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# EDITORS' PREFACE

In many industrialized nations, the stereotype persists that mathematics, science, and technology are unsuitable subjects for women, and that industrial laboratories and other non-academic professional workplaces are inappropriate for them. The dominant conception of a "scientist" remains male. Women scientists in top positions are still a minority today, and this is even more the case in industrial laboratories and other non-academic scientific settings. Looking back in time, however, we find a number of women scientists who were active in academia and beyond; many of them worked in industrial research laboratories and contributed significantly to their scientific and technological fields. Our intention here is to expand this area of investigation by examining the place and role of women in industrial research and other professional arenas in light of new sources and important documents. Moreover, we intend to compare the opportunities available to women across several professions and institutions. The book focuses especially on the approximate period between 1900 and the 1960s. This was an era of political upheavals and historically momentous events – the two World Wars, the Nazi regime in Germany and in the occupied countries, the difficult conditions for émigrés who tried to escape Nazi persecution, and a divided Germany after the Second World War. The political circumstances were always and everywhere a factor that influenced the situation for women, from their educational opportunities to their access to higher positions within academic and non-academic research units.

Again, this book presents new research results concerning women who conducted scientific work in industrial corporations during the first six or seven decades of the twentieth century. One of our goals was to discuss the conditions under which women were able to become successful industrial researchers, and with this in mind we investigated the positions of women in the chemical, cosmetic, nuclear, electrical engineering, communications, and optical industries. Attention has been paid to female researchers in the steel, aviation, and computer industries as well. Furthermore, our aim was to compare the opportunities of women in several academic disciplines, at various institutions, and in different countries. With a comparative and contextual approach, we examined the research process in non-university settings from the perspective of gender. Thus the contributions to this book address the following topics, among others: the development of local cultures in science and technology and the significance of gender in this process; the roles of both male and female scientific personae and their careers at different research laboratories and enterprises; and gender differences in research methods and approaches to scientific communication.[1]

Historians of science have made some progress toward a deeper understanding of the role of various laboratory practices and instrument making (for instance, in chemistry and microbiology, in physics and technology) and the role of women scientists related to this development. Some of the findings presented here incorporate insights from the 24th International Congress of History of Science, Technology, and Medicine, which took place in Manchester in July of 2013, and we hope that this book can be regarded as a contribution to the newly established international project known as the "Women in Science Research Network." We hope, moreover, to answer some open questions about the situation of women scientists in different industrial research units, and in doing so to rescue their careers, and the paths that

[1] On the concept of scientific personae, see DASTON 2003; DASTON/SIBUM 2003 (see also the bibliography appended to our Introduction).

led them there, from their previous invisibility.[2] Such was the general aim of all the contributors to this book.

For a broader understanding of historical developments, we have chosen to adopt an international comparative approach. We were able to invite authors from the United States, Germany, and Greece to contribute their insights concerning women scientists in industrial laboratories and other non-academic professional settings, and thus we have been able to present an ample picture of the field. Of course, it would be impossible to consider every international development in detail. That said, we were nevertheless able to identify several trends based on our own investigations and on recent scholarly literature; such trends are the subject of our introductory chapter.

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Some of the authors and other colleagues participated in an international workshop that took place at the University of Jena in March of 2013. For the organization of the workshop and for the publication of the present book, financial support was made available through the visiting professorship program at the University of Jena. Such support would not have been possible without the initiative of the professor of physics Elke Wendler, who organized a visiting professorship, dedicated to the field of women in science, for Renate Tobies.

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[2] Regarding the "invisibility" of women in science, see ORESKES 1996.

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Renate Tobies and Annette B. Vogt
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