Issai Schur

In the 1930s, in Germany and German-occupied countries, the Nazis prevented many mathematicians from holding academic positions, not because of any deficiency in their mathematical ability or teaching skills, but solely because of their ethnic origins. Among those so unjustly treated was **Issai Schur** (January 10, 1875 – January 10, 1941). Schur, a Russian by birth, was born in Mogilyov, Belarus, but when he was 13 he was sent to live with his sister and brother-in-law in Libau, Latvia, where he attended the Nicolai Gymnasium and became fluent in German. From the time he entered the University of Berlin to study mathematics and physics, in 1894, he considered himself a true German. Schur received his doctorate from the University of Berlin in 1901 with a thesis, directed by Ferdinand Georg Frobenius, which examined rational representations of the general linear group over the complex field. These functions are today called S-functions, with the S standing for Schur.

Schur became a lecturer at the University of Berlin in 1903, and then from 1911 until 1916 he was a professor of mathematics at the University of Bonn. He returned to the University of Berlin where he built a famous mathematical school. He did research in representation theory, primarily based on elementary ideas from linear algebra. He discovered what is known as Schur's Lemma, which is used in calculations and proofs of important theorems in representation and character theory. He is best known for his research in representation of groups, but he also did excellent work in number theory and analysis. In 1922, Schur was elected to the Prussian Academy, having been nominated by Max Planck.

On April 7, 1933, the Nazis passed a law that involuntarily retired all civil servants who were not of Aryan descent. There was an exception for those who had served in WWI and pre-war officials, which was Schur's case. Soon the law was strengthened to squeeze out more undesirables, and in 1935, Schur was dismissed from his professorship for being a Jew. Schur felt himself more a German than a Jew and declined several invitations to go to universities in the United States and Great Britain. He couldn't understand why any German was not wanted in Germany. Walter Ledermann had the following to say why Schur didn't flee the country, as had so many others:

  "When the storm broke in 1933, Schur was 58 years of age and, like many German Jews

of his generation, he did not grasp the brutal character of the Nazi leaders and their

followers. It is an ironic twist of fate that, until it was too late, many middle-aged Jews

clung to the belief that Germany was the land of Beethoven, Goethe and Gauss rather than

 the country that was now being governed by Hitler, Himmler and Goebbels."

Finally, in 1938, Schur was compelled to resign from the Prussian Academy. Broken in mind and body, he was forced to sell

his beloved academic books to the Institute for Advanced Study in Princeton so he could afford to leave Germany for

Palestine. He was even required to pay the "Reichs flight tax" to allow him to leave Germany. He died two years later on his

birthday in Tel Aviv.

Ludwig Bieberbach (1886 – 1982) was a prominent German mathematician and anti-Semite, who during the Nazi era

energetically persecuted his Jewish colleagues, including Schur and Edmund Landau. After the war Bieberbach lost all of

his academic positions because of his Nazi involvement. Bieberbach's attitude towards his colleagues is summed up in his

comment about Edmund Landau.

"A few months ago differences with the Göttingen student body ended the teaching

activities of Herr 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

instincts of the Göttingen students felt that Landau was a type who handled things in an

un-German manner."

Many mathematicians believed that Bieberbach was ambitious to become the leading figure in German mathematics and he

saw the Nazi persecution of Jewish mathematicians as a means to his ends. Despite his despicable views, Bieberbach is

recognized as having made many remarkable contributions to mathematics in function theory.

Between 1939 and 1945, nearly 6 million Jews, were systematically denied rights, persecuted, and killed by the Nazis. On

April 11, 1933, the Nazis issued a decree defining a non-Aryan as "anyone descended from a non-Aryan, especially those

with Jewish parents or grandparents. One parent or grandparent classifies the descendant as non-Aryan … especially if one

parent or grandparent was of the Jewish faith." To bring home the horrific conditions for Jews and other non-Aryans in

Germany at this period as they related to mathematicians, the International Congress of Mathematicians has prepared a 72

page pamphlet called *Terror and Exile: Berlin Mathematicians Under the Nazi Regime, 1933 – 1945*. The organization held a 1988 meeting in Berlin, which in part was devoted to describing the systematic killing or exiling of German mathematicians whose only fault was being Jewish or protesting the persecution of Jews by the Nazi regime.

The following is a brief account of the fate of some prominent European mathematicians at the hands of the Nazi persecution. Otto Blumenthal died in the Theresienstadt Ghetto near Prague. Walter Froelich died in the Lodz Ghetto in Poland. Samuel Dickstein died in the Nazi bombing of Warsaw in 1939. Paul Epstein committed suicide after being summoned by the Gestapo in 1939. Felix Hausdorff had to retire from his chair at Bonn in 1935. In 1941, along with his wife and his wife's sister, he committed suicide, when he could no longer avoid being sent to an internment camp. Stanislaw Saks was killed by the Gestapo in Warsaw. Juliusz Pawel Schauder was killed by the Gestapo in Poland, and Alfred Tauber died in Theresienstadt.

Karol Borsuk, Renato Caccioppoli, Ernst Hellinger, Alfréd Rényi, Stefan Schwartz, and André Weil survived imprisonment. Max Dehn, Paul Dirac, Samuel Eilenberg, Paul Erdős, Cornelius Lanczos, John von Neumann, and Stanislaw Ulam emigrated before the Nazis came to power. Emil Artin, Richard Courant, Kurt Gödel, Jacques Hadamard, Walter Ledermann, Karl Menger, Richard von Mises, Otto Neugebauer, Emmy Noether, Alfred Pringsheim, Hans Rademacher, Richard Radó, Werner Rogosinski, Otto Toeplitz, Hermann Weyl, and Max Zorn emigrated after the Nazis took power, but prior to WWII. Hans Freudenthal, Imre Lakatos, and Hugo Steinhaus successfully hid from the Nazis during the war. Émile Borel, David Hilbert, Kazimierz Kuratowski, Heinrich Tietze, Bartel van der Waerden, and Ernst Zermelo remained in Europe during the war. Albert Einstein, Hadamard, and others helped mathematicians from Germany emigrate to the U.S. and the U.K.

Quotation of the Day: "What fascinated me so extraordinarily in these investigations [representations of groups] was the fact that here, in the midst of a standstill that prevailed in other areas in the theory of forms, there arose a new and fertile chapter of algebra which is also important for geometry and analysis and which is distinguished by great beauty and perfection." – Issai Schur