THE EFFECT OF THE NAZI REGIME ON THE WORLD OF MATHEMATICS AND INDIVIDUAL MATHEMATICIANS

Devin C. Smith
University of Central Oklahoma
dsmith110@uco.edu

Supervising Professor:
Dr. Charlotte K. Simmons

I began doing this research as kind of a follow up on the research I did last year on Emmy Noether. Just as she was finally establishing herself as a female mathematician, the Nazis came to power and she was dismissed from her position and forced to leave her own country. This made us wonder who else was forced to leave and how this affected the famous University. Also Emmy emigrated to the United States, is this what others did? Germany was the center of mathematics at this time with Klein and Hilbert's famous mathematics department in Göttingen at the heart. There had been a long line of great mathematicians at Göttingen from Gauss to Courant.

On April 7, 1933, the law for the Restoration of the Professional Civil Service was issued. This, along with the decree issued on April 11th which gave a definition of a non-Aryan as "Anyone descended from a non-Aryan parent or grandparent, especially those with Jewish parents or grandparents," was the beginning of the dismissals for professors. There was an exemption for those who had served for Germany in the First World War.

Mathematics had a much higher rate of dismissal than other sciences with more than 50% of mathematicians forced to leave, the majority of them immigrating to the United States. Out of 145 mathematicians dismissed, 82 came here to the United States [1].

Richard Courant, [2]

Courant had served in the War so he fell under the exemption clause. He expected to be unaffected, but on May 5, 1933, he received an official letter that told him he was forced to leave. Courant was invited to Cambridge for a one year visit. After that he went to New York University and in 1936 he was given the task of building a graduate center for the

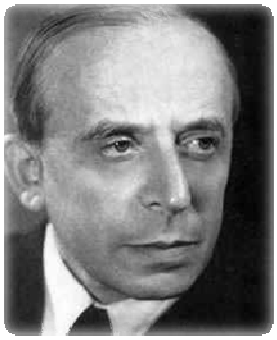
University. He built up an applied mathematics research center based on the Göttingen model. This allowed him to make numerous new appointments for his fellow mathematicians who were being forced to leave Germany. He was very influential in the emigration process. This graduate school was later renamed The Courant Institute of Mathematical Science in 1964 [3].

Emmy Noether, [4]

Emmy Noether was referred to as the "Mother of Modern Algebra." Emmy was one of those dismissed in April of 1933. She left Germany in October of the same year headed for a position at Bryan Mawr. In 1934 she added a weekly lecture at the Institute for Advance Study at Princeton. Unfortunately, after only being in the United States for two years, she died after a routine surgery; she was 53 years old. Albert Einstein wrote of Emmy just days after her death, "In the judgment of the most competent living mathematicians, Noether was the most significant, creative mathematical genius thus far produced since the higher education of women began" [5].

Hermann Weyl left Gottingen in 1933 not long after the first dismissals. He was not however forced to leave, but he feared for the safety of his Jewish wife and children. Weyl went to the Institute for Advanced Study at Princeton. This was a position he was offered in 1929 but declined hoping things would not get as bad as they eventually did. It wasn't until he feared for his family's lives that they finally left Göttingen for the United States [1].

Richard Von Mises and Hilda Geiringer were two that came to the United States relatively late. Von Mises was forced to emigrate from Berlin in 1933. He took a position in Istanbul, Turkey where he helped build up the mathematics there. Hilda Geirenger had also immigrated to Turkey. When her contract was not renewed, Von Misses quit in hopes of finding them both a way to America. Von Mises accepted a position at Harvard that offered no pay. After all of Geiringer's applications to the United States were denied, Von Mises frantically searched to secure here a position at Bryn Mawr and she came to the United States a few months after him. They were married in 1943 and Von Mises finally became a paid professor at Harvard in 1945 [1].



Richard Von Mises, [6]

Hilda Geiringer, [7]

Felix Hausdorff retired from Bonn University in 1935 after 40 years with not even a thank you. He did however continue to work on his mathematics, publishing seven papers on topology and descriptive set theory and also revising earlier works. Because of his age he knew there was little to no chance of emigrating. When it became clear that he would be sent to a concentration camp in 1942 he committed suicide together with his wife and her sister. He penned the following note to a friend on the eve of his death.

