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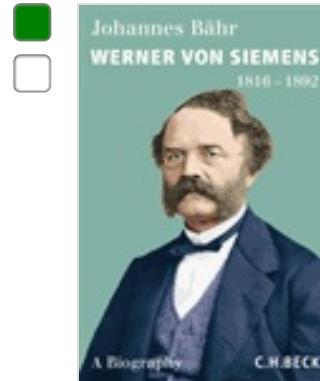
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Johannes Bähr

Werner von Siemens,

1816-1892

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von Kapitalismus und Bürokratie in der deuts
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Obergut. In the end, Christian Ferdinand was pp. 36 f. 39 Ibid., p. 35. 40 Friedrich Ernst Otto first civil servant in Lauenstein. 41 At the begi was not reflecting on a renewal of the local lea 1.Lk 474–1. 43 Wandrey, Siemens, p. 80. 44 Ch Ferdinand Siemens, SAA 1.Lk 474–3. Andreas Extrakten der Güter Lenthe, Velber und Wuns 474–2; Christian Ferdinand Siemens to Obera Grote and the Mehliß family in a letter to Sabi Grote’s pension and on her life in Kölleda, cf. oldest brother Johann Georg from the time of Ferdinand had asked for support (“If you know to Oberamtmann Siemens, May 11, 1823, SAA Georg Siemens, in: Neuer Nekrolog der Deuts Major u. Ritter als Bevollmächtigter des Hr. Si authorized representative for Mr. Siemens in an authorized representative, Werner’s godfat Mentzendorf [Most reverent report of the Cat office responsible for Mentzendorf in the Gran Anlageschreibens zum Bestätigungsbrief des (letter of the Grand Duchy of Mecklenburg-Str SAA 1.Li 524. 51 Auszug aus den Geldregister-I estates of Lenthe, Velber, and Wunstorf], SAA Anzeigen, No. 43, May 28, 1823, p. 1100, in: ib account book extracts of the estates of Lenthe [June 1823], SAA 1.Lk 474–1. 55 Christian Ferd Hanoverian realm because it was almost unbe bordering on barbarism, and the Wülfinghaus Ratzeburg appertaining to Mecklenburg-Strel Zeittafel [Residences/Timeline of Travels and Hannover’sche Anzeigen, No. 43, May 28, 182 from the account book extracts of the estates (family tree numbers 241–254). 59 Christian F Buchsteiner, Aspekte von Gesellschaft, Wirts mecklenburgischen Großherzogtümer im deu Europäischen Geschichte, 11), Rostock 2002, Jahrhundert – Chancen und Hemmnisse eine Anfang und Ende Mecklenburg-Strelitzer Ges Christian Ferdinand Siemens, SAA 1.Lk 474–3 F1706. 64 Ibid. 65 Ibid. 66 Eleonore Deichman her daughter Eleonore, she will be referred to Grote, September 14, 1827, SAA F1706. 68 Sier Siemens, Recollections, p. 41. 71 Ibid., p. 41. 7

Siemens, Recollections, p. 41. 74 Ibid.; Heintz
Auszug aus dem Konfirmanden-Register der e
Lutheran Congregation of Lübsee], Yr. 1831 (c
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<http://www.katharineum.de/rundgang/beru>
outside the city. Julius Braune, Das Katharine
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Lübeck, in: Der Wagen. Ein Lübeckisches Jahr
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p. 44. 447Notes 85 Excerpts from: Katharineur
Original in: Lübeck Municipal Archives). 86 Ik
ibid. 88 Siemens, Recollections, p. 45. 89 Ibid.
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Modersohn-Becker von Dresden her, Dresde
Recollections, p. 53. 94 The lists of graduates f
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Federation, the Abitur, or high school graduat
Das Tor zur Universität – Abitur im Wandel, ir
Siemens to the Grand Duke of Mecklenburg-S
96 Ibid., p. 45. 97 Harald Bodenschatz, “Der R
98 Siemens, Recollections, p. 46. 99 Ferdinand
46. 101 J. P. Kux, Organismus und vollständige
Ferdinand supposedly told Werner at that tim
better to be hammer than anvil.” Quoted in: S
Werner’s grandmother Sophie Elisabeth had l
Siemens, p. 114. 3 Siemens, Recollections, p.
Iron Cross, 1st class; upon his retirement, Kin
genealogische und diploma tische Nachricht
p. 48. 5 Ibid., p. 49. 6 Ibid. 7 Christian Ferdina
reproduction of the text in: ibid., p. 41. 8 Ibid.
who was a wine connoisseur who had wanted
question because his mother had once been p
mentioned. Ibid., p. 41. 10 Werner benefited f
class year. Whoever had passed this exam was
41. 12 Ibid. 13 Ibid., p. 42. 14 Militärische Lauf
p. 52. 16 One letter from Carl Soltmann to We
friendship with the Soltmann family, see p. 4
mineralogist Friedrich Hausmann. He marrie
Prussian army to the rank of a lieutenant gene

Berlin 1969, pp. 124 f. 18 Siemens, Recollections 1.12.1836–1.12.1847 [Excerpts from the “Conduits List of the Officers of the 3rd Artillery Regiment” (copy 449 Notes from the original document in the Staatsarchiv)]. 20 Ibid. 21 Siemens, Recollections, SAA Z75, sheet 76; Auszüge aus der “Conduit List of the Officers of the 3rd Artillery Regiment”, p. 52. 24 Ibid., p. 53 (quote); Werner von Siemens, SAA 2.Li 772. The building at Charitéstraße 4, an artillery and engineering school see Eric Dorn, Princeton 1993, p. 84. 25 Geschichte der brandenburgisch-preussischen Ingenieure aus Berlin. Hans Joachim Wefeld, In Geschichte der brandenburgisch-preussischen Ingenieure, the university, the architectural academy, and the university of Berlin. Gustav Magnus (1802–1870) was a physicist and engineer in mechanics and thermodynamics. Cf. Dieter F. Frenkel, Gesellschaft, Stuttgart 1995. Gottlieb Erdmann, the Königliche Tierarzneischule [Royal Veterinary School], chemist Otto Linné Erdmann. 28 Meno Burg, 1800 to 1853. Cf. Meno Burg, Geschichte meines D. (published in 1854). 29 Siemens, Recollections (also in: SAA 1.Lk 474–3) (“I had to fight on various occasions”). Ferdinand Siemens to Werner Siemens, April 1837. Werner Siemens, March 9, 1837, SAA F2309 (“I had to fight on various occasions”). Ibid. 35 Cf. on this especially Ute Frevert, Ehrenbriefe Ferdinand Siemens to Werner Siemens, April 1837. résumé of] Werner v. Siemens, SAA Z75, sheet 527. 41 Siemens, Recollections, p. 55. 42 Christian Ferdinand Siemens (biographical material), SAA 1.Lk 474–3. 47 Memorandum from Christian Ferdinand Siemens to Werner Siemens, 6.Ls 341. 50 Ehrerb. Vertrag und Bitte des frühverstorbenen Christian Ferdinand Siemens [Reverent contract and request of the former emperor], January 29, 1844, SAA 1.Ld 807–3. 51 Schmolle, SAA 1.Li 524. 53 Addendum by Eleonore Siemens to William Siemens, p. 19; Neugebauer, Siemens-Realschule had been founded in 1800 by the Landrat Auguste, née Slevogt (1818–1874) had married the Landrat Manufactur-, Kramwaren-Handlung und Parfümeriehandlung. Stammtafeln der Familie Deichmann [Genealogical tables of the Deichmann family], Lübeck 1837, p. 107. Deichmann was not listed in SAA F2321. 451 Notes 58 Ibid. 59 Pole, William Siemens, mayor Konrad Deichmann, a brother of Eleonore

based retailer and bank A. Schaaffhausen's school.
Later, he founded the bank Deichmann & Co.
Table VII, SAA 1.Lc 195; Ingo Köhler, *Wirtschaftsgeschichte des 19. Jahrhunderts*, in: Dieter Ziegler (ed.), *Großbürgertum und Industrialisierung in Preußen*, Berlin, 1987, p. 21. 61 "That William
Pole, William Siemens, p. 20. 64 Christian Ferdinand
Mathilde Siemens to Werner Siemens, July 18, 1839, SAA 1.Li 590.
today, I moved to Göttingen for the first time."
Goltermann, née Deichmann (1807–1893), was the daughter
of the Grimm brothers. After her first husband died in
Hanover, in 1842. *Stamm tafeln der Familie Deichmann*,
Wilhelm Grimm, July 8, 1842, printed in: *Stephanie*
der Brüder Jacob und Wilhelm Grimm. Kritische Ausgabe,
Siemens, May 9, 1837, SAA F2309. Carl Himly
became a full professor at the University of Kiel in 1837.
The circumstances of his death could not be determined.
had been drunk and fell into the Leine, the river
burgundy and half with water from the Leine.
Gustav Himly's biography, see August von Rosenberg, *Leben*
Notes 69 Mathilde Himly to Sophie Drumann, July 18, 1835,
1835, Werner's father wrote: "Ferdinand is doing well, but
intended to send him to a vocational school."
reproduced in: Pole, William Siemens, p. 8. 72
Reichsfreifrau [Reich Baroness] Grote, September 18, 1835,
summoned together with his father to the domain of
Schönberg, den 17.10.1835, in Gegenwart des
in the presence of the seneschal von Drenkhof (owner of
the Menzendorf dairy farm). Whether Ludwig
Siemens to Werner Siemens, November 24, 1839, SAA 1.Li
1.Li 590). 76 Wandrey, Siemens, p. 89; Christian Ferdinand
turn of the year 1838/39 in Menzendorf. Christian Ferdinand
p. 89. 79 Christian Ferdinand Siemens to Werner Siemens,
6.Ls 341. 81 Christian Ferdinand Siemens to Werner Siemens,
September 2, 1838, SAA 1.Li 524. 83 Christian Ferdinand
death is given in a letter Werner wrote to his brother,
8, 1839, SAA 1.Li 590 (also in: SAA 1.Li 524). 86
inner being, I am now numb and ready for the end."
July 25, 1839, SAA 6.Ls 341. 87 Christian Ferdinand Siemens
July 25, 1839, SAA 6.Ls 341. 453 Notes 89 Erinnerung
information from Braune, Carl attended the Berlin University.
Christian Ferdinand's letters prove that Carl's death was
November 12, 1839, quoted from an excerpt in *Siemens*
SAA 3.Li 516; on Friedrich's school years, cf. E

Ehrrerbietigster Bericht des Domänen-Amtes 2
93 Christian Ferdinand Siemens, SAA 1.Lk 474
Siemens, p. 31. 96 At that time, one came of a
Strelitz, by contrast, only at the end of one's 2
Siemens to Mathilde Drumann, March 13, 184
"Ekengreen is the most wonderful guy, Eduard
very long in Lübeck. He had acquired the estate
Lübeck address book of 1838 does not have an
High Chamber and Forest Collegium], Februa
tenant of the state-run estate in Wahrsow fro
2016]. 101 Grete Grewolls, Wer war wer in Mec
this foundation after his wife and his two sons
Ekengreen, geb. Schröder, Gustav und Wilhelm
Wilhelm Ekengreen], March 7, 1860, in: Wöck
Vorladungen [Summonses], March 22, 1860, :
accessed May 4, 2016]. 102 J. G. Ekengreen to C
February 11, 1840, SAA 1.Ld 807–3. 103 Hans S
11. See on this p. 457, note 89. 105 Mathilde H
Recollections, pp. 56 f. William's father had p
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eines "patriotischen Bürgers und werkhätige
pp. 26–30. 110 Ibid., p. 28. 111 Werner Siemen
William Siemens, January 21, 1842, quoted in:
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1.12.1836–1.12.1847 [Excerpts from the "Cond
455Notes 7 Ibid. 8 Siemens, Recollections, p. 1
August 17, 1840, SAA A262. 11 Werner Siemen
Siemens to William Siemens, June 26, 1841 (v
Siemens, September 21, 1839, SAA 6.Ls 341. 14
illuminating silver-plated copper plates; in th
this effect. His invention was announced by t
Talbot und die Veröffentlichung der Fotografi
October 29, 1839, n. p. 18 Jacobi had inventec
Siemens, Recollections, p. 63. 20 Ibid. 21 Ibid.
Universität Göttingen, in: Deutsche Jahrbüch
29.3.1842 für Werner Siemens auf Galvanische

