

# Contents

## *Chapter 1 The Telegraph Construction Company, 1847–1872*

1 Werner Siemens, his origins and early life .....	7
2 Johann Georg Halske and the foundation of the firm in 1847 .....	8
3 Telegraph lines play a role in the 1848 Revolution .....	10
4 First orders from Russia and Britain .....	12
5 The India Line, a global enterprise .....	15
6 New partners, new technical challenges .....	17
7 The way to the dynamo .....	18
8 The changing industrial relations scene .....	20
9 Siemens as a pioneer of a social policy in industry .....	20
Notes and References to Chapter 1 (1847–1872) .....	23

## *Chapter 2 The beginnings of electrical power engineering, 1872–1897*

10 The perfecting of the dynamo .....	33
11 First customers: the mining and metallurgy industries .....	34
12 Submarine and underground cable-laying .....	35
13 The telephone makes its appearance .....	37
14 The young power engineering industry faces marketing problems .....	38
15 Light, power and exhibitions .....	39
16 Electrical industry branches out .....	41
17 The last years of Werner von Siemens .....	42
18 From direct current to three-phase alternating current .....	43
19 Siemens & Halske becomes a joint stock company .....	44
Notes and References to Chapter 2 (1872–1897) .....	46

## *Chapter 3 The boom years of the electrical industry, 1897–1919*

20 The road to “Siemensstadt” .....	57
21 The development of Siemens factories abroad .....	58
22 Recovery after the crisis of 1901 .....	59
23 Wilhelm von Siemens promotes new ideas .....	60

24	Electric railways and heavy-duty motors .....	62
25	X-rays and wireless telegraphy .....	63
26	Electrical telegraphy receives a new impetus .....	65
27	Automatic telephony and the coil-loaded cable .....	66
28	Lieben's amplifier tube and its successors .....	68
29	Siemens enters the airship, aeroplane and motor car industry .....	69
30	Arnold and Wilhelm von Siemens continue their father's policy .....	71
	Notes and References to Chapter 3 (1897–1919) .....	73

*Chapter 4 Crisis and war: the years of struggle, 1919–1945*

31	Carl Friedrich von Siemens, a great entrepreneur .....	87
32	New directions in social policy .....	88
33	Reforms in the business, changes at the periphery .....	90
34	Takeover of Schuckert and disengagement from Telefunken .....	94
35	New activities abroad: Ireland and the USSR .....	95
36	Two decades of achievement in power engineering .....	97
37	Successes in the communications sector. The teleprinter .....	100
38	Electromedicine, measurement and control engineering .....	103
39	Carl Friedrich von Siemens and his successors. The end of an era .....	106
	Notes and References to Chapter 4 (1919–1945) .....	107

*Chapter 5 Reconstruction, international markets and future-oriented technology, 1945–1980*

40	Berlin-Siemensstadt, 1945–1949 .....	123
41	New beginnings in West Germany .....	126
42	Siemens regains its international standing .....	127
43	Concentration and decentralization .....	130
44	Electronic components lead to innovations .....	133
45	Data systems handle the information explosion .....	137
46	Communications on a global scale .....	141
47	Measurement and automation engineering .....	146
48	Power engineering, the basis of economic growth .....	147
49	Lighting and electrical installations in an energy-conscious era .....	152
50	Medical engineering .....	153
51	Research and development .....	157
52	Care for the individual – social welfare, personnel and educational policy .....	159
53	Changes at the top .....	162
	Notes and References to Chapter 5 (1945–1980) .....	164

*Appendix*

Chronological Table 1847–1980 .....	183
Growth of Labour Force and Sales of the Siemens Company .....	192
Growth of Capital of Siemens & Halske AG and Siemens AG .....	192
Index .....	193