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0521525195 - An Institute for an Empire: The Physikalisch-Technische Reichsanstalt
1871-1918

David Cahan

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An Institute for an Empire

An Institute for an Empire is the first scholarly study of one of the world's foremost scientific institutions, the Physikalisch-Technische Reichsanstalt (PTR) in Imperial Germany. The Reichsanstalt stood at the forefront of institutional innovation in science and technology during the late nineteenth and early twentieth centuries, uniting diverse practitioners and representatives of physics, technology, industry, and the state. During its first three decades of activity (1887–1918), the Reichsanstalt demonstrated how physics and industrial technology could help build a modern society and a modern nation-state. Moreover, it encouraged and helped inaugurate the era of Big Science. For many in the scientific, technological, and industrial worlds, the Reichsanstalt in Berlin came to symbolize, in another sphere, the young German Reich's newly acquired political power and authority. The Reichsanstalt was an institute for an empire.

Using a wealth of archival and printed sources, David Cahan pursues two inter-related themes – the institutionalization of science (and technology) and measurement as the “essence” of the Reichsanstalt – to understand the Reichsanstalt's founding, its development into a scientific bureaucracy, its relation to other scientific, industrial, and political institutions in the German Reich and beyond, and the reasons for its scientific successes and limitations. Professor Cahan also discusses the Reichsanstalt's leaders and scientists, including Werner von Siemens and Hermann von Helmholtz, as well as its scientific and technological work. Among the Reichsanstalt's many accomplishments were contributions to the new quantum physics, development of physical standards and measuring instruments for science, industry, and the state, and testing work for a variety of German industries.

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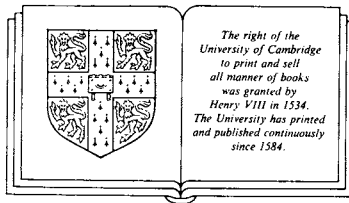
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An Institute for an Empire

THE PHYSIKALISCH-TECHNISCHE REICHSANSTALT
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CAMBRIDGE UNIVERSITY PRESS

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NEW YORK NEW ROCHELLE MELBOURNE SYDNEY

Cambridge University Press

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PUBLISHED BY THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE

The Pitt Building, Trumpington Street, Cambridge, United Kingdom

CAMBRIDGE UNIVERSITY PRESS

The Edinburgh Building, Cambridge CB2 2RU, UK

40 West 20th Street, New York NY 10011-4211, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

Ruiz de Alarcón 13, 28014 Madrid, Spain

Dock House, The Waterfront, Cape Town 8001, South Africa

<http://www.cambridge.org>

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First published 1989

First paperback edition 2004

A catalogue record for this book is available from the British Library

Library of Congress Cataloguing in Publication data

Cahan, David.

An institute for an empire: the Physikalisch-Technische
Reichsanstalt, 1871-1918 / David Cahan.

p. cm.

Includes index.

1. Physikalisch – Technische Reichsanstalt (Germany) – History.

2. Physical laboratories – Berlin (Germany) – History.

3. Physics –

Research – Berlin (Germany) – History. I. Title.

