There was little ambiguity about Hecke's position, and many positive stories There was little ambiguity about his postwar membership on about his behavior under the Nazis exist, leading to his postwar membership on about his behavior commission, as well as his Dekanat. However, as noted 442 about his behavior under the twall as his Dekanat. However, as noted, his the denazification commission, as well as his Dekanat. However, as noted, his replacement on the former by Zassenhaus, and Rrad the denazification commission, as noted, his the denazification commission, as noted, his illness forced his replacement on the former by Zassenhaus, and Bredeman illness forced his as Dekan. Nevertheless, as in Blaschke's case, he say illness forced his replacement. Nevertheless, as in Blaschke's case, he seems to substituted for him as Dekan. Nevertheless, as in Blaschke's case, he seems to substituted for him as Dekan. The substitute for him as Dekan. The subs have been determined to be years after his teacher's death, Behnke said.65

After the war Hecke obtained a great deal of power. He was, however, too inex. After the war Hecke obtained and too unsteady to use it. At that time he caused perienced in the ways of the world and too unsteady to use it. At that time he caused perienced in the ways of the world and himself I howard as 1947 much calamity. Some of the world and himself. I, however, will remain eternally grateful to him.

Perhaps the difference between Behnke and Hecke (or the Behnke of 1945 and rernaps the different the Behnke of 1978) can be found in what Behnke said were their different attitudes in 1933 toward academic Nazi "fellow travelers"—for Behnke they were fools, for Hecke they lacked character.66

It is, of course, impossible to say whether mathematics would have continued as respectably as it did at Hamburg had Blaschke's attitude toward the Nazi regime been more like Hecke's. The example of Tübingen, though, would seem to indicate that the results would not have been disastrous. Recall that at Tübingen, when Karl Kommerell retired in 1937, the Dozentenführer, complaining about the attitudes of Konrad Knopp and Erich Kamke toward the new order, said a real Nazi was needed to provide a different perspective. The mention of Kamke in this context is testimony to his importance as a mathematical personality in the department, as he was only an associate professor, his career having been delayed by his World War I service. In the event, Hellmuth Kneser was hired, but he turned out to be a man of conservative rather than Nazi principles. Coincidentally, Hamburg and Tübingen each had a prominent mathematical figure whose marriage met Nazi disapproval, Kamke in the case of Tübingen, and Emil Artin in the case of Hamburg.

OSWALD TEICHMÜLLER

If Blaschke reveals the well-known mathematician as self-aggrandizing opportunist, whom some believe gave necessary aid to his department by his actions, the well-known mathematician as dynamic believer in the Nazi cause is presented by Oswald Teichmüller. Teichmüller's behavior in the matter of Helmut Hasse's Göttingen appointment and his spurring on of Werner Weber was dis-

⁴ Promoting the cause as distinct from joining the party. Gustav Bredemann and Wilhelm Lenz, both mentioned above, are examples of professors at Hamburg who became party members for selfprotection but did nothing to promote the Nazi cause. Compare also Hecke's student Hans Petersson, below. For Lenz, see also Tietz n.d.

⁶⁵ Behnke 1978: 80.

⁶⁶ Ibid.: 126.

cussed in chapter 4. It was Teichmüller who encouraged Weber in the attempt Udo Wegner to design a pedagogically Nazi-oriented mathematics program. It was Teichmüller who came to Edmund Landau's office when his classes were boycotted. At the time, he was twenty.

(Paul Julius) Oswald Teichmüller was born on June 18, 1913, in Nordhausen, a town in the Harz mountains. However, his home was in the even smaller village of St. Andreasberg in the Harz, to which mother and baby returned after a few days. His father, (Adolf Julius) Paul Teichmüller, was a weaver, and thirty-three at his son's birth; his mother Gertrude, née Dinse, was six years older, and the couple had no further children. 67 His father was wounded during World War I and died when Oswald was twelve, though whether these events were related is unclear. In any event, his father's business was shut down in 1915 when he went to war. Presumably the father on his return in 1918 took up this trade again, since the family lived in St. Andreasberg until his death.68 The family was poor, but the son, with perhaps the sense of moving up in social class as a student, always listed his father's occupation as factory owner rather than employee.69

According to his mother, when Teichmüller was three-and-a-half, she discovered that he knew how to count, and he also learned to read on his own, his first self-instruction being from labels on tin cans. When his father returned in 1918, young Oswald read to him fluently and recited a poem previously unknown to his mother. On his father's death, she took him from St. Andreasberg, "whose school he had long outgrown," to Nordhausen, where he lived with an aunt70 and attended the Gymnasium.

