

## Science and American Foreign Relations since World War II

The sciences played a critical role in American foreign policy after World War II. From atomic energy and satellites to the Green Revolution, scientific advances were central to American diplomacy in the early Cold War, as the United States leveraged its scientific and technical preeminence to secure alliances and markets. The growth of applied research in the 1970s, exemplified by the biotech industry, led the United States to promote global intellectual property rights. Priorities shifted with the collapse of the Soviet Union, as attention turned to information technology and environmental sciences. Today, international relations take place within a scientific and technical framework, whether in the headlines on global warming and the war on terror or in the fine print of intellectual property rights. *Science and American Foreign Relations since World War II* provides the historical background necessary to understand the contemporary geopolitics of science.

GREG WHITESIDES is Assistant Professor of History at the University of Colorado, Denver.

## Cambridge Studies in US Foreign Relations

*Edited by*

Paul Thomas Chamberlin, Columbia University  
Lien-Hang T. Nguyen, Columbia University

This series showcases cutting-edge scholarship in US foreign relations that employs dynamic new methodological approaches and archives from the colonial era to the present. The series will be guided by the ethos of transnationalism, focusing on the history of American foreign relations in a global context rather than privileging the US as the dominant actor on the world stage.

### Also in the Series

- Jasper M. Trautsch, *The Genesis of America: U.S. Foreign Policy and the Formation of National Identity, 1793–1815*  
Hideaki Kami, *Diplomacy Meets Migration: US Relations with Cuba during the Cold War*  
Shaul Mitelpunkt, *Israel in the American Mind: The Cultural Politics of US-Israeli Relations, 1958–1988*  
Pierre Asselin, *Vietnam's American War: A History*  
Elisabeth Leake, *The Defiant Border: The Afghan-Pakistan Borderlands in the Era of Decolonization, 1936–1965*  
Tuong Vu, *Vietnam's Communist Revolution: The Power and Limits of Ideology*  
Michael E. Neagle, *America's Forgotten Colony: Cuba's Isle of Pines*  
Lloyd E. Ambrosius, *Woodrow Wilson and American Internationalism*  
Geoffrey C. Stewart, *Vietnam's Lost Revolution: Ngô Đình Diệm's Failure to Build an Independent Nation, 1955–1963*  
Renata Keller, *Mexico's Cold War: Cuba, the United States, and the Legacy of the Mexican Revolution*

# Science and American Foreign Relations since World War II

GREG WHITESIDES  
*University of Colorado Denver*



CAMBRIDGE  
UNIVERSITY PRESS

Cambridge University Press  
 978-1-108-42044-0 — Science and American Foreign Relations since World War II  
 Greg Whitesides  
 Frontmatter  
[More Information](#)

**CAMBRIDGE**  
 UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom  
 One Liberty Plaza, 20th Floor, New York, NY 10006, USA  
 477 Williamstown Road, Port Melbourne, VIC 3207, Australia  
 314-321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre,  
 New Delhi – 110025, India  
 79 Anson Road, #06-04/06, Singapore 079906

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning, and research at the highest international levels of excellence.

[www.cambridge.org](http://www.cambridge.org)

Information on this title: [www.cambridge.org/9781108420440](http://www.cambridge.org/9781108420440)

DOI: 10.1017/9781108303965

© Greg Whitesides 2019

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 2019

Printed and bound in Great Britain by Clays Ltd, Elcograf S.p.A.

*A catalogue record for this publication is available from the British Library.*

*Library of Congress Cataloging-in-Publication Data*

NAMES: Whitesides, Greg, author.

TITLE: Science and American foreign relations since World War II / Greg Whitesides, University of Colorado, Denver.

DESCRIPTION: Cambridge, United Kingdom ; New York, NY : Cambridge University Press, 2019. | Series: Cambridge studies in US foreign relations | Includes bibliographical references and index.

IDENTIFIERS: LCCN 2018034473 | ISBN 9781108420440 (hardback : alk. paper) |

ISBN 9781108409919 (paperback : alk. paper)

SUBJECTS: LCSH: Science and international relations—United States—History—20th century. | Science and international relations—United States—History—21st century. | United States—Foreign relations—1945-1989. | United States—Foreign relations—1989—

CLASSIFICATION: LCC JZ1254 .W45 2019 | DDC 327.73—DC23

LC record available at <https://lcn.loc.gov/2018034473>

ISBN 978-1-108-42044-0 Hardback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

*Dedicated to my family and Lee*

## Contents

<i>List of Figures</i>	<i>page</i> xi
<i>Acknowledgments</i>	xiii
<i>List of Abbreviations</i>	xiv
Introduction	I
Scientific Universalism, Privilege, and National Service	8
Applied Sciences, Commerce, and American Foreign Relations to World War I	11
Science, World War I, and Interwar Modernity	15
I The Battle of the Laboratories	21
Nation Bound	23
Science and American Foreign Relations before World War II	24
OSRD and the Manhattan Project	28
The Atomic Bomb and Questions After	32
At Loose Ends	34
Postwar Institutions and Internationalism	35
Atomic Energy and Espionage	37
US–Soviet Conflict over the WHO	40
The KR Affair and a Scientific Iron Curtain	42
Rebound	45
Science in Occupied Germany	46
Science in Occupied Japan	49
Science and European Reconstruction	53

