nernst, Ernst Fischer, and Ernst Haeckel – whereas only one mathematician appeared on the list:
Felix Klein. We know rather little about how these names were collected, so it is unclear whether Hilbert actually withheld his support. I’m unaware of any evidence that he was contacted at all. On the other hand, if he had been asked to lend his name, he probably would have refused. Klein was reached by telephone and gave his support without ever having read the document. When it was released, the French Academy dropped his name from its membership roles. There was debate, in fact, over whether all Germans should be dismissed from the academy, but such action was not taken, so Hilbert remained a foreign member. To the best of my knowledge, no actions were taken by any of the German academies against French members.

At this time, Klein had begun his wartime lectures on the history of mathematics in the nineteenth century. These later circulated in mimeographed form and were eventually published in [Klein 1926], one year after Klein’s death. They offer a highly personal view, as seen from Klein’s own vantage point within the Göttingen tradition. National rivalries were also a major theme, and Klein underscored the significance of the École Polytechnique as a model for several polytechnical institutes that followed as well as for applied mathematics in general. He alluded to Jacobi’s remarkable lecture in praise of this new institution, a speech delivered at a time when Parisian mathematics stood at its peak. Klein had cultivated friendly relations with Darboux, Poincaré, and other leading French mathematicians [Tobies 2016], but his high respect for French achievements in no way diminished his nationalism. Like nearly all Germans of his generation, Klein celebrated the Battle of Sedan as the key event that led to the unification of Germany. No doubt, he attached significance to the fact that the crowning of King Wilhelm of Prussia as Emperor took place in the Hall of Mirrors in Versailles rather than in his palace in Berlin.

Before the war, Darboux and Klein had worked together to help found the International Association of Academies. Such cooperation was obviously unthinkable in wartime, when the French and German scientific communities felt only hostility for one another. One of the most prominent Italian mathematicians, Vito Volterra, sided strongly with the French cause (see Mazliak and Tazzioli [2009].) In November 1916, Darboux wrote to the physicist Arthur Schuster, Secretary of the Royal Society, suggesting a meeting of leading scientists from the Entente powers to address what should be done with regard to international relations after the war (Lehto [1998], p. 16). Since he died in February 1917, nothing came of this initiative, though his successor, Émile Picard, took up this matter before the fighting had come to an end. Picard’s attitude toward German scientists was similar to Clemenceau’s view of German politicians, and if we remember that Briand and Stresemann were able to overcome the intransigence that hampered the early years of the Weimar Republic, we might think of Hilbert as the leading representative of rapprochement in the world of mathematicians. His call to break the counter-boycott of the Bologna ICM in 1928 led to a direct conflict with Bieberbach, but even more with Brouwer, who had become his arch-nemesis (Blumenthal [1935], p. 427). These events only underscore
Hilbert’s longstanding commitment to internationalism, but let me return to his portrait of Darboux.

**Hilbert’s Tribute to Darboux**

After Darboux’s death in February 1917, he received a fitting eulogy from the Göttingen Scientific Society. Darboux belonged to that body as a foreign member since 1901 when he succeeded Hermite. As I noted at the outset, it would seem at first surprising that Hilbert wrote this obituary, Hilbert [1917], considering that Klein had known Darboux far better, both personally and mathematically, than had his younger colleague. In fact, this was an altogether unusual tribute to a foreign scholar, and it caused an immediate stir within Göttingen academic circles.

We should first of all note that the Göttingen Scientific Society did not ordinarily honor its deceased foreign members in this way. Neither Klein nor Hilbert wrote an obituary for Hermite or for any other foreign member of the society, so there was certainly no compulsion for Hilbert to take up his pen to eulogize Darboux. One can hardly escape the conclusion that his motivation was, in large part, political, though personal gratitude could also have played a role as well. In 1905, Darboux and Klein had been charged with the difficult task of judging who should be awarded the first Bolyai Prize. What made this decision difficult was the personal and national prestige involved, since only two names needed to be taken into consideration: Poincaré and Hilbert. Klein naturally favored Hilbert, just as Darboux supported Poincaré, who was awarded the prize. But Darboux apparently agreed that he would back Hilbert’s nomination for the second prize in 1910, and on that occasion Poincaré himself wrote the report in support of this decision.