Teichmüller entered Göttingen in the summer semester 1931 as a brilliant but lonely student from the hinterlands. He was not yet eighteen. Peter Scherk, a student at the time, and Hans Lewy, a young instructor, both of whom would become well-known mathematicians (and both forced emigrés in 1933), told anecdotes of the ungainly student's brilliance.71 After one semester, he joined the NSDAP and the SA as well. While it is tempting to assign at least part of the reason for this to Teichmüller's provincial background and the declining material fortunes of his petit bourgeois family, it should not be forgotten that the town of Göttingen was a cauldron of right-wing sympathies.72 That this was a declaration of political idealism is perhaps indicated by the fact that Teich-

⁶⁷ The above facts are the same in Erhard Scholz's biography of Teichmüller in N. Schappacher and E. Scholz, eds., "Oswald Teichmüller—Leben und Werk," JDMV 94 (1992): 1-39, p. 3; William Abikoff, "Oswald Teichmüller," Mathematical Intelligencer 8 (1986): 8-16, 33; and Teichmüller's Lebenslauf dated July 17, 1935, in UAG. The birthdate given in Teichmüller's Collected Works, ed. L. Ahlfors and F. W. Gehring (1982), is incorrect. Material on Teichmüller below is from either Schappacher and Scholz 1992 or Abikoff 1986, unless otherwise cited.

⁶⁸ Abikoff 1986, citing letters of Gertrud Teichmüller to H. P. Künzi.

⁶⁰ Schappacher and Scholz 1992: 3, n. 3.

⁷⁰ Ibid .: 3.

The well-known mathematician Werner Fenchel, himself an emigré from Germany, ascribed a significant role to Teichmüller's provinciality (letter from Abikoff to author, Sept. 6, 1988). For the political atmosphere of Göttingen, see Marshall 1972.

muller joined the party first (with no. 587,724) and the SA three Weeks later and he became the deputy local to have CHAPTER FIGHT muller joined the party hrst (with the muller joined the muller joined the party hrst (with the muller joined the party hrst (with the muller joined the muller joine presumably to add activism to the presumable to th vided friends for Teichmuller, and natural-science students. By autumn 1933 organization of mathematics and SA, Teichmüller gave his beliefs and 1933 organization of mathematics and SA, Teichmüller gave his beliefs explicit with two years' service in party and SA, Teichmüller gave his beliefs explicit with two years' service in party expression by leading the reduced the later met Landau in his office to talk over the class, described in chapter 4. He later met Landau in his office to talk over the later met Landau in his office to talk over the later met Landau in his office to talk over the class, described in chapter 7. The class described in chapter 7. The chapter situation, and, at Landau's request, resituation, and, at Landau's request to retire. This is the letter that Landau, after deleting Teichmüller's name, passed on to

Though it is unlikely that Teichmüller and Ludwig Bieberbach had any con. Though it is unlikely that Though it is unlikely liest setting down of ideas thereafter associated with Bieberbach. The "manly liest setting down of faces the Gottingen students was taken by Bieberbach as the rejection" of Landau by the Gottingen students was taken by Bieberbach as the rejection" of Landau by the frontispiece of his Easter Tuesday address that became something of a cause frontispiece of his Laster than the Göttingen boycott confirming Bieberbach's ideas, it celebre. Rather than the Göttingen boycott confirming Bieberbach's ideas, it célèbre. Rather than possible that, at least in part, it inspired them. Thus, when Teichmüller's mother wrote about the Landau boycott in 1948, "And Os. And Os. wald? He had blown in Bieberbach's horn, and louder than he, "75 she did not wald? He nad blown in street and blown in street and street "Bieberbach's horn." Teich. muller did not have the elaborate intellectual typological rationale Bieberbach borrowed from Jaensch for his opinions, but that does not alter their similarity

Teichmüller explained to Landau that external forces could alter the students' temper and inspire them to change unsatisfactory situations previously considered unchangeable. A failure by a teacher to care about or understand the majority student mentality could also lead to student disruption. As to Teich. muller's beliefs about the student action:76