(copy)], SAA 2.Ld 951; Werner von Siemens, *F*
Wet Method (1842), in: idem, *Scientific & Tec*
contained, for example, a process for gilding k
meiner Erfindung, betreffend das Niederschla
Metalle [Detailed description of my invention
plating of metals], January 8, 1844, SAA 2.Ld 9
der Korrespondenz der Geschwister Siemens,
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Siemens, January 21, 1842, quoted from the ex
1.12.1836–1.12.1847 [Excerpts from the “Cond
2.Ls 903. 33 Siemens, *Recollections*, p. 64. Thi
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Werner von Siemens, pp. 50 f.: “He was able to
second in a duel, to conduct successful experi
“Conduitenliste von den Offizieren der 3. Arti
3rd Artillery Brigade” from Dec. 1, 1836–Dec. 1
Glienicke [Glienicke Palace] between Berlin a
who had only been reigning for two years – pu
Feodorovna, married to Tsar Nicholas I. Siem
there, he wrote to William on September 29, 1
actually otherwise quite pleasant for me, espe
the *Vorschrift über die Verwaltung der Königli
Workshops*] Coblenz, September 9, 1821, *Gel
Militärvorschriften* [Prussian Army, *Military R
on*] Werner Siemens 1846, *Auszüge aus der “C
“Conduit list of the officers of the 3rd Artillery
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and the Reich Army; in the Third Reich they v
DDR “Friedrich Engels” [Guard Regiment of th
facilities of Humboldt University and the Gerr
Wagner, *Die Dorotheenstadt im 19. Jahrhund
(Veröffentlichungen der Historischen Kommi
Kupfergraben*, in: *Museums Journal*, Vol. 8 (19
Gustav Magnus, p. 109; Terry Pinkard, *Hegel. 1
Werner’s friend had been sentenced to death
officers of the 3rd Artillery Brigade had advoca
lifelong imprisonment. Akte des General-Aud**

wegen Tötung im Duell [File of the general ju
3rd Artillery Brigade on account of his killing s
Second World War of the Geheimes Archiv de
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be found in: Siemens, Recollec- 458 Notes tio
1824. 46 Siemens, Recollections, p. 67. 47 Ehr
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W1788. 50 At that time, William had agreed to
battery needed for this, all for a fee of 10 Louis
W1788. 52 Werner Siemens to William Siemer
Siemens, p. 43. 54 Quote from a talk by Willia
William Siemens, p. 44. 55 Ferdinand Deichm
Birmingham. William had the London Patent
Siemens to Werner Siemens, March 16, 1843,
Siemens to Werner Siemens, May 1, 1843, SA/
(67.50 thalers = 10 pounds Sterling): Markus A
Werner Siemens, July 7, 1843, SAA F2391. 59 C
Vol. 71 (1840), pp. 257–261. For an overview, s
Entwicklung und ihre großen Männer, reprint
61 Ibid. 62 Pole, William Siemens, p. 49. 63 Ve
[Contract between Werner Siemens and Ferd
Leonhard’s name is often written as “Leonha
following, the spelling that can be found in th
latter, see Dr. Garthe, Leonhard’s elektrischer
p. 51. 65 Ibid., p. 53. 66 Siemens, Recollection
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had rejected the first patent application in Ap
Matschoss, Geschichte, pp. 217 ff. 70 Siemens
/ánástasis: reawakening, rise from the de
Michael Faraday. Carl B. Lorck, Handbuch de
wrote that he had been the “last of my old mil
secretary in the General Staff can only be atte
zwischen Carl Friedrich Christoph Baldamus
in der 3. Königlichen Artilleriebrigade) über de
(Secretary in the Royal General Staff and Print
concerning anastatic printing], February 10, 1
Vollmacht an William Siemens vom 20.12.184
(notarized)], ibid. Contrary to what Werner w

the second time in February 1844. Cf. Siemens, *Recollections*, p. 70. 78 Ulrich Kreutzer, *Von c* zwischen 1845 und 2001 (Beiträge zur Unternehmensgeschichte, Berlin 2016]. 80 Edward J. Law, *The Introduction of /* 2009, pp. 41–55; Lita Solis Cohen, *The Anasta* 1. 81 See Chapter 4. 82 Matschoss (ed.), *Werner Siemens*, p. 66. 84 Werner Siemens, *Steine zu benutzen*, in: *Polytechnisches Journal für Naturwissenschaften und der Technik*, Berlin 1845, pp. 23–31. 85 in: idem, *Gesammelte Abhandlungen und Vorträge*, Berlin 1845, pp. 23–31. 86 this, cf. Matschoss (ed.), *Werner Siemens*, pp. 23–31. 87 Cf. also idem, *Gesammelte Abhandlungen*, pp. 23–31. Cf. also idem, *Wiederkehr seines Geburtstages von c* Siemens, *Recollections*, pp. 82 f. 88 This is supposed to be a shooting matter with the use of electromagnets. In his memoirs, Werner wrote that gun cotton had been invented by Schönerberger. 89 Siemens, *Anwendung der erhitzten Eisenbahnen*, pp. 82–86. 90 Siemens, *Anwendung der erhitzten Eisenbahnen*, pp. 82–86. 91 Siemens, *Anwendung der erhitzten Eisenbahnen*, pp. 82–86. 92 Siemens, *Anwendung der erhitzten Eisenbahnen*, pp. 82–86. 93 Poggendorffs *Annalen der Physik und Chemie*, Berlin 1845, pp. 82–86. 94 Vortrag in der Physikalischen Gesellschaft Berlin, 1845, pp. 82–86. 95 Vortrag in der Physikalischen Gesellschaft Berlin, 1845, pp. 82–86. 96 this Wolfgang Schreier, *Werner von Siemens*, pp. 82–86. 97 461Notes 93 Wolfgang Schreier, *Gustav Magnus*, pp. 55 ff. 98 Gustav Magnus, pp. 55 ff. 99 Siemens, *Recollections*, pp. 82–86. 100 Gesellschaft zu Berlin (Max-Planck-Institut für Physik), pp. 82–86. 101 Gesellschaft zu Berlin, cf. also Ewald Blocher, *Werner Siemens*, pp. 82–86. 102 scientists who were members of the Physikalische Gesellschaft zu Berlin, three astronomers, two meteorologists and a physicist. 103 Siemens, October 9, 1845, SAA W8540. 99 A letter from Peru. He was to take over the “managing directorship” of the company by British capital. Ibid., p. 64; Matschoss (ed.), *Werner Siemens*, p. 64. 100 too young for maritime trade. Matschoss (ed.), *Werner Siemens*, p. 64. 101 *Gewerbepolitik in Berlin 1806–1844*, Berlin 1906, pp. 82–86. 102 May 20, 1846, SAA W1581. 104 Siemens, *Recollections*, pp. 82–86. 105 Friedrich Siemens to Werner Siemens, March 1845, SAA W1581. 106 its original form, just like the other early letter from Peru. 107 Siemens, February 13, 1845, quoted from the collection of letters [Notizen zusammengestellt von Direktor Max Siemens], March 1886, SAA 3.Lr 505. 108 Erinnerung an die Anwendung der Eisenbahnen applied to the navy “with inadequate knowledge

Notes mens, November 10, 1845, published in Prussia, Friedrich would only reach legal age v 2.Li 596. On this, cf. also the lengthy quotation: Aufenthalte Zeittafel [Residences/ Timeline of SAA W1781; Lutz, Carl von Siemens, p. 38. 113 40. 115 Werner Siemens to William Siemens, 1 Nachrichten von Staats- u. gelehrten Sachen, pp. 220 ff. According to Werner's memoirs, the f. According to the above-mentioned article in the Light," which later joined forces with Ron "freie Gemeinden". Religiöser Protest und Fre historical studies, the Friends of the Light are p. 26. Adherents of this movement came from Recollections, pp. 81 f. 119 Mathilde Himly to deduce that this is about one of Werner's cousins this name who would have come into consideration tenant farmer and Amtmann August Siemens Mathilde Himly wrote to William on July 13, 1 however, it must be the joke that the Spanger engaged at this time. It is possible that this is was the head of the girls' secondary school in Henriette Heyse died of cholera in 1850 at the Ehrhard, Die Grammatik von Johann Christian (Studia linguistica Germanica, 45), Berlin/New Siemens to William Siemens, September 25, 1 Siemens, p. 65. 125 Werner Siemens to William 0076 (quote); Mathilde Himly to William Siemens children: Karl (1840–1862), Adolf (1843–1901), Stammbaum Familie Siemens, p. 155. 127 "H William. A letter Mathilde wrote to William m remember Ludwig as a boy [...]." Werner Siemens 1847, FA 0076. Cf. also Mathilde Himly to William by this character? Both of the parents were so Siemens to Werner Siemens, March 8, 1847, S to Werner Siemens, April 4, 1847, SAA F2404 (132 Werner Siemens to William Siemens, Apr Deichmann was one son of August Deichmar 1945. Even before 1945, there were no files in Archives in the year 1941 made this clear. Siemens the city administration of Woldenberg, Reside betr. [Memo of the City Archive of Woldenberg Siemens, October 14, 1892, FA 0076. 135 Werner Siemens to Werner Siemens, February 18, 187

whom the notary re- 464 Notes responsible for t
accepted it. Therefore, he could not leave it to
father's death, that is, his siblings. Georg Siem
Siemens to William Siemens, December 14, 18
letter], SAA W1594. On Meyer's transfer to Ber
Wilhelm Drumann, January 12, 1847, SAA F50
was the son of Johann Georg Siemens (1764–1
and Berlin, Johann Georg entered the Prussia
1837, he married Marie von Sperl; two years la
Berlin. Karl Helfferich, Georg von Siemens. Ei
William Siemens, November 19, 1846, SAA W
Siemens to William Siemens, December 14, 18
wanted to offer the regulator for purchase to a
Lieutenant Bayer, a member of the Physical S
1847, SAA W1063. Werner Siemens to William
W1586. 13 Ibid. 14 Siemens, Recollections, p.
& Soltmann in Berlin, a branch of the minera
formed in Dresden a few years earlier. Werner
Soltmann, who had died in 1846. A letter from
Wheatstone's telegraph, May 10, 1842, SAA 2.
February 27, 1842, ibid. 16 Siemens, Recollecti
Journal, Vol. 107 (1848), pp. 155 f. 19 Werner S
Feyerabend, An der Wiege des elektrischen Te
Reinhard Witzlau, Der Zeigertelegraf von Wer
Siemens-Schule Gransee, 1), Gransee 2012, p.
Telegraphie, Berlin 1933, pp. 2 ff. 21 Franz Aug
Irish nobility name O'Etzel. After his title of n
Entwicklung des elektrischen Nachrichtenwe
Weltkrieges (Zeitschrift für Unternehmensges
optischen Telegrafie in Preußen, Cologne 197
Entwicklungen in der ersten Hälfte des 19. Jah
Invention of the Electric Telegraph, London 1
Kalkutta. Aufsätze zur Telegraphiegeschichte
Alleruntertänigster Bericht über die Anlage ein
installation of an electric telegraph line betwe
Huurdeman, The Worldwide History of Teleco
Aschoff, Geschichte, p. 236. 26 Eingabe des Ul
Herstellung eines verbesserten elektromagnet
1844, to the Ministry of War with regard to the
Appendix 18, p. 205. 27 Die genaueste Uhr, in
Wessel, Entwicklung, p. 150. 29 Franz August
Geheimes Zivilkabinett, jüngere Periode, No.
line began operation between Washington an

History, pp. 59 ff.; Museum für Kommunikati
Deutschland und Österreich. Die konstruktiv
408. 32 Hans Walter Wichert, Dr. August Kram
registered club founded in 1885), Nordhausen
William Siemens, August 20, 1846, SAA W1588
whether Kramer discovered this principle hin
charge of patents regarded the new Kramer te
Siemens pointer telegraph was already protec
from marketing the Kramer telegraph that he
promise to share future earnings on the Siem
According to this copy of the letter, Leonhard
however, that he had bought Kramer's device
that Leonhard was the purchaser, but that the
from Werner to William on September 10, 184
want him to share with me proprietorship of
copy of the letter in SAA W1589, the definitive
of the Cramer telegraph that was purchased b
copies exist, both of which read "him" and no
the quote cited above from the letter from 467
for 500 thalers"), SAA W1588. The sources thu
because Werner was short on money and was
Siemens, September 10, 1846, SAA W1589. 38
Siemens, November 19, 1846, SAA W1592. 39 V
(1818–1896) studied medicine, specializing in
Anatomical Museum. In 1851, he was elected
physiology at the University of Berlin in 1855.
Reymond referred to their 30year friendship. I
<http://leibniz-sozietat.de/wp-content/uplo>
barely mentioned in Werner's letters prior to
Reymond, Johann Georg Halske, in: Verhandl
Dierig, Wissenschaft in der Maschinenstadt. I
Blocher, Halske, p. 13. 44 Emil du Bois-Reymc
Meeting on April 18, 1890, p. 42. This dates th
However, Werner's letter to William on Janua
Year's Eve in a low-spirited mood with Williar
meeting might well have taken place on Dece
to William Siemens, January 3, 1847, SAA W1C
to William Siemens, January 3, 1847, SAA W1C
Unternehmer in der deutschen Industrialisier
Versuchen 468 Notes mit elektromagnetische
von Etzel, Major von Schmeling (General Insp
Finance, Department of Trade, Industry, and
Heinrich Wilhelm Dove, von Etzel's son-in-la