Still, Hilbert surely had other reasons for writing this obituary, and the more likely motives would have been connected to his special place within the larger academic community in Göttingen. Hilbert’s outspoken internationalist views had led to many open clashes, both within the philosophical faculty as well as the scientific society. If we take into account that Hilbert’s text was presented at the society’s annual public session, held on 12 May 1917, then his political motivation becomes even more obvious. Clearly, he knew that his speech was bound to provoke great controversy, and just as surely this was his very intention. According to his biographer, Constance Reid, when word got out in Göttingen about the Darboux Nachruf, an angry band of students gathered in front of Hilbert’s house to demand that he withdraw the text (Reid [1970], p. 145). Reid’s rather romantic account was largely based on oral interviews, so we cannot be be too confident about the details of this incident, particularly her claim that Hilbert threatened to resign his position if he did not receive an official apology from the Rector of the university for the behavior of these students. Still, even if the details cannot be corroborated, there is every reason
to believe that something like this happened. In fact, two years later Hilbert did seriously consider resigning his professorship to accept a chair in Bern. Without doubt, his éloge for Darboux was intended not only to honor a great mathematician; it was also meant as a direct provocation to all those in the Göttingen Scientific Society who saw French scholars as their mortal enemies.

Hilbert began by praising Darboux and Camille Jordan for their universality, which he claimed had opened the way for a younger generation of mathematicians who no longer felt hemmed in by the special disciplines that dominated most research during the late nineteenth century. This universal outlook had become a watchword for Göttingen mathematics, so by identifying Darboux with it, Hilbert underscored the intellectual affinities that linked him with them. He then recalled how Darboux, in his plenary address at the 1908 ICM in Rome, had compared his own era with the new trends that were unfolding since the turn of the century. For Hilbert, it had been personally gratifying that Darboux brought up his famous speech on “Mathematical Problems” from the Second ICM held in Paris in 1900. He was also pleased to recall how this older representative of French mathematics, though by now only an outside observer, had spoken up in support of these radically new developments. In short, he saw Darboux as a progressive spirit.

Following these introductory remarks, Hilbert alluded to the various phases in Darboux’s career, starting with the impression he made already as a student on his countrymen. Here he recalled the well-known anecdote about how, after scoring first among all candidates for both écoles, Darboux chose to attend the École Normale. In Hilbert’s telling, though, we can easily hear echoes of an anti-militarist theme. He noted that Darboux grew up in modest circumstances and that he lost his father at a young age. About his decision not to attend the École Polytechnique, Hilbert wrote that Darboux chose “to decline the sword and gold-embroidered cloak of an officer or civil engineer in preference for the more humble title of a professor and the less distinguished teaching profession …, Hilbert [1917, p. 366].” He added that this “was something that had never before occurred and that awakened general astonishment” at the time, citing an article by the “then famous French Goethe-expert Jean-Jacques Weiss” Weiss [1861]. Probably no one in the audience knew this name, but one can almost imagine their faces when they heard the most famous living German mathematician refer to some obscure Frenchman as a famous expert on Goethe. Hilbert went on to say that Weiss wanted to record Darboux’s decision in order to show “how at least once something like this had occurred on our planet.”

Not surprisingly, Hilbert mentioned Darboux’s influence on Lie and Klein, but he also briefly described three dissertations written in Göttingen that were inspired by lesser known works by Darboux. When, toward the end, he turned to Darboux’s four-volume Théorie des surfaces, his praise for it was almost boundless. He called this not only a classic work for surface theory but also an invaluable tool for studying mechanics, calculus of variations, partial differential equations, and invariant theory. Moreover, in Hilbert’s
view, no one before Darboux had recognized the deep connections between these fields of central importance for contemporary research. Darboux’s treatise, he wrote, belongs in the library of every mathematician, like other great works by French authors, such as Jordan’s *Cours d’Analyse*, Picard’s *Traité d’Analyse*, and Poincaré’s *Mécanique celeste*. The message could hardly have been clearer – these works belong to all mathematicians because the world of mathematics knows no national boundaries. Hilbert even alluded to the relevance of Darboux’s work for Einstein’s new theory of gravitation, truly a new theory in 1917.