You [Landau] expressed the assumption yesterday [in our conversation] that it had been an anti-Semitic demonstration. I stood and stand by the view (Standpunkt) that a special action inimical to Jews should be directed against almost anyone else before you. It was, for me, not about making difficulties for you as a Jew, but solely about protecting German students in their second semester from being instructed by a teacher of a completely foreign race precisely in differential and integral calculus, while sparing as much as possible all others therefrom. I dare as little as any other person to doubt your capability for pure international-mathematical-scientific teaching of suitable students of whatever heritage. However, I also know that many academic lectures, especially also differential and integral calculus, at the same time have educa-

⁷³ UAG, Werner Blume (Dozentenführer at Göttingen) to Kurator Göttingen (Justus Valentiner), Oct. 22, 1935. For those members of both, usually SA membership preceded party membership. The dates given agree with this in Teichmüller's Lebenslauf of July 17, 1935.

That this student was Teichmüller has been proved by Schappacher and Scholz (1992). Previously Warner Will ously Werner Weber (presumably as Landau's Assistent at the time) was suggested

⁷⁵ Schappacher and Scholz 1992: 5 n. 14.

The Cited and translated from ibid.: 28–30. Teichmüller's "own experience" refers either to Werner or to Pickard Communication (Communication). Fenchel or to Richard Courant.

tional value and lead the student not only into a new conceptual world, but also to a different mental viewpoint (geistige Einstellung). Again, since the mental viewpoint of an individual depends on his mentality (Geist); which thus should become transformed; this mentality, again, according to fundamental rules, not only contemporary ones, but already long recognized, depends completely substantially on the racial composition of an individual; allowing Aryan students to be educated by a Jewish teacher, for example, ought not in general be recommended. I can here speak from my own experience. For the student [taught by a teacher of foreign race] remains really only two paths: perhaps (entweder) he draws out of the teacher's lecture only the international-mathematical skeleton and clothes it with his own flesh. That is mathematically-philosophically productive work, to which only the fewest have grown. . . . The third path, to take over the material in its foreign form, leads to a spiritual (geistigen) degeneration that you could not well expect of a student today and also do not wish. The possibility, however, that you transmit to your hearers the mathematical kernel without your own national coloration is so small as it is certain that a skeleton without flesh does not run but falls in a heap and disintegrates.

From this, my view, also follows that there were little to argue against it if you wish to hold more advanced lectures, building on the already present mental viewpoint worked out for application or knowledge of important mathematical facts, now as before in the best relationship with the students in our university. This is a view that only a few of my comrades have joined.

Teichmüller went on to say that he could only think of the student majority opinion that Landau should never again lecture as anti-Semitism, but that the distinction between his and their view was at the moment irrelevant. He emphasized that all students were united and there was no question of a division into radicals and moderates; they were all good comrades and only differed "over the purely theoretical question of whether yesterday's action [the boycott] had an anti-Semitic or a pro-German character."⁷⁷ Teichmüller's letter might be termed "bizarre," but in it are found the same arguments that Bieberbach and Eva Manger were to make within several months, the same disclaimer of anti-Semitism, the same emphasis on the virtues of apartheid. Perhaps the differences between Bieberbach and "P.S." also have the same character: Bieberbach was "pro-German," while "P.S." was explicitly "anti-Semitic," though Bieberbach, a much older and more sophisticated man than Teichmüller, must have realized that the dividing line in fact barely existed in the circumstances.78 Such ideas of the distinctions between "Aryan" and "non-Aryan" thought were of course commonplaces at the time, but with a difference. Though Jaensch and Bieberbach might point to the well-known passage in Felix Klein's "Evanston Colloquium," or even a letter from Karl Weierstrass to Sofya Kowalewskaya, as evidence of the nineteenth-century currency of such ideas, in fact both Klein and Weierstrass, while suggesting that different ethnic groups, Jews in particular, thought about mathematics differently, never suggested that therefore some

Ibid.
 Teichmüller's letter is characterized as "bizarre" by Schappacher and Scholz (1992: 28).