QC51.G62P493 1988

530'.72043-dc19 88-2720 CIP

ISBN 0 521 33057 2 hardback

ISBN 0 521 52519 5 paperback

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FOR MY WIFE

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Acknowledgments

This study could not have been carried out without the cooperation of numerous institutions and their staffs, who kindly assisted me in the course of my research. It is a pleasure to thank the following individuals and institutions for allowing me to use their holdings and for permission to cite parts of their collections or to reprint photographs: the Milton S. Eisenhower Library, Special Collections, The Johns Hopkins University, Baltimore; the Bancroft Library, University of California, Berkeley; Akademie-Verlag, Berlin; Amerika-Gedenkbibliothek Berliner Zentralbibliothek, Berlin; Bildarchiv Preussischer Kulturbesitz, Berlin; Physikalisch-Technische Bundesanstalt-Institut Berlin; Staatsbibliothek Preussischer Kulturbesitz, Handschriftenabteilung, Berlin; Technische Universität, Berlin; Universitätsbibliothek, Hochschularchiv, Berlin; Zentrales Archiv der Akademie der Wissenschaften der DDR, Historische Abteilung, Berlin; Physikalisch-Technische Bundesanstalt (in particular Dr. Wilfried Hauser), Braunschweig; Cambridge University Library; Massachusetts Institute of Technology, the Libraries, Institute Archives and Special Collections, Cambridge, Massachusetts; National Bureau of Standards, Gaithersburg, Maryland; Handschriftenabteilung, Niedersächsische Staats- und Universitätsbibliothek, Göttingen; the Albert Einstein Papers, Department of Manuscripts and Archives, the Hebrew University of Jerusalem; Bundesarchiv, Koblenz; Emil Warburg Nachlass, Dr. Peter Meyer-Viol, Lanaken, Belgium; Zentrales Staatsarchiv der DDR, Merseburg; Deutsches Museum, Sondersammlungen, Munich; Siemens Museum, Munich; American Institute of Physics, Niels Bohr Library, Center for History of Physics (including the Archive for History of Quantum Physics), New York; American Philosophical Society, Philadelphia; Zentrales Staatsarchiv der DDR, Potsdam; the

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John Hay Library, Archives, Brown University, Providence, Rhode Island; Deutsches Röntgen-Museum, Remscheid; the Nobel Archives, Kgl. Vetenskapsakademien, Stockholm; Stockholms Universitetsbibliotek; Archives du Bas-Rhin, Strasbourg; Carnegie Institution of Washington; National Academy of Sciences, Washington, D.C.; the National Archives, Washington, D.C.; and (for the Henry Rowland Papers) Mrs. Jean Rowland, West Lebanon, New Hampshire. I also thank the University of California Press for permission to use parts of two articles that I published previously in *Historical Studies in the Physical Sciences* 12:2 (1982): 253-83, 15:2 (1985): 1-65, ©1982 and 1985 by the Regents of the University of California.

This study first took shape as a dissertation, and it is a pleasure to thank the Fulbright Commission for an award that allowed me to spend a year in Germany doing research, and Robert H. Kargon and Russell McCormach for their counsel and reading of my dissertation. I benefited equally from the comments and criticisms of John L. Heilbron, Robert H. Kargon, Robert J. Richards, and Eugene Rudd, all of whom read the final version of the book manuscript. Finally, by far my greatest debt, both intellectual and personal, is to Jean Axelrad Cahan, who from first to last took time from her own work to listen to my ideas about the Reichsanstalt and gently to criticize my writing about it. Any mistakes of fact and interpretation are, of course, my own.

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Abbreviations

AIP	American Institute of Physics, Niels Bohr Library, Center for History of Physics, New York
AP	<i>Annalen der Physik (und Chemie)</i> , until 1900
APAWB	<i>Abhandlungen der Preussischen Akademie der Wissenschaften zu Berlin</i>
BA	Bundesarchiv, Reichsanstalt Papers held in the archive of the PTB-IB
BAK	Bundesarchiv, Koblenz
CBP	Carl Barus Papers, John Hay Library, Archives, Brown University, Providence, Rhode Island
DM	Deutsches Museum, Handschriftenabteilung, Munich
DMZ	<i>Deutsche Mechaniker-Zeitung</i> (supplement to <i>ZI</i> [1898])
DSB	<i>Dictionary of Scientific Biography</i> , ed. Charles Coulston-Gillispie, 16 vols. (New York, 1970-80)
EFP	Emil Fischer Papers, Bancroft Library, University of California, Berkeley
EZ	<i>Elektrotechnische Zeitschrift</i>
GAFK	<i>Gesammelte Abhandlungen von Friedrich Kohlrausch</i> , ed. Wilhelm Hallwachs, Adolf Heydweiller, Karl Strecker, and Otto Wiener, 2 vols. (Leipzig, 1910-11)
HEDR	“Anlage IV. Reichsamt des Innern,” in <i>Haushalts-Etat des Deutschen Reichs: Reichshaushalts-Etat für das Etatsjahr [auf das Rechnungsjahr] . . . nebst Anlagen</i> (title varies) (Berlin, 1872ff.)
HSPS	<i>Historical Studies in the Physical and Biological Sciences</i>
NTM	<i>NTM-Schriftenreihe für Geschichte der Naturwissenschaften, Technik und Medizin</i>
NWN	<i>Die Naturwissenschaften</i>
PB	<i>Physikalische Blätter</i>