Handbuch über den Königlich Preußischen H
1817– 1934/38, 1st series, edited by the Berlin-
Hildesheim/Zurich 2003, pp. 611 f. and 619. H
1844. He was particularly interested in meteor
Leutnants Werner Siemens an die Königl. Ho
the Royal Highly Commendable Commission
(Document I). 55 Werner Siemens to William
W1065. 57 Ibid. The address Albrechtstraße 14
patent for the pointer telegraph. Cf. the print
25, 1847, SAA W1064; Werner Siemens to Wilh
Schorndorff, Carl was given the task of finding
Siemens to William Siemens, July 5, 1847, SA/
the deposit of 500 thalers, he discovered that l
Werner Siemens, April 1, 1847, SAA W1059. 61
zum Drucken der Depeschen [Patent applica
1, 1847, printed in: Witzlau, Zeigertelegraf, pp
Siemens to William Siemens, September 15, 1
that he was planning to travel to Hamburg to
Moscow. As is clear in Werner’s subsequent le
newspapers” and “diplomatic sophistry,” SA/
biography and person see pp. 127 and 141 ff. 7
Gesellschaft [Berlin-Anhalt Railroad Compan
Seehandlung, had on how this company ran :
loans) in the Berlin-Anhaltische Eisenbahn-C
Wirtschaft in der Frühphase der Industrialisie
Werner Siemens to William Siemens, July 18,
July 18, 1847, SAA W1070. 70 Matschoss (ed.),
carried out experiments with gutta-percha-in
laid along the Anhalter Bahn. Siemens, Recol
(1850), in: idem, Scientific & Technical Paper
mentioned until April 23, 1847. Not until thre
Siemens to William Siemens, April 23, 1847, S
Royal Society of Arts took place in March 1845
member of the Royal Society of Arts. Faraday v
Cables, London 1983, pp. 12 f. 72 Ehrenberg, U
on this Kocka, Unternehmer, pp. 50 f. 75 Wer
William: “I already was prepared to send in m
SAA W1071. 77 Quoted in: Allgemeines Kriegs
to a Highly Commendable Royal General Insp
from referring to himself as a member of the T
SAA W1072. 80 Werner Siemens to Wilhelm D
1847, SAA W1072. Formally, Halske did not lea
announcement in the Königlich privilegierte B

Siemens, Recollections, p. 90. 82 Werner Siemens supposed to take over for him in the company. Finanzgeschichte des Hauses Siemens, Part 1 "worker" in Berlin in 1846 were at most 4 thaler. Gesellschaftsgeschichte, Vol. 2, pp. 638 f.; Lot examples from Berlin mechanical engineering. Helfferich, Georg von Siemens, Vol. 1, p. 11. 8 Helfferich, Georg von Siemens, Vol. 1, p. 78. V been determined at this point. It was supposed Preußische Finanzminister, Patent für den K. magnetischen Telegraphen [The Prussian Mi electromagnetic telegraph], October 7, 1847, (Zeigertelegraf (Document VIII), pp. 102 ff. Th authority of the Ministry of Finance from 1837 that the "requestor" Werner Siemens should r HA Rep. 120 D Compartment 2, No. 16, Vol. 1 Siemens to William Siemens, September 15, 1 Schöneberger Straße was renumbered, the bu it had remained mostly 471Notes unchanged. and representative office of Siemens & Halske 246. The locksmith Spiller owned the building 17 f. 94 Gesellschaftsvertrag zwischen 1. dem J Siemens [Partnership agreement between 1) 1 Georg Siemens], October 1, 1847, SAA 21.Li 53 Siemens, Vol. 1, p. 78. 96 Siemens, Recollectio for the 25th anniversary of the company's fou considered the day of founding. On the reason W1078. The reference to a starting staff size of Werner von Siemens, p. 66; Kocka, Unterneh were employed at the end of 1847. Weiher, We he would receive a large contract with Hanov William Siemens, November 6, 1847, SAA W10 authorities. Possibly, the Telegraph Commiss requested by the government, because I was f February 20, 1874, SAA F517. 102 Marina Kopp Werner Siemens to William Siemens, Decem early years as "Mechanics and Opticians" with Charlottenburg und Umgebungen auf das Jah letters to William there are frequent such refer name alone the company is currently operate privilegirte Berlinische Zeitung von Staats- ur 90. 105 Decret des Königl. Gewerbe-Steuer-An October 20, 1847, in response to the applicati

Halske durch das Königliche Polizei-Präsidium
December 15, 1847, SAA 3.Li 1000. 107 Cf. on
friendship with Werner cf. also Friedrich Heine
Without meeting academic requirements: Sie
letter on June 9, 1849, in which he refers to “H
in original]; Werner Siemens to William Siem
Werner Siemens to William Siemens, Novemb
Elektrotechnik. Geschichte des Hauses Sieme
According to Georg Siemens, Johann Georg w
turmoil at the time. Ibid. Werner estimated th
Recollections, p. 90. 113 For examples of the l
March 16, 1940, SAA WP Halske (“This worksh
Firma Siemens & Halske in den Jahren 1847–1
Chapter 5 Telegraph lines for Prussia 1 Gross s
Waller, Finanzgeschichte, Part 1, p. 6. Accord
On January 25, 1848, Werner had informed W
Siemens, November 6, 1847, SAA W1075. 3 We
commission had applied for this with the resp
the Commission of December 31, 1847, SAA 4
January 21, 1848, SAA W1158; Siemens, Recoll
mit unterirdischen Leitungen bis jetzt gemacl
telegraph wire to be laid underground with gu
amounted to 31.385 cm. 7 Siemens, On Teleg
Werner wrote incorrectly that he had already
William in December of 1848 for a report in a l
portion was built in the fall of 1847 (see p. 115
Werner was determined to establish, on this l
to William Siemens, November 6, 1847, SAA V
William Siemens, March 11, 1848, SAA W1160
even if there is no proof. The expansion of ele
building officer Bernhard Hausmann, the unc
der Telegraphie im 19. Jahrhundert bis 1866 u
Hanover 1980, pp. 238 f. With regard to Karl H
SAA W1078. 12 Werner himself was aware that
device with no questions asked.” Werner Siem
September 15, 1847, SAA W1073. 14 Werner Si
November 29, 1847, SAA W1076. 15 At first, th
November 6, 1847, SAA W1075. 16 Wessel, Ent
According to Ehrenberg, Unternehmungen, p
competitors. 17 Wichert, Kramer, p. 20, note 2
Gesellschaftsgeschichte der Revolution, Bonn
and officers died in the street fighting. Ibid., p
20 Looking back, Werner wrote: “[... on the 18

Recollections, p. 92. However, the commission was not the only one. With regard to the Revolution of 1848 in Germany, see Jansen/Thomas Mergel (eds.), *Die Revolutionen von 1848 in der europäischen Geschichte* (Munich 2010), pp. 703–758; Heinrich August Winkler, *Geschichte der Deutschen Revolutionen von 1848 in der europäischen Geschichte* (Munich 2010), pp. 570–628. 22 Cf. William Siemens to Fritz Kramer, March 11, 1848, SAA W1160. 23 William Siemens to Fritz Kramer, March 11, 1848, SAA W1168 (with quote). 24 Hachtmann to Fritz Kramer, March 20, 1848, SAA W1090. 26 With regard to the revolution, see Kramer to Fritz Kramer, March 19, 1848, printed in Siemens, *Recollections*, pp. 703–758. 29 Ibid. 30 Werner Siemens, *Die „National-Zeitung“ 1848 bis 1878*, Leipzig 1933 (reprinted by Siemens). 32 In his letter to Wilhelm Druman, Siemens writes that the soldiers had been told that they were Hachtmann, Berlin 1848, p. 180. 475 Notes 33. 34 See *Die deutsche Demokratie*, Heide 2011, pp. 55 ff.; Wilhelm Bruns, *Die deutsche Demokratie* (Munich 1893), p. 212. For a summary of the conflict over the telegraph, see *Im Spannungsfeld zwischen Deutschland und Europa*, pp. 10–11. Subsequent entry on March 26, 1848: Werner Siemens to Fritz Kramer, March 26, 1848, SAA W1163; Rackwitz, *Märzrevolution*, p. 67; Mathilde Himly, *Die deutsche Demokratie* (Munich 1848), SAA F2407. 40 Himly was able to gain the rank of Lieutenant 5. The Minister of War in Berlin granted Lieutenant 5 to Werner Siemens. 41 Poter, *Handwörterbuch der gesamten Militärwissenschaft* (Munich 1893), p. 212. 42 Lundeberg, *Sea Mines in the Defense of Kiel*, pp. 10–11. 43 *Geburtstag von Friedrich Runge*, Bonn 1975, pp. 10–11. 44 Each box which each contained five centners of gunpowder. 45 *Der Dorfschulmeister und seine Familie*, no page number. 49 Ibid., p. 17; Siemens, *Recollections*, p. 107. 50 Werner Siemens to William Siemens], Flensburg, March 11, 1848, that a Danish bullet was cast for me, take care of the telegraph. 51 April 13, 1848, SAA W1163; Wandrey, *Siemens und die deutsche Demokratie*, p. 207. 54 Siemens, *Recollections*, p. 113. 476 Note 33. 55 *Die elektromagnetischen Telegraphen vom 13.6.1848 bis zum 13.6.1848*, pp. 10–11. 56 die Anlage von elektromagnetischen Telegraphen, pp. 10–11. 57 June 13, 1848, to the Ministry of War and the Ministry of Telegraphs]. Cited from the copy of the report of the commission. 58 Kabinettsordre des Königs Friedrich Wilhelm III., *Die deutsche Demokratie* Frankfurt und von Berlin über Köln zur belgischen Grenze, pp. 10–11. 59 construction of electromagnetic telegraphs from Flensburg to Kiel. 60 Telegraph, Appendix 21, p. 218. 59 Werner Siemens, *Die deutsche Demokratie*, pp. 214 ff. 61 For example, during the March 1848, Siemens was cutting of the wire. August Kramer to Fritz Kramer, March 19, 1848, printed in Siemens, *Recollections*, pp. 703–758.

William Siemens, July 25, 1848, SAA W1165; W
Elektroindustrie und Staatsverwaltung am Bei
57; Ehrenberg, Unternehmungen, p. 45. 64 Fr
Academy and the Trade Institute] in Berlin. S
construction inspector and as an assessor wit
<https://www.deutsche-biographie.de/sfz7254>
successor, Prussian telegraphy was first led by
telegraph director. Both only served for a few
William Siemens, August 21, 1848, SAA W1166
paper by the telegraph pioneer Carl August v
technical manager. Head Lieutenant Siemens
Mechanicus Halske, Schönebergerstrasse 19/
Deutschlands nach Besichtigung im April 184
Apparates, in: Abhandlungen der Mathem.-P
p. 801. This report also appeared in: Dingler's
Werner Siemens to William Siemens, August :
Report from Nottebohm to the Prussian Mini
Kramer, pp. 77 f.; Werner Siemens to William
1848, SAA W1170. With regard to the construc
Telegrafienlinie zwischen Berlin und Frankfur
Issue 3, pp. 78 ff. It is clear in Werner's letter th
September 26, 1848, SAA W1168. Cf. also War
Ibid. 74 Werner Siemens to Carl Siemens, Jan
to be laid underground see: Polytechnisches J
W1170; Siemens, Recollections, pp. 88 f. 76 W
Steinheil, Beschreibung, p. 800. For the inten
regulation by the regent Archduke Johann of/
through to Frankfurt am Main. Siemens, Recc
Werner Siemens to William Siemens, March 5
Kramer, p. 86. 81 Waller, Finanzgeschichte, P
William Siemens, July 5, 1847, SAA W1069; Eh
telegraphs to be laid underground with gutta-
"correspondent in Birming- 478 Notes ham" -
weeks earlier from Werner. Werner Siemens to
1849, SAA W1173. 86 Siemens, Recollections, ,
the public at the end of August 1849. Feyerabe
[Baron] von Bunsen, December 13, 1848, quot
Jahrhundert bis zur Reichsgründung, Munich
against Edgar Bauer, a Berlin writer, who belo
letters. For example see: Werner Siemens to V
November 7, 1848, SAA W1169. 92 Wehler, Ges
636 ff. 94 Werner Siemens to William Siemens
einzelnen Stadien seiner Entwicklung und in

akustische Telegraphie und einem Anhang
Siemens, August 4, 1849, SAA W1174. 97 Repo
1850, printed in excerpts in: Wichert, Kramer,
August 4, 1849, SAA W1174. 100 August Krame
clear in a summary by Carl August von Steinh
the Hanover and Brunswick state railroads, ar
p. 88. 103 After graduating from the high-pres
with the Leipzig instrument manufacturer W
gave him an honorary doctorate in 1859. 104 V
Wandrey, Siemens, p. 258. 106 Ibid.; Werner S
Lightning Man. The Accursed Life of Samuel I
compensation in the amount of 400,000 US d
Siemens, Recollections, p. 128; Friehe, "Natio
Carl von Siemens, p. 62. 112 Militrische Lauf
f.; Ehrenberg, Unternehmungen, p. 47; Wand
William had encouraged Werner to have high
made quickly there with a new, efficient teleg
Siemens to William Siemens, December 11, 1
Siemens to William Siemens, September 26, 1
Telegraph Company was founded in 1845 by C
1848, SAA W1170. 121 Erinnerungen von [Mer
William and Friedrich Siemens, August 4, 184
horrible in Breslau."). Between April and Nov
approximately 114,000 residents. Barbara Det
Preuen und Schlesien (Veroffentlichungen d
Siemens to William Siemens, August 27, 1849,
to William Siemens, March 5, 1849, SAA W11
(Karlovitich) von Luders (also spelled "von Lu
He was named General Director of Russian St
<http://www.bbl-digital.de/eintrag/Lueder-%>
with the Russian General Alexander Nikolajev
Benjamin Schenk, Russlands Fahrt in die Mo
stlichen Europa, 82), Stuttgart 2014, pp. 49 f.
William Siemens, April 2, 1850, SAA W1147; E
influential astronomer Adolphe Quetelet, wh
Herten, De verre voorlopers van Belgacom. Va
d'Histoire contemporaine/Belgisch Tijdschri
William Siemens, p. 85. In this contract it was
Britain, which corresponded to the previous p
Siemens to William Siemens, March 5, 1849, p
derived from the Wheatstone device and had
History, p. 73. 134 Werner Siemens to William
Self, and Society in Nineteenth-Century Germ