Dear Friend,

By the time you receive these lines, we three will have solved the problem in another way – in a way which you have continually attempted to dissuade us….. What has been done against the Jews in recent months arouses well-founded anxiety that we will no longer be allowed to experience a bearable situation….. Forgive us, that we still cause you trouble beyond death. I am convinced that you will do what you are able to do (and which perhaps is not very much). Forgive us also our desertion! We wish you and all our friends will experience better times.

Felix Hausdorff, [8]

Yours Faithfully,

Felix Hausdorff [9]

Probably the most infamous of the student boycotts was that against number theorist Edmund Landau in Göttingen. Landau was one of those who fell under an exemptions

clause. He was a Jewish professor, but wasn't dismissed right away—because of the boycott he was forced into involuntary resignation. A brilliant mathematics student Oswald Teichmüller lead the boycott. Teichmüller had this to say when asked by Landau why he had lead the boycott: "It is not about making life difficult for you as a Jew, but only about preventing German students of the second term from being taught precisely in differential and integral calculus by a racially, totally foreign teacher. I would not dare move than any other to question your ability to teach international mathematics to suitable students of arbitrary decent….. However, the chance of you being able to communicate the essentials of mathematics to your listeners without your own national heritage being apparent is as unlikely as it is certain that a skeleton without flesh does not walk, but slumps rather and withers away" [1].

Ludwig Bieberbach, [10]

Bieberbach, a professor of mathematics at the University of Berlin said this of the boycott in Göttingen: "A few months ago differences with the Göttingen student body put an end to the teaching activities on Landau….. This should be seen as a prime example of the fact that representatives of overly different races do not mix as students and teachers…. The instinct of the Göttingen students was that Landau was a type who handled things in an un-German manner" [1].

Several of the immigrants helped to build up new mathematical centers here in the United States. Among these centers was the Institute for Advanced Study in Princeton, the Graduate School of Mathematics at New York University under Richard Courant, the Graduate School of Mathematics at Brown University under R.G.D. Richardson, and the New School for Social Research in New York under Alvin Johnson with a special division called the University of Exile. The University of Exile was primarily for social sciences but did help some mathematicians.

Additional gains were the increased competitiveness in research, a rise in applied mathematics (before this America did not have much in the way of applied mathematics; America had pretty much stayed on the pure side), and the breaking of the German monopoly on mathematical reviewing [1].

Not everyone saw all of this as gains. There was more competition for jobs, although there were more jobs available, there were more people who needed them. To the "up and coming" American mathematicians this may not have been seen as a gain but rather a loss in potential jobs. I think it is very obvious though, that the gains to American mathematics immensely outweighed any losses.

As for German mathematics, the following quote by David Hilbert really sums it up. He was asked by the Education Minister in 1934 how he believed Göttingen had suffered after the removal of the Jewish mathematicians, Hilbert responded, "Suffered? It hasn't suffered, Minister. It doesn't exist anymore!" [11]

David Hilbert, [12]

Works Cited

[1] Siegmudd-Schultze, Reinhard. *Mathematicians Fleeing from Nazi Germany: Individual Fates and Global Impact.* Princeton University, 2009.

[2] Reid, Constance. *Courant in Gottingen and New York: The Story of an Improbable Mathematician.* Springer-Verlag, 1976.

[3] Courant Institute's Picture Gallery (I). www.cims.nyu.edu/gallery/.

[4] Dick, Auguste. *Emmy Noether.* Birkhauser, 1981.

[5] Deutche Version. www.uni-math.gwdg.de/.../en/index.html.

[6] Picasa Web Albums. http://picasaweb.google.com/MisesInstitute/MisesImages#

[7] School of Mathematics and Statistics University of St. Andrews, Scotland. http://www.learn-math.info/history/photos/Geiringer_2.jpeg

[8] Segal, Sanford. *Mathematicians Under the Nazis.* Princeton University, 2003.

[9] Hausdorff Research Institute for Mathematics. www.hausdorff-research-institute.uni-bonn.de/HTP.

[10] Gallery of Complex Analysts. www.math.sunysb.edu/~zakeri/mat542/men/mca.html.

[11] Cornwell, John. *Hitler's Scientists: Science, War, and the Devil's Pact.* Penguin Group, 2003.

[12] The Internet Encyclopedia of Science. www.daviddarling.info/encyclopedia/H/Hilbert.html

[13] Kleine-Ahlbrandt, Wm. *Bitter Prerequisites: A Faculty for Survival from Nazi Terror.* Purdue University, 2001.