were unsuitable to teach "German" youth. Weierstrass did say that Jews lack were unsuitable to teach German, the Phantasie necessary for the most significant research, but he also cited a lacking in his opinion, and never suggested that Jews are inadthe Phantasie necessary for the mon-Jew so lacking in his opinion, and never suggested that Jews are inadequate non-Jew so lacking in his opinion, and never suggested that Jews are inadequate non-Jew so lacking in the option teachers. In fact, one wonders to what extent his remark to Kowalewskaya was teachers. In fact, one wonders to what extent his remark to Kowalewskaya was motivated by Weierstrass's well-known antipathy to Kronecker. 80 The Nazi edumotivated by Welerstrass and intellectual rationale about Jews being upfor were Jews, not because of any intellectual rationale about Jews being unfit teachers Jews, not because of any feathers for Germans. The law was for "reforming the civil service"; university teachers were civil servants; Jews per definitionem could not wholeheartedly support the new state; hence they had to go. In fact, one paragraph of the law addressed dismissal of non-Jews who failed to be sufficiently enthusiastic. However, there were exceptions (apparently inserted at von Hindenburg's insistence), and both Landau and Courant fell under these exceptions. Hence Courant initially was only "furloughed" and not dismissed. Hence also, Landau, no doubt naively, and perhaps with the self-assurance of an important professor, thought he could resume his lectures in the autumn of 1933.

Teichmüller's letter seems the earliest extant expression applying these ideas to the suitability of university mathematics teachers. There is no reason, though, to think that Bieberbach explicitly borrowed from him. What seems more probable is that Bieberbach, disliking Landau, philosophically attuned to the National Socialist program of renewal, and always eager to advance his hierachical standing in mathematics, saw the Göttingen student action as an opportunity to become the leader of mathematics by way of being the older senior guide of the mathematics students' revolution. This speaks both to his use of the Landau boycott in his 1934 lectures/papers and to the explicit pedagogical aims of Deutsche Mathematik, as well as to the high initial involvement of Nazi students under the leadership of Fritz Kubach in that effort.81

In October 1936, Teichmüller prepared the ground for transfer to Berlin and Bieberbach, with whom he "habilitated" in March 1938. Prior to this he took his doctorate in Göttingen. In the academic year 1933-34, Franz Rellich had held a Göttingen seminar on operator theory. One of Teichmüller's fellow students (and SA comrade) Hermann Wachs had the idea of generalizing the Hilbert spaces treated in the seminar.82 Teichmüller independently developed the theory of operators in what he called "Wachs Space" and proposed it as a doctoral dissertation. At the time, Hasse (and Tornier) had come to Göttingen

⁷⁹ Cf. chapters 2 and 7 above.

Acta Mathematica 39 (1923): 191, extract from a letter of Weierstrass to Kowalewskaya, Aug. 27, 1883. The letter criticizes Kronecker explicitly. Sofya Kowalewskaya died February 10, 1891; Kronecker, December 29, 1891. Since the given name of Kowalewskaya appears in the literature as both Sofya and Sonya, it should be made clear that the first was her name at christening, the second what all her friends called her (ibid.: 134, 147).

See above, chapter 7, passim. Cf. also BDC file for Kubach, letter from Bruno Baron von Freytag-Loringhof (student mathematics leader in Greifswald) to Kubach, Oct. 11, 1934.

His idea was to use the quaternions for scalars. See Norbert Schappacher in Schappacher and Scholz 1992: 14-15.

only a few months previous, and the only other Ordinarius left in Göttingen mathematics was Gustav Herglotz. Teichmüller's choice of dissertation superwisor and approver is curious. Rellich, whose lectures the draft dissertation followed closely, would have been the most suitable supervisor, but he was susnect as Courant's Assistent. Herglotz, whose wide-ranging mathematical interests and knowledge were well known, kept himself removed from anything political. Teichmüller gave the draft to Hasse, the only member of the faculty of mathematical standing who had had any positive connection with the Nazi authorities at the time, if in no other way than by his official appointment. Furthermore, it would appear that the Nazi students soon realized that Hasse was ready to cooperate fully with them.83 The subject matter was far removed from the algehraist Hasse's expertise or knowledge, and so Teichmüller's choice seems rather more a political than a mathematical one. Hasse did send it to an expert, Gottfried Köthe in Münster, who guided it to final form in early 1935,84 and Teichmüller's final examining committee was Hasse, Herglotz, and the physicist Robert Pohl. Teichmüller passed this examination on June 26, 1935, and was officially awarded the doctorate some five months later.