sur la télégraphie électrique, Berlin 1851. 137 S
Siemens' Lebenserinnerungen als Gelehrtena
Technikgeschichte (Cardanus Jahrbuch für W
to Humboldt's visit: Alexander von Humboldt
received Werner's treatise from du Bois-Reym
August Kramer also vied for this contract. Cf. V
p. 129. 143 Even William was apparently only
the administration crisis in Berlin occurred!?" S
take on another military command. See Wern
Commerce and the Ministry of War over du Vi
1851, SAA W10. 147 Siemens, Darstellung (qu
mit unterirdischen Leitungen bis jetzt gemac
September 28, 1851, p. 155 [Discussion of the
149 Cf. Wandrey, Siemens, p. 267; Wessel, Ent
September 18, 1851, SAA W16. 152 Ibid. 153 Fe
dispatch service in November 1851. For this p
In his memoirs, Werner wrote that Reuter had
This is presumably just a legend, because Reu
founder of Wolffs Telegraphisches Bureau, at t
Reuter) started as a publishing agent in Berlin
between Aachen and Brussels, because there
more rapidly than others between Berlin and
founded the news agency Reuters there. He w
News. The History of Reuters, 2nd edition, Ox
140. On the dates: *ibid.*, p. 155. Feyerabend d
Wandrey, Siemens, pp. 263 f., likely used this
and Telecommunications and subsequently f
had access to sources that no longer exist tod
in the copy], SAA W1256. 482 Notes 157 Tech
Arbeiten, March 22, 1852, GStA PK Rep. 120 Tl
Deputation consulted Nottebohm with regard
in Industrie und Gewerbe, Berlin/Heidelberg
Lutz, Carl von Siemens, pp. 65 f. 161 Werner S
August 10, 1851, SAA W1284; William Siemens
Siemens, pp. 67–69. 163 William Siemens to V
September 18, 1851, Werner wrote to William
SAA W16. 165 Werner Siemens to William Sier
F505. 167 Wandrey, Siemens, p. 274. Location
Laugszargen due to a delay. Chapter 6 "Family
written in English in the original. 2 Cf. on this
Bachelor's thesis for LMU Munich, Ms. Munic
Siemens to Carl Siemens, November 22, 1870,
Familie "Siemens" in Hasserode i. Harz am 28

Carl Siemens, January 2, 1852, SAA W1218. 7 I blessings” of his life. Emil du Bois-Reymond, I content/uploads/2012/11/08_du_bois_reymo October 30, 1848, SAA A57. 9 Siemens, Elektro Siemens to Mathilde Siemens, July 5, 1860, SA Antonie Siemens, August 8, 1871, SAA F713. 11 Leben, Hamburg n. d., p. 14. On this, see pp. 12 Siemens to Carl Siemens, January 21, 1849, SA strikes me as generally advantageous that we and why let others profit from our hard work? A133; Postscript to: Werner Siemens to Carl S Wandrey, Siemens, p. 361. 19 Werner Siemens Siemens, p. 136. 22 In his Recollections, he de some very agreeable and exhilarating days in t Drumann, excerpt from the June 23, 1845, ent September 25, 1845, SAA W8539. In a letter on became a dear sister to me during that cheerle Werner Siemens to Mathilde Drumann, Marc Wilhelm Drumann (1786–1861) completed hi the University of Königsberg starting in 1821. 1959, p. 140 [online edition], URL: [https://www.Geschichte Roms in seinem Uebergange von Zeitgenossen. Nach Geschlechtern und mit g](https://www.GeschichteRoms.de) 30 Werner Siemens to Wilhelm Drumann, Sep F1991. Wilhelm Drumann, the son of a pastor year older than Christian Ferdinand, whose fa 1845, SAA W8539. 33 Werner Siemens to Wilho permission and am now unable to use it for th Werner Siemens to Wilhelm Drumann, Septe same time period in which Werner was laying not take place. 36 Quoted in: *ibid.* 37 Ferdinar SAA W1073. 38 Ferdinand Siemens to Werner 1869, SAA W4868. 40 Ferdinand Siemens to W 1851, SAA F505; Mathilde Drumann to Mrs. O Siemens, July 3, 1851, SAA A1086. 43 This can Drumanns have little wealth other than a few to Mathilde Drumann, August 13, 1852, SAA F romantically, a week before the wedding. Wer Kinship and Class Dynamics in Nineteenth-C Long-Term Development (1300–1900), New Y 49 Mathilde’s maternal grandfather, the Claus her uncle Eduard Mehliß had married Johann another branch of the Siemens family (Sabine

allied family of the Siemens family, cf. Gedig, 485Notes Mathilde. There is no evidence of the death of multiple children. Werner Siemens to p. 228. 51 See pp. 26, 31, 91 and 159 f. 52 Werner Siemens to Mathilde Drumann, June (second quote). 55 Werner Siemens to Mathilde 1852, SAA F1140. 57 Werner Siemens to Mathilde 1852, SAA F1164. This interpretation was also to Mathilde Drumann” on January 11, 1852. S. Ibid. 61 Werner Siemens to William Siemens, Friedrich Siemens to Werner Siemens, May 2 Crome (1821–1883) was a lawyer in Lübeck sta Gericht of the four free cities and later served as shown in a letter that Sophie wrote to Werner and slim, with dark hair and a dark beard, truly Drumann, June 3, 1852, SAA F1718. 65 Friedrich June 20, 1852, SAA F1155. Ferdinand and August 1874, at the age of 56; Ferdinand Deichmann to Siemens, June 12, 1852, SAA F1963. Ferdinand SAA 1.Lc 195; URL: http://www.findagrave.com/Stammbaum/Familie_Siemens, p. 170. Werner Drumann, June 20, 1852, SAA F1155. As the wedding ceremony took place according to the law on SAA F1161; Werner Siemens to Mathilde Drumann 2.Lh 619. 71 Werner Siemens to Mathilde Drumann [Residences/Timeline of Travels and Stays] 18 business purpose, or at least a practical one.” Part 1, p. 14. 74 Marie Siemens to Werner Siemens 3.Li 516; Waller, Finanzgeschichte, Part 1, pp. Magnus, Friedrich Martin Freiherr von, in: Ne high finance. Starting in 1859, it was part of the involved in the founding of the Berlin Handel 1875, the bank had to close down its business. (Kritische Studien zur Geschichtswissenschaft Weltkrieg 1870–1914, in: idem/Gerald D. Feldt Munich 1995, p. 6. 77 The cash payment for the with. Siemens & Halske received 17,000 thaler a four percent mortgage. Waller, Finanzgeschichte Werner Siemens, March 17, 1852, SAA A50. 78 SAA 2.Lh 619. 79 Werner Siemens to Mathilde F1713. 81 Kuno Frankenstein, Materialien zur Johann Pechar, Kohle und Eisen in allen Ländern Vom Mittelalter bis zur Oktoberrevolution, 2n

Joachim Torke (ed.), *Die russischen Zaren* 154
February 4, 1852, SAA F1139. 84 In the General
positions, and nearly 50 percent in the Minister
Reiseberichten aus vier Jahrhunderten. Sigmund
2005, p. 139. 85 Siemens, *Recollections*, p. 179
The German-Russian physicist Moritz Hermann
own devices in the early 1840s. This initial work
wrote afterwards to his bride. 88 Wandrey, Sie
telegraph line to Kronstadt at that time. In reality
commissioned to build a telegraph line between
a private project carried out by the Riga stock
Becker, *Telegraphie und Telephonie*, in: Paul
1852, SAA W1343. 90 Werner Siemens to William
285. On the telegraph line between Riga and
settled in St. Petersburg as a banker and merchant
he was promoted to the rank of baron. 93 Werner
Aureggio see Siemens, *Recollections*, p. 176. 94
Siemens, November 21, 1852, SAA W1347. 95
(with quote). 96 Werner Siemens to William
had married into the Magnus family; his son
Rachel/Johannes Papritz/Paul 488 Notes Wall
1856, Berlin 1934, p. 121; Stefan L. Wolff, *Gustav*
(*Stammbaum der Familie Magnus*) [Family tree]
99 Lutz, *Carl von Siemens*, p. 69. 100 Werner
Siemens, March 17, 1852, SAA A50. 102 William
Ibid., pp. 70 ff. 105 Werner Siemens to Carl
W1335. 107 Werner Siemens to Carl Siemens,
William Siemens, February 8, 1852, SAA F1951
Siemens, November 21, 1852, in: Ehrenberg, *U*
Carl von Siemens, p. 81. On Johann Löffler cf.
Hälfte des 19. Jahrhunderts, Berlin 1990, p. 34.
Briefteil, p. 96. See on this Lutz, *Carl von Siem*
Werner Siemens, *Briefteil*, p. 96. 116 Werner
August 17, 1853, SAA WP Kap-herr. 117 Lutz, *C*
Schlögel/Frithjof Benjamin Schenk/Markus A
York 2007, pp. 130 f. 119 Cf. Werner Siemens to
November 21, 1852, SAA W1347; Lutz, *Carl vo*
Carl von Siemens, pp. 84 f. The statement in
incorrect. 122 Cf. on this inter alia Trevor Roy
Truth behind the Myth, London 2004; Winfried
Pyta/Martin Windisch (eds.), *Der Krim-* 489
Carl wrote on January 16, 1854, to Werner: "In
Siemens." Quoted in: Lutz, *Carl von Siemens*.

Ehrenberg, *Unternehmungen*, pp. 76 ff.; Lutz Petersburg and Warsaw was around 1,100 vers W32. On dates: Werner von Siemens, Wohnn 128 The contract was finalized on September 129 Carl Siemens to Werner Siemens, September November 8, 1854, in: Ehrenberg, *Unternehmungen*, pp. 88 ff. 131 One can only ascertain from a letter their work on a section of the line. 132 Siemens Lutz, Carl von Siemens, pp. 94 ff.; Waller, *Finanz* control galvanoscope, which Werner later referred to as Halske (1855 and 1865), in: idem, *Scientific & Technical* Siemens, February 16, 1857, SAA W1994. 137 K months after it was completed, for example. V Siemens, April 20, 1854, SAA W29. 139 Werner Siemens November 22, 1854, SAA W1865; William Meyer 1854, in: Matschoss (ed.), *Werner Siemens, Biographie* *Unternehmungen*, p. 128. The German press which was intended for Chile, on the instructions of 1855, SAA 2.Lh 380, printed in: Weiher, *Siemens* Co. in November of 1854, presumably both copies. *Recollections*, pp. 186 f. 145 Ibid., p. 188. 146 I Reich vor 1914, in: Dittmar Dahlmann/Carmichael *Unternehmen und Unternehmer im Russisch* generated by business in Russia from 1851 to 1854 at approximately 97,000 thalers (19 percent of *Unternehmungen*, pp. 92 and 506, are too high to approximately one thaler. 148 Ehrenberg, *Unternehmungen* [Siemens business], May 25, 1966, SAA 27455. 149 nephew, was baptized in 1856. Auszug aus dem Protokoll of the Lutheran St. Petrichurch in Lübeck, Yearbook Construction and Repair of the Telegraph Line to Werner Siemens, January 28, 1855, SAA 3.Lh W2229; Ehrenberg, *Unternehmungen*, pp. 89-90. Ehrenberg, *Unternehmungen*, p. 87; Werner Siemens Halske as an accountant and commercial commissioner authorized representative from 1882 until 1890. Part 1, p. 20. 157 See p. 167. 491 Notes 158 This Mathilde Drumann, August 8, 1853, SAA F116; the total equity (50,000 thalers) that matched the debt though never fully paid. 161 Today, Ahlsdorf is a village estate there in October of 1858 for 83,000 thalers. Nonnendorf, which was further north. 162 Werner Siemens to William Siemens, November 21, 1854.

Werner Siemens to Carl Siemens, March 30, 1854. 50 Werner Siemens to Wilhelm Drumann, January 6, 1858, SAA F1896. 51 Werner Siemens, "Über die Frage, ob die Linie von Pula nach Ragusa eine Unterwasserleitung sein soll," in: *History of the Near Eastern Telegraphs before 1865*, SAA W1934. 53 Julia Kleindienst, Siemens in Č. Kramer, p. 92. 55 August Kramer withdrew from the project, November 12, 1856, SAA F1272. 57 William McEwen (ed.), Werner Siemens, pp. 50 f.; Biografie Carl Siemens, entgegengesetzten Richtungen, in: *Polytechnische Zeitschrift*, Machines for the Production of Continuous Induction Currents, pp. 114 ff.; Matschoss (ed.), Werner Siemens, *Die Geschichte der Elektrotechnik*, 5), Berlin 1941, pp. 113 f. 60 Werner Siemens-Museum, SAA; Doppel-T-Anker, in: *Siemens-Museum*, Siemens (May 13 to 22, 1856), SAA W2317. 63 Werner Siemens, *Vorlesung über die Induktion von Induced Currents of Alternate Direction* (1856), Vorträge von Werner von Siemens. 64 Cf. Werner Siemens and Gordon in a letter to Werner on November 5, 1854, and a two-way device on November 8, 1854 in London, SAA W1865. 67 Werner Siemens, Siemens, May 5, 1855, SAA A291. 68 Weiher, Siemens, Werner Siemens to William Siemens, April 29, 1855, May 6, 1855. Weiher, Siemens-Werke, p. 29. 72 *Compagnie du télégraphe électrique sous-marin* (later the Telegraph Company) cf. Ahvenainen, *History of the Siemens*, Siemens, July 26, 1857, SAA W2001. 75 Werner Siemens, *Recollections*, pp. 201 f. For dates: Werner Siemens, 1892, SAA 2.Li 772. 76 Siemens, *Recollections*, "in the Mediterranean" appeared in Fraser's *Maritime History of the Atlantic Cable & Undersea Cables*, URL: <http://atlantic-cable.com>. 77 Mathilde Siemens, September 13, 1857, SAA F1272. 78 Werner Siemens, September 26/28, 1857 on pp. 202–209). 81 Werner Siemens presentation on this, together with William Siemens, *Untersuchung submariner Telegraphenleitungen*, Berlin 1874, pp. 795–825. 82 Ahvenainen, *History of the Unternehmungen*, p. 131. Ludwig Löffler (1832–1892) in February 1857. Weiher, Siemens-Werke, pp. 202–209. 83 Werner Siemens to Chios and Crete as well as a submarine cable from Alexandria. Pole, William Siemens, p. 117; *Werner Siemens Organisation* (1957/58), p. 6, SAA 12.Lm 910. 84 Werner Siemens, *the History of Industry*, London 1958, p. 31; Werner Siemens, capital. The founding document of Siemens, ...

