CONTENTS

Foreword	v
List of Tables	
Editors' Preface	xiii
Introduction: Women Researchers in Industrial Laboratories: Trends and Perspectives Renate Tobies and Annette B. Vogt	1
Part I: Links between Academic and Non-Academic Professions Renate Tobies, Annette B. Vogt, and Brenda Winnewisser	25
1 Women Scientists with Different Laboratory Practices: Transitioning from the Kaiser Wilhelm Society to Industrial Laboratories, and Vice Versa Annette B. Vogt	27
2 Collaboration and Competition between Academia and Industry: Hedwig Kohn and OSRAM, 1916–1938 Brenda Winnewisser	45
3 The Background and Career of Angeliki Panagiotatou: The First Female Physician in Greece to Hold a Ph.D. Poly Giannakopoulou	59
Part II: The Electrical Engineering Industry Renate Tobies	73
4 Lillian Gilbreth and Irene Witte – Women of Efficiency Herbert Mehrtens	77
5 Female Scientists in German Electrical Engineering Corporations and Their Patronage Relationships Renate Tobies	87
6 From the German Electrical Engineering Industry to the United States: The Case of Cecilie Froehlich Renate Tobies	103

X Contents

Part III: The Chemical, Cosmetics, and Nuclear Industries Jeffrey A. Johnson, Maria Rentetzi, and Renate Tobies	115
7 Women in the Chemical Industry in the First Half of the 20th Century Jeffrey A. Johnson	119
8 Creating a Niche for Women in the Cosmetics Industry Maria Rentetzi	145
9 Dora J. Leipunskaya and the Contributions of Women to the Nuclear Industry Peter Bussemer	159
Part IV: Optical Companies and Institutions for Applied Optics Renate Tobies	179
10 Women Academics and Industrial Researchers in Thuringia during the Early Twentieth Century Renate Tobies	183
11 Maria F. Romanova and Her Research on Applied Optics in Russia and Germany Peter Bussemer	201
12 Female Employees at Carl Zeiss-Jena during the 1960s and 1970s Katharina Schreiner	213
13 Designing Planetariums for the Carl Zeiss Corporation: An Architect Tells Her Story	220
Gertrud Schille Index of Names	
Notes on Contributors	

Contents xi

LIST OF TABLES

Table Number	Title	Page
1.1	Women with a Doctorate in Physics from the University of Berlin	31
1.2	Female Physicists from Berlin at Industrial Corporations	31
1.3	Women with a Doctorate in Chemistry	32
1.4	Female Chemists from Berlin at Industrial Corporations	33
1.5	Women Scientists between Industry and the Kaiser Wilhelm Society	37
10.1	Women's Dissertations in Physics and Mathematics at the University of Jena (1925–1945)	188
12.1	An Overview of Female Employment Rates at Zeiss-Jena in 1977	217
	LIST OF FIGURES	
Figure Number	Title	Page
2.1	The German physicists Hermann Senftleben, Hedwig Kohn, and Elizabeth Benedict, quantifying sunlight in the Riesengebirge, summer 1918	46
2.2	Last page of a transcript of the last letter from Hedwig Kohn to Alfred R. Meyer, dated June 5, 1917	49
2.3	OSRAM advertisement	53
2.4	Title page of a lab "newspaper" celebrating a new Breslau physics Ph.D	53
3.1	Greek female physicians: Polymnia Panagiotidou, Ioanna Stephanopoli, Anthi Vasiliadou, and Thiresia Roka.	64
3.2	The Greek physician Angeliki and her sister Alexandra Panagiotatou	65
3.3	Angeliki Panagiotatou	67
4.0	Researchers at the experimental laboratory of OSRAM's Factory A, in Berlin	76
4.1	Lillian Moller Gilbreth	79
5.1	Ilse Müller, German chemist at OSRAM, 1929	96
5.2 6.1	Magdalene Hüniger, German chemist at OSRAM, 1929 The German-American applied mathematician Cecilie Froehlich and Students at City College New York, 1955	98 108
7.1	Emma Wolffhardt, German chemist at BASF, in March 1944	118
8.1	Florence Wall, American chemist and representative of cosmetology at New York World's Fair 1939–1940 (New York Public Library Reproduction, Image ID: 1668719).	154
9.1	The Russian nuclear physicist Dora Leipunskaya as a student, 1934	165
10.1	Members of the University Observatory in Jena, Germany (1930)	182
10.2	A Christmas Party at the Abbeanum, University of Jena, in 1928	189
10.3	Marga Faulstich, German chemist at the SCHOTT Corporation in Mainz, Germany	197

xii	Contents

11.1	Maria Romanova, Russian physicist in applied optics	209
12.1	The Title Page of <i>Carl Zeiss im Bild international</i> , 2013, Issue 1 (Carl Zeiss Archive)	226
13.1	The planetarium in Tripoli – proposal and layout (courtesy of the author)	238
13.2	The planetarium in Wolfsburg – original proposal (courtesy of the author)	240
13.3	The planetarium in Wolfsburg – cross section of the revised plan (courtesy of the author)	242
13.4	The planetarium in Berlin – project meeting in Berlin with city architects, urban planners, and architects from the Ministry of Culture (courtesy of the author, who is pictured standing on the left)	243