Teichmüller's dissertation was his only paper in the area of functional analvsis. His next few papers showed Hasse's mathematical influence, and were algebraic. Politically, however, Teichmüller thought little more of Hasse than he had originally. In a letter to Bieberbach expressing his desire to transfer to Berlin, he apparently expressed the thought that complete Gleichschaltung of the Göttingen Institut would not happen in the foreseeable future under Hasse.85 Before he left Göttingen, however, he heard Rolf Nevanlinna's lectures as a visiting faculty member—these inspired work in complex analysis, work in an area familiar to Bieberbach, and his Habilitationsschrift.86 Bieberbach, in his referee's report on this Habilitationsschrift, in fact included a dig at the "less original" work in algebra that preceded it. While Teichmüller in 1936 made four mathematical contributions to the first volume of Deutsche Mathematik, three of them algebraic, thereafter he published nothing algebraic in Bieberbach's journal (with the exception of one singular paper in 1940) and much analytic work, while his algebraic work was largely reserved for "Crelle's Journal," of which Hasse was the editor.87

⁸⁶ Rolf Nevanlinna was a distinguished Finnish mathematician who created the active area of complex analysis now known as "Nevanlinna Theory." Nevanlinna taught at Göttingen in 1936—complex analysis now known as "Nevanlinna Theory." Nevanlinna taught at Göttingen in 1936—1937 and in the negotiations leading to this position indicated his "sympathy for Germany," MI, 1937 and in the negotiations leading to this position indicated his "sympathy for Germany," MI, 1936 and Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna's first wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna's first wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna's first wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna's first wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna's first wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna's first wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna's first wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna's first wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna's first wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna's first wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna's first wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna's first wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna taught wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna taught wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna taught wife was "a great admirer Hasse to Göttingen Academy of Sciences, Nov. 5, 1936. Nevanlinna taught wife was "a great admirer

⁸³ Heinrich Kleinsorge (leader of the Nazi organization of mathematics students at the time) in an interview with Erhard Scholz, Mar. 2, 1985, as cited in Schappacher and Scholz 1992: 6 n. 8.

⁸⁴ Norbert Schappacher in Schappacher and Scholz 1992: 14.
⁸⁵ UAG, Werner Blume to Kurator Göttingen, Oct. 22, 1935. Teichmüller was also friendly with Werner Weber, who had caused Hasse so much trouble at his Göttingen appointment. According to Peter Scherk (see Abikoff 1986), Teichmüller converted Weber to Naziism. Weber did not join the party until 1933 (no. 3,118,177). See BDC file, Werner Weber.

of Hitler," see Weil 1992: 130. See also HK, Bieberbach to Kneser, Jan. 21, 1938.

87 See Teichmüller 1982, or the list on pp. 33–34 of Schappacher and Scholz 1992.

CHAPTER EIGHT Teichmüller was a politically committed Nazi, but his first love was mathe. Teichmüller was a politically as a politically matter he passed his final doctoral examination, Hasse obtained a matter he passed his final doctoral examination, Hasse obtained a matter he passed his final doctoral examination, Hasse obtained a matter he passed his final doctoral examination, Hasse obtained a matter he passed his final doctoral examination, Hasse obtained a matter he passed his final doctoral examination, Hasse obtained a matter he passed his final doctoral examination. matics. Shortly after ne passes and consequently Teichmüller also joined the Doz. position as Assistent for him, and consequently Teichmüller also joined the Doz. position as Assistent for film, and position as Assistent for film, the position for film and entenschaft. In proposing retentation of the matical gifts," and remarked that he "promises to become a mathematician of matical gifts," and remarked that he "promises to become a mathematician of matical gifts," and remarked that he "promises to become a mathematician of matical gifts," and remarked that he "promises to become a mathematician of mathematician of the matical gifts," and remarked that he "promises to become a mathematician of the matical gifts," and remarked that he "promises to become a mathematician of the matical gifts," and remarked that he "promises to become a mathematician of the matical gifts," and remarked that he "promises to become a mathematician of the matical gifts," and remarked that he "promises to become a mathematician of the matical gifts," and remarked that he "promises to become a mathematician of the matical gifts," and remarked that he "promises to become a mathematician of the matical gifts," and remarked that he "promises to be come a mathematician of the matical gifts," and remarked that he matical gifts is a second of the matical gifts of the matical gifts," and remarked matical gifts," and that his lecturing style was of a "painfully exact, in high degree importance" and that his lecturing style was of a "painfully exact, in high degree importance" and that his described as the time Teichmüller had the position of suggestive, and impressive sort."88 At the time Teichmüller had the position of suggestive, and impression of Position of Rottenführer in his SA troop, as he explicitly remarked in his attached curricular took precedence over university political Rottenführer in his off the property of Teichmüller's departure for approval of Teichm him. Asked on the occasion for approval of Teichmüller's departure to Berlin Dozentenführer Blume remarked that Teichmüller had had ample opportunity to be active in university politics:

[Concerning such activity] I have, however, until now noticed only very little or better said none at all. Teichmüller also refused to participate in the first roll-call of the newly called to life Dozentenbund, which was drawn up as a required gathering in the assembly hall, since, on that evening, he did not wish to miss a scientific mathematical lecture.