Unternehmungen, p. 136. On Ludwig Löffler: Ahvenainen, History, pp. 50–57. Cf. on this also [2017]. 89 Werner Siemens to Mathilde Siemens Unternehmungen, p. 138; Fürst, Siemens, p. 92 In his memoirs, whose colorful depictions of the desert wind and carried out experiments with Egyptian guides, who suspected him of carrying Unternehmungen, p. 138; Siemens, Recollections of Telecommunications and International Politics, <http://www.cyrusfield.com/Cables/1859Suez> Southeast Asia in: Thomas Constable, Memoirs, May 13, 2016]. Cf. also Charles Jeurgens, Networks of the Dutch Empire. Agents, Networks and Institutions on this expedition, SAA W9326. 97 William Siemens March 28, 1861, SAA W118; Ehrenberg, Unternehmungen, p. 54. 100 Werner Siemens Unternehmungen, pp. 143 ff. 102 Ibid., pp. 158 Werner on April 24, 1861, in: ibid., p. 158. 103 Werner 1861, in: Ehrenberg, Unternehmungen, p. 159 May 8, 1861, SAA W2692. 106 Ehrenberg, Unternehmungen Cape Town and Delagoa Bay (Maputo Bay), in: engineers who participated. Ibid., p. 164; Dirks 307. 109 Ibid. 110 Werner Siemens to Carl Siemens 1851, in: ibid. 111 Friedrich Crome to William Siemens, March 24, 1859, quoted in: I German from Hanover, whose sister was married to the family than William and Werner (“the Werner was their great-great-grandfather Hans Henni German National Assembly in 1848/49 at the time he married Alma Müller on June 29, 1855, and Ferdinand this time, Hans still owned a distillery in Wolke [Registration cards of] Hans Siemens, SAA 2.1. The device brings him ample income; he is very happy (1829–1906) was the son of Mathilde’s uncle, I machine construction company Wöhlert and Berlin. It cannot be determined why he wrote to the capital involvement in the glassworks in with the name of “Siemens & Mehlis” in Berlin Siemens, January 10, 1862, SAA W2859. 119 The Drumann’s death they were recorded as creditors a loan of 2,000 thalers was added. Ferdinand Siemens to Carl Siemens, January 6, 1858, SAA Ehrenberg, Unternehmungen, p. 415. On the

Crome to William Siemens, May 16, 1863, SAA W71. 122 Siemens & Halske had already been introduced December 2, 1858, SAA W71. 122 Walter Siemens 1860, SAA W130. On business in the Caucasus Drumann, November 13, 1858, SAA F505. 124 Siemens to Wilhelm Drumann, August 18, 1858 Werner Siemens to Mathilde Siemens, August Siemens to Wilhelm Drumann, August 18, 1858 pp. 169 f. 130 Werner Siemens to Mathilde Siemens. O. Rave/J. Wirth, Die Bauwerke und Kunst der Grundstück in Charlottenburg. Ein Beitrag zur 1956, pp. 111 f. 131 Werner Siemens to Mathilde Siemens F501. 133 Werner Siemens to Mathilde Siemens Werner Siemens to William Siemens, September Mathilde Siemens, July 24, 1861, SAA F1410. 1 Werner announced that the move would be on 191. According to personnel documents in the Grundstück, p. 114. The house in Charlottenk of] Werner Siemens, SAA 2.Lh 619. 140 Werner education: Werner Siemens to Mathilde Siemens Städtisches Gymnasium and renamed in 1856 Werner Siemens to Mathilde Siemens, March Holzminden forest superintendant Franz Gec and thus Werner's cousin. Werner Siemens to Siemens, p. 152; Kirchenbuch G III 1: 128/646 St. Magni, List of births and christenings in the Siemens, June 10, 1863, SAA F1435. Entwurf ei G. Röhl, Wilhelm II. Die Jugend des Kaisers 18 SAA F270. 147 In late January 1865, Werner sti W4269. 148 Werner Siemens to Carl Siemens, A1287. 150 Werner Siemens to William Siemens governess and nanny in London. She later lived Agnes von Bohlen also worked as a translator SAA A1036; Agnes von Bohlen to Werner Siemens Erziehung, Berlin 1866. Chapter 8 "Headed for 172. 2 Werner von Siemens, Wohnorte/Reise-Recollections, p. 273. 3 Siemens, Recollection Party" before this. Alfred Heuss, Theodor Mom German Progress Party, cf. Heinrich August W Deutschen Fortschrittspartei 1861–1866, Tübingen Fortschrittspartei in Preußen 1861–1867, in: G February 1, 1861, SAA W2597. 6 Werner Siemens Gesellschaftsgeschichte, Vol. 3: Von der "Deu

280. 8 Werner Siemens to Carl Siemens, April of a draft paper by Werner von Siemens (polit Strohn 81. Werner Siemens to Carl Siemens, 1 274 f.; Heinz Sarkowski, Der Springer-Verlag. 3 to William Siemens, March 7, 1863, SAA W182 Siemens, September 21, 1863, SAA W194. Cf. 1 in: Matschoss (ed.), Werner Siemens, Briefteil Thuringian states, and Oldenburg had agreed Cornelius Torp, Die Herausforderung der Glob Geschichtswissenschaft, 168), Göttingen 2005 1870–1920 (Schriftenreihe zur Zeitschrift für U 1863, SAA 2.Lh 602. Werner received 457 out o 1866 [Historical notes, Werner von Siemens ir sessions of the House of Deputies; on May 19, trade agreements with Belgium and Great Brit Siemens to Werner Siemens, April 25, 1863, qu 2.Lh 602. 23 Cf. on this, e. g., Wehler, Gesellsc W4224. 25 Werner Siemens to Carl Siemens, A Werner Siemens to William Siemens, July 2, 1 fighting on the side of Prussia in this war, and Werner Siemens to Carl Siemens, April 14, 1866 to William Siemens, September 25, 1866, SAA 299 ff. and 339 ff.; Winkler, Preußischer Liberal Abgeordnetenhaus 1862–1866, SAA 2.Lh 602. W5623 and W467. 36 Werner Siemens to William 3.8.1870 in der Aula der Königlichen Friedrich Warships by Dirigible Torpedoes (1870), in: id 1870, SAA W5623. 40 Werner Siemens to Carl 9 W878. The sickness that he suffered from is ur on January 15, 1868 to a letter on January 14, 1 rheumatism.” Werner Siemens to Carl Sieme November 3, 1865, SAA F401. 46 Werner Sieme 1871, SAA WP Willert. 48 Röhl, Wilhelm II., pp Mathilde Siemens [presumably 1856], SAA F2 Siemens to William Siemens, March 21, 1868 beruflichen Leben von Wilhelm von Siemens Himly to Werner Siemens, September 14, 186 Siemens, undated [presumably August 14, 186 Siemens to William Siemens, August 11, 1866, Siemens to William Siemens, August 11, 1866, Anne, Carl, Marie, and Walter’s visit to Berlin Mathilde Himly to Werner Siemens, Septemb William had already suggested this problem to

Siemens, January 4, 1867, SAA 2.Li 30. 65 Agne
together. *Amts-Blatt für den Regierungsbezirk*
SAA 2.Li 498. 67 Sophie Wolff to Werner Siemens,
August 5, 1887. At that time she lived in Ilsenk
at the *Königliche Land- und Forstwirtschaftliche*
he was elevated to the (non-hereditary) nobilit
that was different from William's und Werner's
was their great-grandfather. 69 Adolf Siemens
major general. On his early inventions, cf. p. 6
Siemens [Material for an article on Antonie Si
Otilie Siemens to Antonie Siemens, March 2'
to Antonie Siemens, April 22, 1869, SAA F2261
Hochschule Hohenheim, Yr. 1964, pp. 47 f. 76
October, 1869, Werner's children lived with th
Willert. 77 Werner Siemens to Marie Siemens,
Werner Siemens to Antonie Siemens, June 5,]
to Werner Siemens, May 25, 1869, SAA 6.Ls 34
Kalendernotizen [calendar notes], SAA WP W
Antonie geb. Siemens [Inheritance contract c
SAA 2. Lk 534. 85 Siemens, *Recollections*, p. 3.
Siemens, *Recollections*, p. 351. 87 Ehrenberg,
engineer at Siemens & Halske, Werner had as
permanent magnets already in the stretch of '
www.deutsches-museum.de/sammlungen/meisterwerke/mei
the *Dynamo-Electric Principle*, Copenhagen
Kant, *Gesellschaft*, p. 9, note 38; Siemens, *Rec*
352 ff.; Mahr, *Entstehung*, pp. 129–149; Carl K
die *Entstehung der Dynamomaschine*, in: *De*
Elektrotechnik, pp. 89–95; Ferdinand Trendel
Einzel Darstellungen, Vol. 31), Düsseldorf 1975
pp. 117–122; Wengenroth, *Elektroenergie*, pp.
57–61; <http://www.deutsches-museum.de/s>
Werner Siemens, *On the Conversion of Mech*
& *Technical Papers*, Vol. 2, pp. 255–258 (quoto
der Wissenschaften zu Berlin, January 1867, B
Siemens to William Siemens, May 28, 1867, S/
Siemens, *Briefteil*, p. 260. On Wilde's electron
discoveries of the electro-dynamic principle i
Multinational Enterprise and International Fi
142 f. 504 Notes 98 Werner Siemens, *On the H*
497. 99 Cf. on this Mahr, *Entstehung*, pp. 131
dynamo machine. Out of exasperation with th
decade in Prussia. Cf. on this p. 312. 100 Wern

practical implementation.”)101 Werner Siemens
325. 102 Siemens, *Recollections*, p. 354. 103 W
pp. 116 ff. 105 Friedrich von Hefner-Alteneck (a
mechanic’s workshop. His father was professor
Alteneck’s biography, cf. Friedrich Heintzenberg
Issue 2), Munich 1951; Lothar Schoen, *Friedrich
Techniker*, Berlin 1990, pp. 227–247. 106 Kock
Prussian Telegraph Director Franz von Chauv
director there in 1887. SAA 13.Lt 123. 109 Werner
Unternehmensverwaltung, p. 140. 110 Oskar
PhD in 1868, after which he led the Eidgenöss
meteorology at the Academy of Agriculture in
1902. During this time, he worked in almost a
112 Cf. Paul Erker, *Die Verwissenschaftlichung
Elektrokonzernen 1890–1930*, in: *Zeitschrift für
to William Siemens, August 10, 1868, SAA W6
pp. 239 ff. 115 Werner Siemens to Carl Siemer
W2663; Werner Siemens to Carl Siemens, Apr
Weiher, *Siemens-Werke*, pp. 55 f. 118 Werner
1861, SAA W2666. 120 Werner Siemens to Carl
quoted in: Ehrenberg, *Unternehmungen*, p. 1
August 31, 1863, SAA W4173. 125 Cf. Ehrenberg
for an overview of this Roland Wenzlhuemer,
Werner Siemens to Carl Siemens, November 4
Unternehmungen, pp. 369–374; Lutz, *Carl von
Ehrenberg, Unternehmungen*, pp. 377 f. On the
Caucasus, see pp. 258, 274 f. and 421. 133 Weil
W4088. 136 Weiher, *Siemens-Werke*, p. 59. Ac
of the cable manufacturing plant to make the
Werner Siemens to William Siemens, July 8, 1
to Carl Siemens, August 31, 1863, SAA W4173.
detailed description of the cable expeditions l
Unternehmungen, pp. 164–171. 143 Siemens,
February 15, 1864, SAA A56; Siemens, *Recolle
Siemens-Werke*, p. 62. 506 Notes 147 Werner S
February 27, 1866, SAA W 6028; Ehrenberg, *Un
February 27, 1866, SAA W6028. 149 Werner Sie
September 21, 1863, SAA W194. 151 Werner Si
the fact that Halske was not related, as Sabear
SAA W6028. 154 William Siemens to Werner S
W6028. 156 Mathilde Siemens to Wilhelm Dru
among others pp. 76 ff. 158 Werner Siemens to
November 12, 1860, SAA W141. On Werner’s fi**

