

MATHEMATISCHES FORSCHUNGSINSTITUT OBERWOLFACH

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Mini-Workshop: Max Dehn: his Life, Work, and Influence

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ABSTRACT. This mini-workshop is part of a long-term project that aims to produce a book documenting Max Dehn's singular life and career. The meeting brought together scholars with various kinds of expertise, several of whom gave talks on topics for this book. During the week a number of new ideas were discussed and a plan developed for organizing the work. A proposal for the volume is now in preparation and will be submitted to one or more publishers during the summer of 2017.

Mathematics Subject Classification (2010): 01A55, 01A60, 01A70.

Introduction by the Organisers

This mini-workshop on Max Dehn was a multi-disciplinary event that brought together mathematicians and cultural historians to plan a book documenting Max Dehn's singular life and career. This long-term project requires the expertise and insights of a broad array of authors. The four organisers planned the mini-workshop during a one-week RIP meeting at MFO the year before.

Max Dehn's name is known to mathematicians today mostly as an adjective (Dehn surgery, Dehn invariants, etc). Beyond that he is also remembered as the first mathematician to solve one of Hilbert's famous problems (the third) as well as for pioneering work in the new field of combinatorial topology. A number of Dehn's contributions to foundations of geometry and topology were discussed at the meeting, partly drawing on drafts of chapters contributed by John Stillwell and Stefan Müller-Stach, who unfortunately were unable to attend. Cameron Gordon offered a brief talk on the problematic status of Dehn's Lemma, a topic that was

discussed further by examining the letters Dehn and Helmuth Kneser exchanged during 1929, when both came to realize the serious difficulties that needed to be overcome to prove the lemma.

But Dehn was far more than just an eminent mathematician, and his influence extended well beyond research mathematics. He was also a remarkable scholar and teacher. He was the leader of the famous decade-long seminar on the history of mathematics at the University of Frankfurt. He was revered by his students, both in Germany before World War II and afterward in the United States, and he was remembered by many others as a man of unusually broad interests.

Indeed, in the last eight years of his life (1945 - 1952) Dehn taught mathematics, philosophy, Greek, and Italian at Black Mountain College (a unique if short-lived experiment in higher education in the mountains near Asheville, North Carolina). Black Mountain College focussed on the arts and crafts, and is celebrated today as a catalyst of 20th century art. Dehn's influence on those who taught and studied there will be another focus of our book. In addition to teaching elementary mathematics and projective geometry, and tutoring the few advanced mathematics students at BMC, Dehn taught a very popular course on Geometry for Artists and worked in close association with the painter Josef Albers and the weaver Anni Albers, with whom he overlapped there. His influence on both Albers was the theme of a talk by Brenda Danilowitz and Philip Ording. We were delighted to have an eye-witness from those years participate in this mini-workshop: Trueman MacHenry (York University, Toronto), who studied advanced mathematics with Dehn at BMC, offered his personal reflections on that period of his life.

To weave this all together, this project will go well beyond Dehn's accomplishments as a research mathematician and teacher by addressing his wider interests as a naturalist, artist, and thinker. We hope to convey the qualities that made him such an appealing figure to others.

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