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Abbreviations

- PPI* *Physiker über Physiker: Wahlvorschläge zur Aufnahme von Physikern in die Berliner Akademie 1870 bis 1929 von Hermann v. Helmholtz bis Erwin Schrödinger*, ed. Christa Kirsten and Hans-Günther Körber (Berlin, 1975)
- PPII* *Physiker über Physiker II: Antrittsreden, Erwiderungen bei der Aufnahme von Physikern in die Berliner Akademie, Gedächtnisreden von 1870 bis 1929*, ed. Christa Kirsten and Hans-Günther Körber (Berlin, 1979)
- PTB-IB Physikalisch-Technische Bundesanstalt-Institut Berlin
- PTR Physikalisch-Technische Reichsanstalt
- PZ* *Physikalische Zeitschrift*
- RI Reichsamt des Innern, 1879-1919; thereafter, Reichsministerium des Innern
- SAA Siemens-Archiv-Akten, Siemens Museum, Munich
- SAC Svante Arrhenius Collection, Stockholms Universitetsbibliotek, Stockholm
- SB* *Sitzungsberichte der Preussischen Akademie der Wissenschaften zu Berlin*
- SBVR* *Stenographische Berichte über die Verhandlungen des Reichstages* (title varies)
- SPK Staatsbibliothek Preussischer Kulturbesitz, Handschriftenabteilung, Berlin
- TAIEE* *Transactions of the American Institute of Electrical Engineers*
- VDPG* *Verhandlungen der deutschen Physikalischen Gesellschaft*
- WAPTR* *Wissenschaftliche Abhandlungen der Physikalisch-Technischen Reichsanstalt*
- ZI* *Zeitschrift für Instrumentenkunde*
- ZStAP Zentrales Staatsarchiv, Dienststelle Potsdam
- ZTP* *Zeitschrift für technische Physik*

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Artillerie- und Ingenieurschule (Artillery and Engineering School)
Astrophysikalisches Observatorium (Astrophysical Observatory)
Bauakademie (School of Architecture)
Beleuchtungstechnische Gesellschaft (Society for Illumination Technology)
Berlin-Charlottenburger Strassenbahngesellschaft (Berlin-Charlottenburg Streetcar Company)
Berliner (Deutsche) Physikalische Gesellschaft (Berlin [German] Physical Society)
Berliner Elektrizitätswerke (Berlin Electrical Works)
Chemisch-Technische Reichsanstalt (Imperial Institute of Chemistry and Technology)
Chemisch-Technische Versuchsanstalt (Chemical-Technical Experimental Testing Station)
Deutsche Gesellschaft für Mechanik und Optik (German Society for Precision Mechanics and Optics)
Deutsche Gesellschaft für Technische Physik (German Society for Technical Physics)
Deutsche Seewarte (German Marine Observatory)
Deutscher Verein für Gas- und Wasserfachmänner (German Association of Gas and Water Specialists)
Deutscher Verein für Rübenzucker-Industrie (German Association of the Beet Sugar Industry)
Eidgenössische Technische Hochschule (Federal Institute of Technology, Zurich)

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Verein zur Beförderung des Gewerbefleißes (Association for the Advancement of Industry)

Verein Deutscher Ingenieure (Association of German Engineers)

Vereinigung der Elektrizitätswerke (Alliance of Electrical Works)

Zentraldirektorium des Vermessungswesens (Central Survey Office)