Contents

List of figures ix
List of maps x
List of tables xiv
Acknowledgements xv

1 Introduction 1
1.1 An address in global space 1
1.2 Functions and structures 5
1.3 The purpose of this book 12
1.4 The focus of this book 16
1.5 Methods and sources 22
1.6 The structure of this book 25

2 The telegraph and globalization 30
2.1 Globalization and dematerialization 30
2.2 The annihilation of time and space? 37
2.3 Actors of globalization and their networks 50

3 The technological history of telegraphy 59
3.1 Petitioning for network access 59
3.2 Telecommunication 62
3.3 Inertia 66
3.4 Technology-in-use 71

4 Telegraphy in context 77
4.1 The telegraph as a tool of empire 77
4.2 The telegraph in trade and finance 84
4.3 The telegraph and the news 88
4.4 Society and culture 92

5 The global telegraph network 97
5.1 Towards a worldwide web 97
5.2 The structure of the global submarine telegraph network 105
5.3 Shifts in global communication space 123
5.4 Trade routes and cable routes 129
Contents

6 Global centres and peripheries 135
   6.1 Identifying centres and peripheries 135
   6.2 Social network analysis: European telegraph circuits 1906 140
   6.3 Social network analysis: European telegraph circuits 1923 146
   6.4 Social network analysis: global telegraph connections 1881 to 1902 150
   6.5 Network use: external telegraph messages 1860–1910 156

7 The British telegraph network 163
   7.1 The telegraph and the turf 163
   7.2 From private service to public good 168
   7.3 The British telegraph network structure in 1868 176
   7.4 British telegraph network use, 1868 193
   7.5 London at the centre 199

8 The British Indian telegraph network 211
   8.1 1857 and the telegraph 211
   8.2 The growth of the Indian Telegraph Department network 220
   8.3 Indian Telegraph Department network structure in 1871–1872 225
   8.4 Indian Telegraph Department network use in 1872–1873 231
   8.5 Communication between Europe and India 236

9 Conclusion 243
   9.1 Information, knowledge and cultural practices 243
   9.2 Structures and use 249
   9.3 Global spaces 253
   9.4 Conclusion and outlook 257

Appendix 262
Bibliography 305
   Archived documents 305
   Hansard and Parliamentary Papers 308
   Nomenclatures 309
   Other documents 310
   Newspaper articles and caricatures 310
   Software 311
   Articles and books 311
Index 331
Figures

4.1 *Punch* cartoon showing Cecil Rhodes, telegraph wire in hand. ‘The Rhodes Colossus Striding from Cape Town to Cairo’, *Punch, or the London Charivari* 103, no 10 (December 1892), 266.  


7.1 *Punch* cartoon showing a woman hanging her washing on a telegraph wire. ‘Positive Fact, of Course’, *Punch’s Almanack* 42 (January–June 1862), v.  

7.2 *Punch* cartoon showing two men in a Fleet Street office discussing a telegram. ‘The District Telegraph. Invaluable to the Man of Business’, *Punch, or the London Charivari* 44, no 10 (January 1863), 20.  

9.1 *Punch* cartoon showing two British farmers discussing telegraph poles. ‘Pursuit o’ Knowledge’, *Punch, or the London Charivari* 62, no 6 (April 1872), 139.
Maps

5.1 Global submarine cable network, 1865. Source: ‘Nomenclature des câbles formant le réseau sous-marin du globe dressée d’après des documents officiels par le Bureau international des administrations télégraphiques’, *Journal télégraphique* 3, no 29 (1877).  

5.2 Global submarine cable network, 1870. Source: ‘Nomenclature des câbles formant le réseau sous-marin du globe dressée d’après des documents officiels par le Bureau international des administrations télégraphiques’, *Journal télégraphique* 3, no 29 (1877).

5.3 Global submarine cable network, 1880. Source: ‘Nomenclature des câbles formant le réseau sous-marin du globe dressée d’après des documents officiels par le Bureau international des administrations télégraphiques’, *Journal télégraphique* 3, no 29 (1877) and *Journal télégraphique* 7, no 5 (1883).


List of maps xi

télégraphique 21, no 11 (1897), *Journal télégraphique* 25 (1901) and *Journal télégraphique* 27 (1903). 116

6.1 Freeman degree and betweenness in the global telegraph network, 1881. Source ITU Archives, Bureau international des administrations télégraphiques, ‘Carte des communications télégraphiques du régime extra-européen’, 1881. 152

6.2 Freeman degree and betweenness in the global telegraph network, 1892. Source: ITU Archives, Bureau international des administrations télégraphiques, ‘Carte des communications télégraphiques de régime extra-européen’, 1892. 153

6.3 Freeman degree and betweenness in the global telegraph network, 1902. Source: ITU Archives, Bureau international des administrations télégraphiques, ‘Cartes des communications télégraphiques du régime extra-européen’, 1902. 154

xii List of maps

7.2 British telegraph network structure, 1868. Source: see Map 7.1 180
7.3 Electric network structure, 1868. Source: see Map 7.1 181
7.4 Magnetic network structure, 1868. Source: see Map 7.1 182
7.5 The UK company’s network structure, 1868. Source: see Map 7.1 183
7.6 Freeman degree, Freeman betweenness and Bonacich eigenvector centrality in the Electric telegraph network, 1868. Source: see Map 7.1 187
7.7 Freeman degree, Freeman betweenness and Bonacich eigenvector centrality in the Magnetic telegraph network, 1868. Source: see Map 7.1 188
7.8 Freeman degree, Freeman betweenness and Bonacich eigenvector centrality in the UK company’s telegraph network, 1868. Source: see Map 7.1 190
7.9 Distribution of telegraphic traffic in the British telegraph network, 1868. Source: see Map 7.1 and British Telecom Archives, POST 82/303, ‘Telegraphs. Return of Persons Employed; Wages; Average Weekly Messages’, 1869–1872. 197
7.10 Density of telegraphic traffic per head in Great Britain, 1868. Source: see Map 7.1 and British Telecom Archives, POST 82/303, ‘Telegraphs. Return of Persons Employed; Wages; Average Weekly Messages’, 1869–1872 198
7.11 Distribution of telegraph stations in London, 1868. Source: see Map 7.1 202
7.12 British telegraph network structure. Close-up of London, 1868. Source: see Map 7.1 204
7.13 Density of telegraphic traffic per head in London, 1868. Source: see Map 7.1 206

8.2 Freeman degree and betweenness centrality in the Indian Telegraph Department network, 1871–2.

8.3 Messages sent, received and transmitted at stations in the Indian Telegraph Department network, 1871–2.

# Tables

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Length of submarine cables under private and government management, 1865–1903</td>
<td>119</td>
</tr>
<tr>
<td>5.2</td>
<td>Private and government ownership of submarine telegraph cables, 1877</td>
<td>120</td>
</tr>
<tr>
<td>7.1</td>
<td>Number of inland messages forwarded in the United Kingdom, 1868</td>
<td>173</td>
</tr>
<tr>
<td>7.2</td>
<td>Percentage of telegraphic traffic (in weekly messages) handled by British telegraph stations, 1868</td>
<td>186</td>
</tr>
<tr>
<td>7.3</td>
<td>Examples for high delivery times of intra-London messages, 1879</td>
<td>209</td>
</tr>
</tbody>
</table>