Thus, though Teichmüller, according to reports of his fellows, as well as a reference from Tornier, had outstanding scientific qualifications, if "he wished to leave Göttingen, I am of the opinion that one should calmly let him go and ought to put no difficulties in the way of a planned change of atmosphere." This report also mentioned Teichmüller's activity contra Hasse as a "disagreeable affair," and remarked, concerning his character, that Teichmüller made the impression of someone inexperienced in the ways of the world; even Tornier characterized him as eccentric.89

So Teichmüller went to Berlin and Bieberbach. Erhard Scholz, in his Teichmüller biography, argues that Teichmüller's version of "Deutsche Mathematik" and Bieberbach's were different. 90 This seems rather convoluted. It was precisely support of what came to be Bieberbach's ideological program that Teichmüller's letter to Landau reveals. If, as Erhard Scholz claims, Teichmüller understood by "Deutsche Mathematik" some general political program for the direction of mathematical institutes by Nazi-minded mathematicians, then it hardly seems he would have found Hasse so unsuitable. Men like Teichmüller, Kubach, and Weber saw themselves as the youthful dynamic vanguard of a new German regeneration under the Nazi aegis. Bieberbach, as a sort of mathematical Phillipe Égalité, joined in promoting that dynamism, presumably for his own mathematical-political ends. That Teichmüller was a mathematical genius, whereas Weber was run-of-the-mill and Kubach even less competent as a mathematician, of does not affect their sharing of political attitudes. It is true that Teichmüller, in a letter to his former fellow student Adolf Bruns, spoke of Berlin as a

88 UAG, Hasse to Dekan, July 16, 1935.

90 Schappacher and Scholz 1992: 8-9.

WAG, Werner Blume to Kurator Göttingen, Tornier's estimate is cited by Blume.

⁹¹ Kubach's doctoral dissertation was a historical one on Kepler.

"foreign city" and wondered "what could be going on in Göttingen." However, that should perhaps be seen not as personal isolation within the Berlin mathematics department, but rather as the reaction of someone rurally raised to the metropolis of Berlin in contrast to the much smaller university city of Göttingen.92

Scholz also seems to think that the conflict between Berlin and Göttingen only became inimical with the concentration of Deutsche Mathematiker in Berlin.93 While it is certainly true that the eventual presence of Werner Weber and Tornier (as well as Teichmüller) in Berlin would hardly induce cordial relations with a Göttingen led by Hasse, it is also true that the enmity went back a long way—one need only think of the feelings of Weierstrass and especially Frobenius about Klein, or, somewhat later, the contrasting attitudes of Bieberbach and Erhard Schmidt on the one hand, with Hilbert on the other, toward the Bologna congress of 1928, as discussed in the preceding chapter. In fact, it almost seems as if Bieberbach, rather than causing the division of Berlin with Göttingen, was more likely stimulated by the already extant enmity. Teichmuller's letter to Bruns was written one month after Kristallnacht, yet he does not seem to mention it. Hans Wittich, however, recalled speaking to Teichmuller about these events around the same time, to which he replied "in his free and easy tone, 'You are a reactionary bourgeois (Spieser [sic]) and don't comprehend the Führer's ideas." "94

Teichmüller's dedication to the Nazi cause and ideology seems complete, and he seems to have shared Bieberbach's version of its application to mathematics. Far from being isolated mathematically in Berlin prior to the war, beginning with the Habilitationsschrift, Teichmüller published seven papers and his epochal monograph (197 pages) on "quasiconformal mappings and quadratic differentials." All this work was done in the two Berlin years (April 1937-July 1939). All the papers appeared in Deutsche Mathematik, six dealt with analytic equations, some in areas cultivated by Bieberbach, and one of these was an explicit improvement of a (partly fallacious) argument of Bieberbach—so much for isolation! Throughout this period Teichmüller was supported by a stipend provided by the education ministry chief for science, Theodor Vahlen.

