

Preface

If today one gets off the U-2 subway in Berlin at *Ernst-Reuter Platz* and leaves the subway station heading north, after only a few hundred meters one encounters a large terrain at the corner of *Marchstrasse/Fraunhoferstrasse*, the boundary of which is marked by an impressive wall and on which there exists a number of beautiful and awe-inspiring buildings. We are dealing with the Berlin Institute of the Physical-Technical Federal Institution (*Physikalisch-Technische Bundesanstalt, PTB*), the successor of the Physical-Technical Imperial Institution (*Physikalisch-Technische Reichsanstalt, PTR*) founded 120 years ago. At the time of the foundation of the latter, the terrain had been donated to the German State by the scientist and industrialist Dr. Werner Siemens under the condition that at this location a research institute be established which was to be financed by the State. The *Reichsanstalt* then turned out to be the forerunner worldwide of all other national institutes of metrology. Around the next-to-the-last turn of the century and a few years thereafter, extremely important scientific discoveries were made at this Imperial Institution, which have decisively shaped the physics of the last century. At this point we only mention the fact that the origin of the quantum theory created by Max Planck was associated with experiments carried out at this Institution. Furthermore, it was here that Walther Meissner discovered the effect subsequently named after him, and which represented a turning point in the field of superconductivity. Today, the larger part of the Physical-Technical Federal Institution is located in Braunschweig, about 200 km west of Berlin, where it was newly established after the Second World War.

When not too long ago one of the two authors (R. H.) visited the PTB in Berlin once again and reflected upon the many extremely important developments which already started there at its inception, he developed a

keen interest in the early history of this so highly successful establishment. At the same time he felt that these unique developments might also deserve to be told to a wider audience. When the second author (H. L.) agreed to participate in the project, the chances of realizing such a plan increased considerably. As a result we present this book, and hope that it will be interesting to a readership extending beyond only the specialists.

On the one hand, the present book deals with the causes and motivations that resulted in the foundation of the Imperial Institution. These driving arguments from its pre-history can hardly be better illustrated than by quotations from a number of memoranda which at the time different people had prepared for the German Government. Therefore, in a separate chapter we present selected quotations from such memoranda. In principle, much content in these memoranda still remains valid today, perhaps within a different context. On the other hand, in our book we emphasize in particular the physical background and illustrate the advances accomplished in the case of a few selected outstanding examples. Here we restrict ourselves predominantly to the period before 1933. It was not our intention to present a complete and comprehensive treatment of the developments of the PTR. These excellent monographs already exist and are listed in our compilation of the literature. In this context, David Cahan from the Department of History of the University of Nebraska in Lincoln, Nebraska, USA, deserves special mention.

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Rudolf Huebener *Heinz Luebbig*