**Einstein and Hilbert as Leading Internationalists**

Einstein first met Hilbert when he came to Göttingen in 1915 to give a series of lectures. The not yet famous physicist knew that Hilbert was a brilliant mathematician, but he now came to realize he was also an outspoken internationalist who was unafraid to clash with opponents. Emmy Noether’s attempt to habilitate had begun at this time, and Einstein was well aware of Hilbert’s efforts to promote her case. She taught special courses under his name, but could only gain an official appointment after the war ended, since the Prussian Ministry of Education quashed all proposals to allow women such rights before then.\(^5\)

In the final year of the war, Einstein contacted Hilbert to propose that they join hands with like-minded colleagues from other countries in order to make the case for peace and moral progress. He began this appeal with these words:

> Countless times in these desolate years of general nationalistic delusion, men of science and the arts issued statements to the public that have already inflicted incalculable damage to the feeling of solidarity that had been developing with such promise before the war . . .. The hue and cry of straight-laced preachers and servants of the bleak principle of power is becoming so loud and public opinion is being misled to such a degree by methodical silencing of the press that those with better intentions, feeling wretchedly isolated, do not dare to raise their voices. (Einstein to Hilbert, before 27 April 1918, *Schulmann, Kox, Janssen, and Illy* [1998]).

After consulting with some friends, Hilbert replied that in his opinion the time was not yet ripe for Einstein’s “well-meaning and appealing undertaking.” In fact, he warned that any such declarations “would be tantamount to self-denunciations, which all our enemies in the faculties would be extremely glad to cite.” For them, “the very word ‘international’ is like a red flag for a bull.” Hilbert also cautioned Einstein against:

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\(^5\) On the events and conflicts associated with this effort, see *Tollmien* [1990]. Noether’s wartime contributions to general relativity are discussed in *Rowe* [n.d.].
firing off our gunpowder at the wrong time and possibly also at the wrong persons. . . . I would like to recommend waiting until the mad hurricane has spent itself and reason has the opportunity of returning – and this time is sure to come. We would have to restrict ourselves to the German professors, since they alone are thoroughly known to us here and also have most to do with it. Other peoples must wash their own dirty laundry. (Hilbert to Einstein, 1 May 1918, Schulmann, Kox, Janssen, and Illy [1998]).

Nothing came of this venture, but the exchange reveals that Hilbert had a far better feel for academic opinion in Germany at this time than did Einstein. He was also a firm advocate of academic freedom and a defender of those, such as Leonard Nelson, who came under attack during wartime for their pacifist views. Around the same time that he wrote this letter to Einstein, Hilbert informed Klein that he refused to attend future meetings of the Göttingen Academy, so long as no one besides him was willing to protest against the behavior of its secretary, Edward Schröder. Hilbert was incensed that Schröder had taken it upon himself to inform military authorities about the pacifist views of a colleague in physics. After the war, he took steps to force Schröder’s resignation, though without success; the latter remained secretary of the philological-historical section until 1924.

These few remarks offer a glimpse of the atmosphere in Göttingen during wartime as well as some of the events that help to place Hilbert’s obituary for Darboux in its original context. Let me end by quoting Hilbert again, this time from the year 1909 when Poincaré came to Göttingen to deliver the first series of Wolfskehl lectures. Here are a few words taken from Hilbert’s welcoming address on that occasion Rowe [2018a, p. 197]:

You know, highly honored colleague, as do we all, how steady and close the mathematical interests of France and Germany have been and continue to be. Even when we recall only quickly the developments of the recent past, and out of the rich and many-voiced concert of mathematical science we take hold of the two fundamental tones of number theory and function theory, then we think perhaps of Jacobi, who had in Hermite the outstanding heir to his arithmetical ideas. And Hermite, who unfolded the flag of arithmetic in France, had our Minkowski, who brought it back to Germany again. Or if we only think of the names Cauchy, Riemann, Weierstrass, Poincaré, Klein, and Hadamard, these names build a chain whose links join one another in succession. The mathematical threads tying France and Germany are, like no two other nations, diverse and strong, so that from a mathematical perspective we may view Germany and France as a single land.
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Received 2017-09-01.

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