

# Preface

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When members of the Institute for Genetics at the University of Cologne started to look back on the history of their institute in 2004, they had actually forgotten that its famous founder, Max Delbrück, would have celebrated his 100th anniversary on September 4, 2006. To mark the event, they, that is Maria Leptin, Jonathan Howard, Simone Wenkel and Ute Deichmann, organised a workshop on the early history of the Institute, in April 2005. Most of the founding members participated, and in the end, of course, the timing was ideal. The current volume is an extended proceedings, in which articles based on the talks given at this workshop are supplemented by articles from other scientists and historians, and is in large part a tribute to Max Delbrück's initiative.

Why is the history of the Institute of Genetics worth remembering? To give an appropriate answer, we have to make a historical excursion to the 1930s. Before the Nazis came to power, German scientists were internationally renowned for their novel work in biochemistry, the chemistry of natural products as well as the biochemistry of intermediate metabolism. But there was no pioneering work in biochemistry or molecular biology after the Second World War. Research in bacteria and phage genetics and research into the structure and function of proteins and nucleic acids, later subsumed under the term "molecular biology", started in Germany only around 15 years after it was initiated in the United States and England. By contrast, experimental genetic mutation research had been implemented in Germany in the late 1920s, as soon as Hermann J. Muller published his work on artificial mutagenesis by X-rays; and research

on the biochemistry and genetics of tobacco mosaic virus had been started in the late 1930s, immediately after Wendell Stanley published his first promising work on this virus in the United States.

The comparatively late beginning of the “new” molecular biology in Germany can be explained mainly by the following factors, in addition to the general problem of physical destruction and material shortages from which universities were suffering: first, the forced emigration of Jewish scientists after 1933 had led not only to the expulsion of future distinguished molecular biologists, but also to a marked decline of “dynamic biochemistry”, a field which contributed greatly to molecular biology in the 1960s. Second, German university structures seriously impeded new and interdisciplinary research. Third, the international isolation and self-isolation of German scientists, a consequence of National Socialism and the Second World War, was an obstacle to the implementation of new fields of research developing elsewhere. It reinforced the conduct of traditional genetic research at German universities, where, until the 1970s, research was conducted almost exclusively on complex organisms.

Max Delbrück, an émigré physicist (he was not Jewish but emigrated for other reasons in 1937) who had founded phage genetics in the late 1930s in the United States, played a decisive role in facilitating the international exchange of mainly young German scientists. Because he maintained strong connections to Germany, in the immediate post-war period he was the only scientist abroad to help the Germans establish modern, mostly molecular, biology and catch up with international developments. It required a new generation of young scientists who had received part of their training in other countries, particularly in the United States, before modern molecular biology became established at German universities and Max Planck Institutes.

Max Delbrück’s influence is most visible in the founding of the Institute of Genetics at the University of Cologne — the first molecular genetics institute at a German university. Founded in 1959, the Institute was the first to implement the less hierarchical American organisational structures and research habits in Germany. The Institute quickly gained high international scientific recognition, and

in the 1960s was, as Delbrück described it, “on the map of itinerant molecular biologists” from all over the world.

In this volume, 31 contributions by scientists and historians deal with the founding of the Institute; with its founder Max Delbrück; with its unusually liberal atmosphere; and with its internationally oriented research. The majority of the contributions consist of reports and reflections by scientists who experienced the founding phase of the Institute as students or academics. Other essays show perceptions from the outside and compare aspects of the Institute’s research and teaching with other institutes — both in Germany and abroad. Contributions by historians of science analyse the historical background and international context of the founding of the Institute and its research. Participants in panel discussions address current questions of science policy, in particular concerning teaching and the impact of the structure of scientific institutions on the quality of research.

Two documents from the 1960s are included in the volume. The first is a reprint of Niels Bohr’s lecture “Light and Life” at the inauguration of the Institute, with an introduction by Gunther S. Stent. Delbrück owed his interest in biology to Bohr’s 1932 lecture with the same title, in which Bohr expressed the romantic hope that new laws of physics might be found that explain the attributes of life; a hope that did not come true, at least in regard to genetics, as Delbrück later admitted. The second reprint is from Joseph Straub, a botanist in Cologne, who, by convincing Delbrück to come to Cologne and organising the political and financial support, was most instrumental in the founding of the Institute. In his lecture at the Delbrück memorial in 1982 Straub recalls the fascinating time he spent with Max Delbrück in Cologne.

The Editors  
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