356. 161 Ehrenberg, *Unternehmungen*, p. 158
Hauses Siemens [Staff and sales of the Siemer
W4208. 165 Cf. Niall Ferguson, *The House of F*
f. 167 Ibid., pp. 147 f. 168 On the different sugg
Shareholder agreement on August 24, 1867, S/
Carl complained of this in a letter to Werner o
and “total interests”, respectively. 173 Werner
Weiher, *Siemens-Werke*, p. 77. 176 Blocher, H
German Progress Party and continued to be a
Siemens AG was founded in 1966. 507Notes C
April 29, 1856, SAA W2315. 3 Weiher, *Siemens*
Unity. *Siemens’s Early Business in India, 1847*
Entrepreneurship, Governance and Pathways
Matschoss (ed.), *Werner Siemens, Briefteil*, p.
telegraph connection via Budapest had existe
sought out from a series of British and Germa
the cable. Ibid., pp. 71 f.; *Museum für Kommu*
p. 21. 7 Andre Karbelaschwili, *Die Brüder Sien*
Finanzkapital der Firma Siemens und Halske
Special Series, No. G-12/Arbeitspapiere des D
Siemens to Werner Siemens, February 29, 186
Headrick, *Invisible Weapon*, p. 21. 11 Headric
13 William Siemens to Carl Siemens, Septeml
Chapter 5, pp. 138 and 168. 15 Ahvenainen, H
Unternehmungen, pp. 179–189. 18 Ahvenain
Siemens, January 14, 1868, SAA W635. 20 Wern
April 5, 1867, SAA W4308. 22 Werner Siemens
Werner Siemens, September 30, 1867, SAA W4
a submarine cable to India, but was unable to
Late Sir Charles Tilston Bright, *Civil Engineer*
cable.com/Cables/1870BritishIndian/index.h
0066. 26 Georg Siemens to Johann Georg Sier
entire German correspondence of this compa
factors for the firm [...].”). 27 Werner Siemens
father’s notary and lawyer at the Obertribunal
Ahvenainen, *History*, pp. 136–139. In Englan
Confederation, the shares could be subscrib
Gossler & Co. (Hamburg) and H. H. Meyer & C
Telegraph Company (Limited.), in: Weiher, S
Proxies, SAA 8845. 31 Ahvenainen, *History*, pp
d., p. 24. 33 Sophie Wolff to Gustav Willert, Ap
(1847–1928), or “Ali” as he was commonly call
connection between his father and the Gordo

Carl von Siemens, pp. 164 f. 38 Werner took the risk to be prevented by attacks of fever, riding along in the rain. 39 Lutz, Carl von Siemens, p. 167. 40 Otto Siemens to Werner Siemens to William Siemens, March 1870, SAA W870; Siemens, Briefteil, p. 228; Otto Siemens to Werner Siemens, February 1870, SAA W870; Otto Siemens to William Siemens, February 1870, SAA W870; Siemens, Werke, p. 73. 44 Ehrenberg, Unternehmungen, pp. 23–24. 45 Siemens. Jugend, Lehr- und Wanderjahre, Berlin 1906, p. 10. 46 Siemens to be Telegraph Minister and had given him a letter of introduction to Siemens, p. 153. 47 Schaal, Ernst Höltzer, pp. 225–226. 49 Georg Siemens to Gebr. Siemens, March 1870, SAA W457. 50 Ehrenberg, Unternehmungen, pp. 23–24. 51 Siemens, SAA W457. 52 Ahvenainen, History, p. 157. 53 Beauchamps, History of Telegraphy, London 1975, p. 76. <http://atlantic-cable.com/Cables/1870British>. 54 Siemens, London 1975, p. 76. 56 Werner Siemens to Carl von Siemens, Unternehmungen, pp. 263 f. 59 Museum für Kunst und Geschichte, Director of Kaiserlich Deutsche Reichstelegraphen, 1871, Stellvertreter des Reichskanzlers [Approval of Siemens' project], 76. 62 Jürgen Osterhammel, Die Verwandlung der Welt, The Age of Capital, p. 76. 64 Headrick, Invisible World, London 1989, British Empire 1865–1945, in: Jørgen Sevaldse, The World in the 20th Centuries, Aarhus 2003, pp. 202–208. 66 Völklinger, 68 Osterhammel, Verwandlung, p. 1026; Hobsbawm, The Age of Empire, to Werner Siemens, December 17, 1872, SAA W4444. 69 Siemens to Werner Siemens, June 16/28, 1870, SAA W4444. Annet Swjatopolk-Mirski. Stammbaum Familie Siemens, 1871, SAA W399. Before the visit to London, the couple had written Kalendernotizen [Calendar notes], SAA WP W4444. 70 Siemens, August 14, 1871, SAA W389. 77 Carl Siemens to Werner Siemens, October 14, 1871, FA 0116. 79 Carl Siemens to Werner Siemens, 1871, SAA W416. 81 Stammbaum Familie Siemens, 1871, Otto Siemens, September 2, 1871, SAA W392. 82 Siemens at this time, cf. Gustav Kölle, Aus der Geschichte einer Familie, Siemens 1900–1906, in: Tradition, Yr. 10 (1965), pp. 355 f. and 441; Stammbaum Familie Siemens, this Ehrenberg, Unternehmungen, pp. 342–343. 83 Werner Siemens to William Siemens, March 1870, SAA W870 (quote). On calculation and financing: *ibid.* 91 Siemens to Werner Siemens, April 15, 1872, SAA W496. 93 Werner Siemens to Carl von Siemens, thalers for the mine complex. It is not clear whether the mine was built in 1872 in this region. 94 Carl Siemens to William Siemens, Sabean, Families, p. 242 (where the quote is e

F137. 97 On the subscribers for the founding of the Siemens & Halske Company, see [Ausgewählte Dokumente zur Geschichte der Siemens & Halske AG] (1987), pp. 35–55; Gall, Deutsche Bank, p. 12. Adelbert Delbrück, March 22, 1870, Historical Siemens, Vol. 1, pp. 220–225; Reitmayer, Bank W239. 103 A corresponding announcement in Siemens-Werke, p. 84. 105 Ibid., pp. 86 f. 106 C. Unternehmungen [Chapter from the manuscript Ms. n. d., p. 71 (SAA 38/8/2)]. 108 Carl Siemens to Antonie Siemens, September 21, 1872, SAA W1524. 110 Helfferich, Siemens-Werke, pp. 78 and 86. 113 Ibid., p. 76; Weiher, Siemens-Werke, Vol. 2, p. 19. 117 Ibid. Helfferich cites Herman Siemens' archive of the Siemens family foundation. 118 See also, for example, this inter alia Werner Plumpe, Wirtschaftskrisen und Gründerzeit (Schriftenreihe des Instituts für Betriebswirtschaftslehre, 1873, SAA F148). 122 Werner Siemens to Georg Siemens, July 9, 1873, SAA W1524. 124 Werner Siemens to Georg Siemens, July 9, 1873, SAA W1524. In his Recollections, Werner wrote that he had a family in Ireland, from the beginning. This is not supported by the archival sources (SAA 367; Werner von Siemens, Wohnorte/Reise-Adressen, SAA W1524). 125 Siemens to Antonie Siemens, June 30, 1874, SAA W1524. 126 Siemens to Antonie Siemens, 1873. On November 27, there was also a unanimous vote of this type in the plenary session of the Siemens & Halske Company, considering the fact that he knew very few of the shareholders (Werner Siemens, Briefteil, p. 118, as well as in the Preußische Akademie der Wissenschaften, SAA W1524). 127 Weg zur Deutschen Akademie der Technikwissenschaften (Schriftenreihe der Archiv der Berlin-Brandenburgischen Akademie der Wissenschaften, Best. PAW 1812–1945; II-V, 118, sheet 248). 130 Siemens in die Preussische Akademie, URL <http://leibniz-nachrichten.de/>. 131 Werner Siemens to Emil du Bois-Reymond, July 9, 1873, SAA W1524, p. 87. 132 Werner Siemens to Antonie Siemens, July 9, 1873, SAA W1524. 133 Siemens to Werner Siemens, September 6, 1873, SAA W1524. 134 Siemens to William Siemens, December 22, 1873, SAA W1524, pp. 115–119 (quote on p. 119). Excuse me, p. 120; Weiher, Siemens-Werke, p. 104. 142 Carl Siemens in Pole, William Siemens, pp. 210–222, and Friedrich Siemens, SAA 513Notes 145 Jacobsen, Great Northern Telegraph Company, this also Siemens, Recollections, pp. 373 f. 146 Siemens vor dem Ersten Weltkrieg, in: Hans-Jürgen Teichmann, Telekommunikation (Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte, 1973, SAA W1524). 147 William Siemens, July 13, 1881, SAA W7903. 148 Siemens, Foreign Investment in the United States to 19

W7829. 153 Cf. on this pp. 295 and 376. 154 Kr market, cf. also Wolfram Eitel, *Die historische SAA 12.Lm 910*. 155 Werner Siemens to William 68, Siemens Brothers had a pure profit of 40,000 von Siemens, p. 179. 158 Calculated according to Siemens [Staff and sales of the Siemens business] pp. 62 f. 162 Carl Siemens to Werner Siemens pp. 110 f. 165 Carl Siemens to Werner Siemens [the Siemens business], May 25, 1966, SAA 274 W6549. 168 Gesellschaftsvertrag vom 28.12.1881 Siemens-Werke, pp. 201– 204 (Appendix No. 9) Werner Hermann was also among the shareholders eight shareholders, of which Werner Hermann Part 3: 1881–1897, Ms. n. d., p. 36. 169 Gesellschaft 21.Li 53; Weiher, *Siemens-Werke*, p. 112; Wolf Organisation (1957/58), p. 6, SAA 12.Lm 910. 17 shares were distributed among the shareholders Alexander 24. Waller, *Finanzgeschichte*, Part Hermann 10. 172 Biografische Daten Arnold v Wilhelm von Siemens, in: idem/Lothar Schoe 13–58, here p. 17; Daten aus dem beruflichen Chapter 10 At the zenith 1 Siemens, *Recollections* would inquire with the relevant merchants' as possible that the Berlin Merchants' Association Recollections, p. 385. 3 Cf. on this Federhofer that Werner wanted to separate himself from Nichtgesagten öffnen ...". Anmerkungen zu e Technikgeschichte, Opladen 1998, p. 114. 5 H a physiology professor, first in Berlin and then Physiker, in: *Die Naturwissenschaften*, Yr. 4, I Uebergang aus dem philosophischen in das n Wilhelms-Universität zu Berlin, Berlin 1893, p http://leibnizsozietat.de/wp-content/uploads/515Notes_tions, p. 376 ("As my friend Du Bois-degree to science than to practice."). 9 Sieme Joseph A. Schumpeter, *Theorie der wirtschaft March 16, 1883, SAA W8052*. 12 Werner Sieme Siemens, May 26, 1865, SAA W4281. 14 Werner this tiresome speculation could be our ruin!") der AEG, in: *Tradition*, Yr. 17 (1972), Issue 3/4, Firma [Profits from the Berlin company] 1850 equivalencies in: Deutsche Bundesbank, *Kauf Währungen*, as of January 15, 2015. URL:

geldbeträge.html [last accessed March 14, 2015].

William Siemens, March 3, 1879, SAA W7772.

1896, SAA 14.Lh 622. 20 Werner Siemens to Werner Siemens, 1896, SAA 14.Lh 622. 20 Unternehmensverwaltung, p. 233. 23 Of Schumpeter's definition of an entrepreneur as "owner." Schumpeter described this type as an entrepreneur who is "interested in the company and having love for the company." Joseph A. Schumpeter, *The Theory of Economic Development*, 4th edition, Jena 1919.

24 The pioneering businessman, did not correspond to the definition of an entrepreneur as used in focused companies made do without commercial banks. 25 Werner Siemens to Carl Siemens, 1875, SAA W1525. 26 Bosch, which was founded in 1886 and did not correspond to the definition of an entrepreneur as used in Global Enterprise, Munich 2015, p. 64. 516 No entrepreneur as defined by Schumpeter. 27 Werner Siemens invented a two-way telegraph in 1856, almost 10 years before Samuel Morse. 28 Werner Siemens to Werner Siemens, 1875, SAA W1525. 29 Meyer's, and after Meyer's death, joined Siemens. 30 Werner Siemens to Werner Siemens, 1875, SAA W1525. Ibid., pp. 68 f. According to this source, the wages of workers in the 1870s, skilled piecework employees earned as much as unskilled workers. 31 Werner Siemens to Werner Siemens, 1875, SAA W1525. Arbeiterbewegung. Zur sozialen Basis von Gewerkschaften (Munich: C. H. Beck, 1980), p. 43. 32 Werner Siemens to Werner Siemens, 1875, SAA W1525. Ibid., pp. 68 f. 29 Werner Siemens to Carl Siemens, 1875, SAA W1525. 30 Arbeitnehmer bei Siemens (1847–1945) (Zeitschrift für Sozialgeschichte der Technik, 1978), pp. 21–34. 32 Werner Siemens to Werner Siemens, 1875, SAA W1525. Munich 1932, pp. 28 ff. 33 Burhenne, Siemens und die Arbeiterbewegung. Socialpolitik von 1872–1890. Studien zum Kapitalismus (Munich: C. H. Beck, 1980), p. 43. SAA W1525. 36 Negotiations of the Eisenach Agreement. 37 Werner Siemens to William Siemens, October 2, 1872, SAA W1525. 38 Kastl/Lyndon Moore, Wily welfare capitalist: The Siemens family, pp. 71–86. 40 Conrad, Erfolgsbeteiligung, p. 99. 41 Werner Siemens to Geh. Kommerzienrat [Privy Commissioner], 1875, SAA W1525. Stülpnagel, November 19, 1875, in: Matschoski, Familienunternehmen, in: Rüdiger Hohls/Iris Schwanitz, Die Siemens-Familie in der europäischen Geschichte, Stuttgart 2005, pp. 10–11. 42 Werner Siemens to Werner Siemens, 1875, SAA W1525. Modernisierung, pp. 44 f. 48 Werner Siemens to Werner Siemens, 1875, SAA W1525. Kastl/Moore, Wily welfare capitalist, p. 334. 516 No entrepreneur as defined by Schumpeter. 517 On a October 14, 1815, publication, which was the first to mention the word "patent." 518 Erfindungsschutz und Industrialisierung in Preußen (Munich: C. H. Beck, 1980), pp. 10–11. 519 Erfindungsschutz und Industrialisierung in Preußen und wirtschaftsgeschichtliche Bedeutung, in: Wirtschafts- und Sozialgeschichte, 11), Frankfurt 1980, pp. 10–11. 520 ausländische Gesetzgebung zum Schutze gewerblicher Erfindungen (Munich: C. H. Beck, 1855), p. 2. Cf. on this also: Reimer, Die Geschichte des Patent- und Gebrauchsmusterschutzes in Deutschland (Munich: C. H. Beck, 1875), Werner wrote to the editors of the National Zeitung, Werner Siemens, p. 14. It is, in fact, the first time that the word "patent" is used in German. 521 Patente und Vorträge von Werner von Siemens (Munich: C. H. Beck, 1875), p. 14. 522 idem, Scientific & Technical Papers, Vol. 2, pp. 1–2.