On July 18, 1939, Teichmüller, just twenty-six, was drafted. By then, war was in the air. March had seen the German annexation of the non-Sudeten Czech lands as the "Protectorate of Bohemia and Moravia"; Slovakia became an "independent" puppet state. In April, Mussolini annexed Albania. Britain guaranteed the Polish borders on August 25, 1939—something it had refused to do fourteen years earlier at Locarno. The Nazi-Soviet pact of August 23 was merely Hitler's final step to the Polish invasion. Teichmüller was originally called up for only eight weeks' service, but the war intervened. In April 1940 he took part in

The letter is reproduced in part in Schappacher and Scholz 1992: 30. It was written December 7, 1938.

Schappacher and Scholz 1992: 9. Letter, Hans Wittich to Lars Ahlfors, Sept. 22, 1982. I thank William Abikoff for providing me with a copy of this letter.

CHAPTER EIGHT the invasion of Norway; later, however, he was transferred to army headquare the invasion of Norway; later, however, he was transferred to army headquare the invasion of Norway; later, however, he was transferred to army headquare. the invasion of Norway; later, work—apparently Werner Weber was similarly ters in Berlin for cryptographic work—apparently Werner Weber was similarly ters in Berlin for cryptographic record shows, even while in the army Tarly ters in Berlin for cryptographic employed. 55 As the publication employed. 55 As the publication and sive up mathematics. In academic year 1942–43, Bieberbach muller did not give up mathematics for him to give lectures at the university of the control of the contr muller did not give up matter muller did not give up matter the university on theory." However, with the defeat at Stalingrad in Feb. managed to get a partial results "uniformization theory."

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1943, Teichmüller gave up his relatively safe cryptological position to answer a 1943, Teichmuler gave and entered a unit involved in the famous tank battle at Kursk new call to arms and entered a unit involved in the famous tank battle at Kursk new call to arms and characteristics and the state of the Sicilian landings, and the standard to send This began on July 1, reinforcements to the west because of the Sicilian landings, and the Russians reinforcements to the west because of the Germans were falling by early August, the Germans were falling by reinforcements to the By early August, the Germans were falling back along had counterattacked. By early August, the Germans were falling back along most of the front. In August Teichmüller received a furlough home; his unit was in the vicinity of Kharkov, which was recaptured by the Russians on August 23 By the beginning of September, Teichmüller's unit had been surrounded and for the most part wiped out. In those same days, Teichmüller attempted to rejoin it. apparently in Poltava, southwest of Kharkov, and still east of the Dnieper. He was lost in the confused and bloody fighting of the German retreat sometime before the Russian advance reached the Dnieper on September 22.96

Teichmüller was a committed Nazi and a dedicated mathematician. He believed in "Deutsche Mathematik," yet his papers quote without comment mathematics first found by Jews. He could admire Landau as a mathematician while insisting on his unsuitability to teach elementary classes because he was a Jew. Hans Wittich reported seeing Teichmüller in Göttingen prior to his leaving for the Eastern front, when he was depressed and "unwilling to express his motives for volunteering for the front." Wittich believed that Teichmüller had changed his mind politically, and that his volunteering was a sort of self-imposed punishment for his former opinions. However, Wittich says this in the context of wondering how "an otherwise so sharp and critical thinker" could believe Nazi slogans. 97 That Teichmüller reformed his opinions seems extremely unlikely. Queries like the just cited one posed by Wittich are all too common, and all too unjustified. Nothing necessarily connects a person's brilliance in one area with a particular insight into politics. Wittich's attitude is mentioned because it seems important to reject it, even if he did know Teichmüller personally. Teichmüller was a gifted, brilliant, and seminal mathematician; he was also a dedicated Nazi. Nor is this some consequence of a mathematical "unworldliness" or "naïveté." Among many other well-known "brilliant" people who, for some time, albeit in quite different ways, openly promoted the Nazi cause were the ethologist Konrad Lorenz, the psychologist Carl Gustav Jung, the philosopher Martin Heidegger, the poet Gottfried Benn, the art historian Wilhelm Pinder, and the surgeon Ferdinand Sauerbruch. No academic profession was immune from having its Bieberbachs and Teichmüllers.

⁹⁵ Schappacher and Scholz 1992: 12, n. 36. 96 Ibid.: 13-14.

⁹⁷ Letter, Wittich to Ahlfors, Sept. 22, 1982, as in note 94.