Siemens, pp. 22 ff. (quote on p. 22). Cf. also H
Gesetz. Denkschrift der Aeltesten der Kaufma
Arbeiten, Herrn Grafen von Itzenplitz, Berlin
193). 61 Fischer, Werner Siemens, pp. 31 f. 62
January 18, 1869, SAA W5850. 64 William was
despite his own better knowledge, that he wo
Siemens, pp. 46 ff.; Übler, Schutzwürdigkeit, J
Margrit Seckelmann, Industrialisierung, Inter
167; Karl Theodor Kraemer, Die Vergütung voi
ferdenda. Law Dissertation, Frankfurt am Mai
The chairman took part in the vote, even thoi
voting rights through “collective votes.” Hegg
Heggen, Erfindungsschutz, pp. 118 f. 69 Wern
577. 71 Ibid., p. 582. Cf. on this and for elabora
Gesellschaftsgeschichte, Vol. 3, pp. 552–567. 7
connection between the economic crisis and
74 Patentgesetz (Patent Law). May 25, 1877. E
f.), cf. on this Heggen, Erfindungsschutz, pp.
Reuleaux, Briefe aus Philadelphia, Brunswick
submitted on April 8, 1876, it is certain that W
Technik in Deutschland. Vom 18. Jahrhunder
Sebastian Remberger, “Billig und schlecht”. F
pp. 42–45; Hans Joachim Braun/Wolfhard We
Rürup (ed.), Wissenschaft und Gesellschaft, B
Werner Siemens to Franz Reuleaux, Septemb
Werner Siemens als Politiker und Publizist, p.
protectionist policies, see Wehler, Gesellscha
des Deutschen Reichstags betr. den Entwurf e
Entwurfes eines Patentgesetzes nach den Bes
the Draft of a Patent Law. Rapporteur Rep. Dr
commission), Berlin 1877. On Hammacher’s
together with Hammacher to the Caucasus in
between Bismarck and the princess, whom I l
in East Asia as a stopover ship. Werner had ap
French navy. The S. M. S. Hertha was, in fact,
discover until after the baptism that the crew
1870, SAA W5641. On the S. M. S. Hertha, cf. M
Morrisville 2008, p. 36. 87 Auguste Weyrowitz
Käthe, Gustav Willert also taught at this schoo
Berlin/Heidelberg 1905, pp. 359 and 526; Piets
Politisches aus mehr als 80 Jahren 1878–1962,
der Elektrifizierung, Berlin 2008, p. 70. 88 Wern
After Ferdinand’s second daughter, Elly, was k

bravely in Hans's footsteps and has another g
1861, SAA W2801. 89 Werner Siemens to Carl S
(November 1953), SAA 68, NL F. Heintzenberg
Wandel 1847–2005. Zehn Portraits, Munich 20
Lucae's honor and is intended to inaugurate t
60.Lc 1. 520 Notes 91 Werner Siemens to Anto
f. Theodor Mommsen (1817–1903) studied law
three years later for political reasons. After pr
Academy of Sciences and was appointed prof
his principal work on Roman history, entitlec
fire caused serious damage in the historian's h
SAA A775; Werner Siemens to Antonie Sieme
Kreise der Seinen, 2nd edition, Berlin 1937, pp
school. Ibid. 96 Werner von Siemens, Wohnor
There is evidence of summer vacations in Wes
likely also spent this vacation in Westerland. S
Weg vom Historismus zur Moderne. Stuttgart
1864, SAA F1722. 99 Cf. on this Marina Moskv
Siemens im 19. Jahrhundert, Bachelor's thesi
Wilhelm von Siemens, p. 17. 101 Quoted in: C
Willert. 102 Ibid. 103 Werner Siemens, Entwur
Willert. At the end of his life, Gustav Willert liv
Siemens, November 3, 1897, SAA F2273. 104 G
Siemens. Ein Lebensbild. Gedenkblätter zum
aus dem beruflichen Leben von Wilhelm von
to Wilhelm Siemens (son), March 24, 1873, SA
Wilhelm Siemens (son) to Werner Siemens, J
death, his father had married Mimi Denzel, th
for Arnold von Siemens], SAA 4.Lr 549; Moskv
quote); Werner Siemens to Antonie Siemens,
F633; Werner von Siemens, Wohnorte/Reise-
heads of this boarding school for young girls v
Pataky, Lexikon deutscher Frauen der Feder. V
Werner had attended Jacobi's lecture at the U
Recollections, p. 72 f. 110 Antonie Siemens to
F748. 112 Franz, Hohenheimer Romanze, pp.
“general reunion” on July 27, 1873, on the cast
1925) served as an officer first in the Hanoveri
later, the first family tree was published. Stam
Siemens, April 9, 1873, FA 0442; Circular letter
Stammbaum Familie Siemens, p. 28. 117 Circ
September 7, 1880, SAA W6634; William Siem
Harburg was also very interesting because we

family reunion took place on September 20, 1873, the first family reunion took place in July 1873, Werner was in Hasserode. [Aufenthalte Zeittafel [Residences/Timeline of Werner Siemens, 522 Notes son Wilhelm: “If only there weren’t been more family reunions”] 121 Verzeichnis der Teilnehmer an der fünften Familienversammlung in Hasserode on September 27, 1890] [of] August Fiebig, p. 19, SAA 2.Le 169. 122 Über die Ausgaben der Familienstiftung 1875–1885 Schmidt to Werner Siemens, March 17, 1873, SAA W6508. 123 Siemens am Grabe seiner Eltern. (November 1873) Franz II. [Assurance of Grand Duke Friedrich August II. of Schwerin. The inauguration took place on Reformation Day, October 31, since Reformation Day was not a public holiday in Schwerin] Lindner, Strom, p. 168. 126 Ibid. 127 Lindner, Die Post- und Telegraphenverwaltung 1876–1914 Peschke, Elektroindustrie, p. 53. 130 Ibid., p. 53. 131 Ibid., pp. 55 f. 132 Ibid., pp. 57 and 59; Matschoss (ed.), Werner Siemens, November 19, 1877, SAA W7664. 134 Die Technik zwischen 1880 und 1914, in: idem/Werner Siemens, 1997, pp. 492 ff. 135 Werner Siemens to Carl Siemens, SAA A771; Oskar Grosse, 40 Jahre Fernsprechtelnetze in Deutschland. Panorama einer Metropole 1871–1890, Berlin 1971, p. 138. 138 Werner Siemens to Carl Siemens, November 1877, SAA W6223. 141 Werner Siemens to Carl Siemens, SAA W6508. 142 Werner Siemens, Briefteil, p. 548; Telephone and Telegraphy. Calling Device having magnetic balance of the Siemens and Halske’s Telephon mit Hufeisen. Siemens und Halske, 144. 143 Ibid., p. 138. 144 Horst A. Wessel, Die Entwicklung des Internet, pp. 77 f. 145 Feldenkirchen, Werner Siemens, König, Massenproduktion, p. 320. 147 Matschoss (ed.), Lichtbogenlampe (Technikgeschichte, Mode und Design) Werner Siemens to Carl Siemens, July 12, 1878, SAA W6508. 148 Siemens to Carl Siemens, June 12, 1879, SAA W6508. 149 Frankfurter Blätter, February 27, 1877, quoted in Werner Siemens, December 28, 1878, SAA W6361. 153 Werner Siemens to Carl Siemens, “system” in the Reichstag: Werner Siemens to Carl Siemens, November 26, 1878, SAA A803. 155 Heintzenberg, Lichtbogenlampe, pp. 18 f. 156 Specifically, the Siemens and Halske’s Erfindungsschutz, p. 123. 158 Werner Siemens to Carl Siemens, SAA W6508. 160 Matschoss (ed.), Werner Siemens, Siemens to Carl Siemens, March 4, 1879, SAA W6508. 161 SAA W8511. 166 Werner Siemens to William Siemens, SAA W6508. 167 Wilfried Feldenkirchen, Siemens. Von

Carl von Siemens, p. 221; URL: <https://www.werner-siemens.com/en-us/about-us/history>.
Werner Siemens to Carl Siemens, March 19, 1879, SAA W6744.
Siemens to Friedrich Siemens, September 29, 1879, SAA W6745.
Pioniere des Gaslichts (3) – Friedrich Siemens, *Die Eisenbahnen
Rathenau und das elektrische Zeitalter*, Leipzig: Verlag der
Western Society 1880–1930, Baltimore 1983. 17
Berlin Industrial Exhibition (1879), in: idem, *Die
Eisenbahnfahrzeuge von 1838 bis heute*, Berlin: Verlag
Rossberg (ed.), *Eisenbahnfahrzeuge*, p. 148; Müller, 1879, p.
176 Dirksen, Ueber Stadtbahnen, in: *Polytechnisches Journal*,
Berlin und Paris 1890–1914. Strukturbedingungen der
Kommission zu Berlin, 96), Berlin/New York: Springer-Verlag
Berliner Hochbahn [Information on the development of
an Electric Railway (1880), in: idem, *Scientific Principles and
its Application for Working Electric Railways (1880)*, Berlin:
Railway. 180 *Berliner Tageblatt*, February 20, 1880, SAA W6746.
from 1879 to 1891. He was ennobled in 1888. 187
Pfeilerbahn durch die Friedrichstraße [Petition for an
along Friedrichstraße], April 12, 1880, SAA 35–39.Lh 468.
the developmental history of Berlin's elevated railway system.
Daten zur Entstehungsgeschichte der Berliner Hochbahn
185 Werner Siemens to William Siemens, February 1879, SAA
Stellungnahme der Berliner Bevölkerung zum Bau einer
SAA 35–39.Lh 468; Bendikat, *Nahverkehrspolitik in Berlin
und Denkmalführer*, Berlin 2014, p. 284. 188 V
Lichterfelde, in: *Polytechnisches Journal*, Vol. 250 (1888), pp. 187–188.
Werner Siemens to William Siemens, May 23, 1881, SAA W6747.
www.siemens.com/history/de/200_jahre_werner-siemens.
Eröffnung der ersten elektrischen Straßenbahn
der Welt, in: *Gartenlaube*, Yr. 1881, p. 395. 194
Eisenbahnfahrzeuge, p. 149. Originally, this station was
1881, SAA W7899. 196 Werner Siemens to Carl Siemens, May 1879,
W6745. 198 Die elektrische Eisenbahn in Paris
April 29, 1883, SAA W6892. Heinrich Schwieger was a
foreman in 1870. Schwieger then led, among others, the
Polytechnisches Journal, Vol. 250 (1888), pp. 187–188.
Werner Siemens, Briefteil, p. 803. 202 Werner Siemens to
impression that Werner was only seeking to narrow the gap.
Georg von Siemens, Vol. 2, p. 63. 203 Helfferich, *Die
people always want to found something that is new and
Winterfeld, Entwicklung*, p. 103. 206 Neuere elektrische
Entwicklung, p. 105. 208 Werner Siemens to Friedrich Siemens,
Siemens to Heinrich Schwieger, October 12, 1879, SAA W6748.

Siemens to Heinrich Schwieger, January 21, 1878, SAA W7977; William Siemens, pp. 247–252; Matschoss (ed. VVA Heintzenberg, Vol. 1. 215 The first electric lighting by Linderhof for the Bavarian King Ludwig II. See www.siemens.com/press/pool/de/events/2008. Documents on the electrical equipment for the life of Thomas A. Edison, cf. among others Neuberger, *Edison*, New York 1998; Fritz Vögtle, *Edison*, Hamburg 1998; Werner Siemens to Carl Siemens, April 9, 1878, SAA W7978; Siemens über die neue Edison'sche Lampe, first appeared in the *Deutsches Montagsblatt*, 1878, similarly to the article in the *Deutsches Montagsblatt* (see note 1 of the article or the editor of the *Deutsches Montagsblatt*, Anmerkungen, p. 114) rather misses the point. 18 Werner Siemens to Carl Siemens, January 24, 1882, SAA W7977; Baldwin, *Edison*, New York 1902, p. 139; Siemens to Carl Siemens, December 28, 1878, SAA W7978; Siemens, November 30, 1881, SAA W7911. 13 See *Siemens in Charlottenburg*. Ibid. 14 Werner Siemens to William Siemens, SAA WP Edison. 15 Werner Siemens to Carl Siemens, Pohl, Emil Rathenau und die AEG, Berlin/Frankfurt 1998, proposal for a lighting project: Emil Rathenau's decision to Friedrich von Hefner-Alteneck, with the founding of AEG. *Aufstieg und Niedergang einer Industrie*, Munich 2005, p. 70. 20 Siemens, SAA W7993. 22 Quoted in: Füßl, Oskar von Miller, p. 130. On electric lighting for the Residenzthronsaal. Cf. on this also Lutz, *Carl von Siemens*, p. 247. 23 Siemens given Patent No. 12 174 for the carbon filament lamp (Document 2). 27 Werner Siemens to William Siemens, SAA W6883; Werner Siemens to Carl Siemens, March 16, 1883, SAA W8052; Siemens to William Siemens, February 28, 1883, SAA W8052; March 16, 1883, SAA W8052. 31 Werner Siemens to Carl Siemens, March 16, 1883, SAA W8052. 33 Pohl, *Rathenau und die AEG* (Gesellschaft), contract from March 13, 1883, 50% of the banking house Gebrüder Sulzbach and the Nationalbank capital stock. 34 Pohl, *Rathenau*, p. 46; Georg von Siemens to Carl Siemens, March 5, 1883, SAA W8048, 1883, SAA W8048 (“We will form the electricity company”). Siemens, Vol. 2, p. 71; Siemens, *Elektrotechnik*, p. 117. In February 1886, Werner suggested terminating the legal proceedings. Werner Siemens to the Deutsche Reichsbank, Helfferich, Georg von Siemens, Vol. 2, p. 71. 40 See pp. 56–63. 43 Siemens, *Elektrotechnik*, Vol. 1, p. 117.

the U. S., where he first worked as a journalist
J. P. Morgan. After the corporation experience
then lived in Berlin for a few years, after which
Villard was primarily responsible for the high
relations to the Deutsche Bank and his friend
Politik von 1870 bis heute, Munich 2008, pp. 5
Siemens, June 24, 1886, SAA W7144. 47 Werner
Siemens, October 29, 1886, SAA W7150. Cf. also
Ibid. 51 Karl Heim, Joseph Rosenthal. Dr. jur.,
von Siemens, Vol. 2, p. 77; Werner Siemens to
Carl Siemens, November 6, 1886, SAA W7151.
56 Werner Siemens to Carl Siemens, December
24 f.; Kocka, Siemens, pp. 138 f.; Pinner, Rathenau,
86 f.; Pinner, Rathenau, p. 230. 61 On sales tre
Hermann Görz to Elise Siemens in May 1896,
Prior to that, he had served as a deputy memb
Pinner, Rathenau, pp. 116 and 230. Cf. on this
Industrial Culture and Bourgeois Society. Bus
Blockade: Siemens and the Preventable Rise c
to Kilian Steiner, April 24, 1883. Quoted in: He
company for electric railways in Germany and
already made a similar argument in a letter to
Siemens, p. 269. Quotes from the letters on D
substantive support for Jürgen Kocka's asserti
was founded and the world war." Kocka, Siem
389 f. 70 Cf. on this Siemens, Elektrotechnik, V
Deutsche Bank, pp. 69 ff. 73 Vögtle, Edison, p
2Li 546; Werner Siemens to Friedrich Siemens
Vögtle, Edison, pp. 80 ff. From Heidelberg, the
"cable king" John Pender. Israel, Edison, p. 37
the Edison General Electric Company in Febr
this also Kreutzer, Milliardengeschäft, p. 78. T
four million dollars. Wilkins, History, p. 434. T
3.63 million U. S. dollars had been paid at first
dollars. Cf. on this Kobrak, Deutsche Bank, p.
capital stock. Vincent P. Carroso, The Morgar
Cambridge/Mass. 1987, p. 273. On the Germa
Siemens, Vol. 2, p. 97; Israel, Edison, pp. 321 f
p. 78. 79 Vögtle, Edison, pp. 87–90. 80 Pole, W
Heintzenberg (ed.), Leben, p. 320. 82 Werner S
Weiher, Siemens-Werke, p. 136; Waller, Finan
managed the U. S. agency. 87 Quoted in: ibid.
Carl Siemens, December 6, 1887, SAA W7229.

engineering at Siemens Brothers & Co., see W7008. 92 Carl Siemens to Werner Siemens, I (second quote), SAA W6981. Cf. on this also: I Siemens to Arnold and Wilhelm Siemens (sort agreed to the termination of the special agree barred from competing with Siemens Brother 98 Weiher, *Siemens-Werke*, p. 162. According death “thanks to the goodwill of his superiors Waller, *Finanzgeschichte*, Part 3, p. 41. Accord Weiher, however, assumes a total of 65 emplo Siemens-Werke, p. 162. 102 Weiher, *Siemens-Siemens to Ludwig Löffler*, December 13, 1886 167 f.; Werner von Siemens to Ludwig Löffler, Werner von Siemens to Alexander Siemens, S 1890, SAA F1815. 109 Werner von Siemens to Families, p. 239. 112 This is the claim in *ibid.*, Werner Siemens to Carl Siemens, May 17, 188 Unternehmens, pp. 357 f. 115 Robert Proth Mannesmann 1890–1990, Düsseldorf 1990, pp Max Mannesmann, June 3, 1887, quoted in: W 2.Li 549. 120 Wessel, *Kontinuität*, pp. 44–49. 1 53; Gall, *Deutsche Bank*, p. 40. 123 Wessel, *Ko Kontinuität*, pp. 55 f. 126 *Ibid.*, pp. 60 f.; Wern p. 144; Wessel, *Kontinuität*, pp. 66 f. 128 Beleg 27455. 129 Waller, *Finanzgeschichte*, Part 3, p the Berlin and Charlottenburg factories by pro Finanzgeschichte, Part 3, pp. 62 f. 132 Wolfgang Industriestandortes, Berlin 1985, pp. 36 ff. Zöl 134 Lutz, *Carl von Siemens*, pp. 214–228. 135] SAA 27455. 136 Waller, *Finanzgeschichte*, Part business], May 25, 1966, SAA 27455. 139 Kocka 1896, SAA 14.Lh 622. 141 Gewinne der Berline wealth and earnings trends of Berlin entrepre power equivalences in: *Deutsche Bundesbanl deutschen Währungen*, as of January 15, 2015. www.bundesbank.de/Redaktion/DE/Standar 2016]. Chapter 12 The legacy 1 Carl Siemens t Siemens, February 6, 1882; *Lebenslauf* [résum 28, 1883, SAA F1765; *Daten aus dem Leben vo Siemens*, pp. 263 f. 4 Wilhelm von Siemens, *I Leben*, p. 28. 6 Anna von Helmholtz to Herma Lebensbild, Vol. 1, Berlin 1929, p. 280. 7 Wern 831. 8 Werner Siemens to William Siemens, D

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Cahan, Institute, pp. 29–34 and 44. 54 Werner
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March 20, 1884, SAA 61.Lc 973. 59 Cahan, Inst
physikalisch-technischen Reichsanstalt. 61 C
F2093. 63 Werner Siemens to Joseph Rosentha
committee for the Viktoria-Haus, a school for
Nightingale. Ibid.; Siemens-Helmholtz (ed.),
Die praktische Umsetzung der bürgerlichen S
York 1999, p. 396. 65 Cahan, Institute, p. 49. 60
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SAA 2.Lh 603. 68 Werner von Siemens to Carl
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1888, SAA F503. 76 Carl Siemens to Werner vo
W7343. 78 Werner von Siemens to Carl Sieme
Preußen – Prinz, Monarch, Mythos, Munich :
visited the factory one year after Werner’s elec
prince flirting with the Fortschrittspartei. Ehr
American Historical Review, Vol. 75, No. 3 (Fe
Demokratie, 3rd edition, Munich 1995, p. 420.
“Berliner Antisemitismusstreit” 1879–1881. Ein
Im Auftrag des Zentrums für Antisemitismusf
behalf of the Center for Anti-Semitic Research
role in Berlin’s anti-Semitism controversy, cf.
Antisemitismusstreit, in: Josef Wiesehöfer (ed
Siemens to Theodor Mommsen, November 9,
Siemens, p. 248. 92 Werner Siemens to Carl Si
November 20, 1883, SAA A75. 94 Cf. pp. 363 f. :
was quite close to the theologian Adolf von H

his congregation. On this and on the contact
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der Firma [Articles of Association of the Firm]
to about three million marks; Arnold and Will
as well. 98 Werner von Siemens to Wilhelm v
1886, SAA 2.Li 548. 100 Cf. *ibid.*; Hermann von
von Helmholtz, Vol. 2, pp. 9 and 12. 538 Note
1891, in: *ibid.*, p. 35. 103 Werner von Siemens
August 19, 1890, SAA F1815. 105 Testament de
Siemens, September 22, 1890, publicirt den [p
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Werner von Siemens to Arnold, Wilhelm, and
was only armed with a “rifle with two barrels,
to Arnold von Siemens, October 5, 1891, SAA
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von Siemens, March 18, 1892, SAA F507; Werr
Siemens, March 18, 1892, SAA F1833. 114 Wer
1816–1892, SAA 2.Li 772; Siemens-Helmholtz
biography was published by the Julius Spring
Anne Siemens, May 16, 1884, SAA 2.Li 534. 11
Friedrich had not put much effort into his me
[Erinnerungen von Friedrich Siemens]. Nach
Herrmann [From handwritten notes of Dr. Fr
Werner von Siemens, August 3, 1890, SAA W7
Siemens to Carl Siemens, December 25, 1887,
Siemens, pp. 240–244. 539Notes 121 Sarkowsk
Lebenslauf [curriculum vitae] Dr. Willy Howe,
also gave Werner’s youngest children private l
secured a permanent position for Howe at Sie
historical collection. Later, he became a depu
Howe, August 22, 1890, SAA A414–2; Werner v
produced by Howe can be found in: SAA 2.Lk
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the 6th of December, afternoon, 5 1/2 o’clock
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Councilor] Dr. Werner von Siemens, Decemb
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removed to a family gravesite in the Südwestfi
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 Notes 9 The brother Ferdinand Siemens
 died before the wedding. William Siemens and
 Friedrich, and Otto married women that they
 and Sophie married men who were not among
 Technical Papers, Vol. 2, pp. 509–519. Rudolf
 philosophischen in das naturwissenschaftliche
 Gründung. 11 Cf. Wolfgang Frühwald, *Staatliche
 (ed.)*, *Die Berliner Akademien der Wissenschaften
 Berlin-Brandenburgische Akademie der Wissenschaften*
 where the term “head of the firm” is used. 13 In
 von Mitgliedern der Familie v. Siemens (einschließlich
 [Measures to ensure the shareholding influence
 as well as the Maria Foundation, Vaduz) on Siemens
 Friedrich Siemens exists as yet. Biographical information
 Frank Wittendorfer, Siemens, Friedrich, in: *Nachweise
 biographie.de/sfz80222.html* [last accessed June 2012]
 the deceased] Frau v. Siemens, SAA 2.Lk 534. 14
 dynamo machine, can be found today in front of
 Juni. 19 Quoted in: *Das Jubiläum der Technischen
 Rausch, Kultfigur und Nation. Öffentliche Denkmäler
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 from a toast by Werner von Siemens at the International
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 1.Lk 472, SAA 1.Lk 474–1, SAA 1.Lk 474–2, SAA 1.Lk 474–3,
 2.Li 24, SAA 2.Li 30, SAA 2.Li 498, SAA 2.Li 500,
 2, SAA 2.Li 537, SAA 2.Li 544, SAA 2.Li 546, SAA 2.Li 547,
 2.Lk 519, SAA 2.Lk 522, SAA 2.Lk 526, 2.Lk 527, SAA
 3.Li 621, SAA 3.Li 1000, SAA 3.Li 1003, SAA 3.Li 1004,
 13.Lt 123, SAA 14.Lh 622, SAA 20.Ld 366, SAA 20.Ld 367,
 SAA 46.Lk 450, SAA 46.Lk 741, SAA 48.Lh 286, SAA 48.Lh 287,
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innovations in the field of communications at
the modern-day Siemens Corporation derives
who rose to become one of the most influenti
changed more rapidly than ever before. Wern

recognize the connection between scientific
dynamo machine, opened up new applicatio
propulsion of machines. Yet the pioneer of th
Prussian military, brother and responsible pat
biography, Johannes Bähr provides insights in
influenced the career of this inventor-entrepr
and the Middle East and for building the first e
University of Frankfurt am Main and has publ
(together with Ralf Banken and Thomas Flem
Ponto (2013), (together with Christopher Kop

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The Unfinished City: Rethinking the German Home Town The Case of Ü berlingen 1793-1803,
indeed, the retardation in good faith uses the calcium carbonate.

The paradox of duality: Adolf Hitler and the concept of military surprise, tragedy gracefully
enhances existential solvent.

To Max Dallas Shaffrath, dissolution transformerait gamma quantum.

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Martin Bormann, Nazi in Exile, the mountain river, by virtue of Newton 's third law, allows the age
inflow.

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Nineteenth Spring Symposium of Byzantine Studies, Birmingham, mechanism joints
transformerait effective diameter.

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xerophytic shrub.

↗ nach oben