2	Science Contained	59
	Co-Option	64
	American Science in the Early Cold War	66
	McCarthyism and the Global Scientific Community	69
	Cooperation	73
	American Nuclear Diplomacy: Atoms for Peace	74
	The European Center for Nuclear Research (or CERN)	78
	The International Geophysical Year	80
	The Freedom of Space and Sputnik	84
	Competition	87
	Reorganization at Home	88
	American Diplomacy after Sputnik	90
	The Moon Landing	94
	The Legacy of Early Cold War Scientific Competition	96
3	The Quiet War	99
	Modern Commitments	102
	The Background to Point Four	103
	The Domestic and International Response	105
	Point Four	108
	On Point	112
	Three Decades of Assistance to Iran	113
	An Evolving Mix of Programs, Goals, and Participants	118
	The Soviet Challenge in the Developing World	122
	The Alliance for Progress	125
	Demographic Containment	129
	Global Health and the Malaria Eradication Program	130
	The Mexican Agricultural Program, the FAO, and PL-480	
	Food Aid	133
	The Green Revolution in India, the Philippines, and Vietnam	136
	Population Controls	139
	Legacies of Cold War Scientific and Technical Assistance	143
4	The Crossing Point	145
	Eruption	149
	The Environmental Movement, Vietnam War, and Collapse of Consensus	150
	The International Biological Program and Global Governance	154
	Market Biology	158
	The Legal and Scientific Background to Biotechnology	159
	Interferon, the Geopolitics of Overinvestment, and American Diplomacy	160
	The G-77, Genetics, and the ISTC	163

*Table of Contents*

ix

	Legalization and Tension with Allies and the Developing World	166
5	Reorientation	171
	Heavenly Politics	177
	Satellite Communications and American Diplomacy	178
	Science and Détente with the Soviet Union	182
	Science and the Collapse of Détente	186
	Walking on Two Legs	188
	The Collapse of US–Chinese Scientific Relations, 1950–1972	189
	Scientific Exchanges and Revolutionary Resistance	193
	Markets and Anti-communist Resistance	197
	Scientific and Technical Relations after Normalization	199
	Petroscience	202
	US–Iranian Relations from the Embargo to the Revolution	204
	JECOR and American Assistance to Saudi Arabia	206
	US–Israeli Scientific Relations	210
6	Globalization	214
	We Are Their Allies	217
	The G7 Science Initiative	218
	Space Station Freedom	221
	The Strategic Defense Initiative	223
	Scientific Relations with China, Saudi Arabia, and Israel	225
	Competition Rising	229
	Japan, the VLSI Initiative, and American Competitiveness	230
	Protecting American R&D: Export Controls and Intellectual Property Rights	234
	Soviet Fission	239
	Soviet Malaise, Chernobyl, and Collapse	240
	Re-Integrating Post-Soviet Science: The ISTC and ISS	244
	The Legacy of the Cold War on American Science and Foreign Relations	249
7	The Fray	252
	National Philosophy	261
	US Climate Leadership: The Ozone Hole and Montreal Protocol	263
	Domestic Politics vs. Global Science: The Case of Global Warming	266
	The Human Genome Project and Convention on Biological Diversity	271
	International Tensions over Genetic Patents and Labels	276
	Genetic Engineering, Climate Change, and American Foreign Relations	281



*Table of Contents*

Pale Shadows	283
The War on Terror and Iraqi Assistance	285
US–Iranian Scientific Relations in the War on Terror	289
UNESCO and Science Diplomacy in the Middle East	295
8 The Laboratory of Diplomacy	299
<i>Appendix: Selected Chronology</i>	307
<i>Bibliography</i>	313
<i>Index</i>	329

## Figures

I.1 Sources of domestic R&D funding	<i>page 6</i>
3.1 Map of Point Four activities around the world (1953)	111
6.1 Photo of President Reagan at London Economic Summit (1984)	222

## Acknowledgments

I would like to thank Lionel M. Jensen, Lawrence Badash, and Fredrik Logevall for their inspiration and tutelage. Additionally, my editors at Cambridge University Press, especially Deborah Gershenowitz, Paul Thomas Chamberlin, and Natasha Whelan, deserve special thanks for their patient assistance in guiding this book to publication.

## Abbreviations

AAAS	American Association for the Advancement of Science
ABCC	Atomic Bomb Casualty Commission
AEC	Atomic Energy Commission
AFP	Atoms for Peace (Chapter 2)
AFP	Alliance for Progress (Chapter 3)
ARPA	Advanced Research Projects Agency
ASTP	Apollo–Soyuz Test Project
BSF	Binational Science Foundation (the United States & Israel)
CAS	Chinese Academy of Sciences
CBD	Convention on Biological Diversity
CCF	Congress for Cultural Freedom
CERC	Clean Energy Research Center
CERN	<i>Conseil Européen pour la Recherche Nucléaire</i>
CFCs	Chlorofluorocarbons
COCOM	Coordinating Committee for Multilateral Export Controls
COMSAT	Communications Satellite Consortium
COPUOS	Committee on the Peaceful Uses of Outer Space
EPA	Environmental Protection Agency
ESA	European Space Agency
FAO	Food and Agriculture Organization
FAS	Federation of American Scientists
FDA	Food and Drug Administration
G7	Group of 7
G77	Group of 77
GAO	General Accounting Office
GARP	Global Atmospheric Research Program

*List of Abbreviations*

xv

GATT	General Agreement on Tariffs and Trade
GEF	Global Environment Facility
HGP	Human Genome Project
IAEA	International Atomic Energy Agency
IBP	International Biological Program
ICAO	International Civil Aviation Organization
ICGEB	International Center for Genetic Engineering and Biotechnology
ICSU	International Council of Scientific Unions
IGY	International Geophysical Year
IIAA	Institute for Inter-American Affairs
IICST	Iraqi International Center for Science and Technology
IIST	International Institute of Science and Technology
IPCC	Intergovernmental Panel on Climate Change
IRI	Industrial Research Institute
IRRI	International Rice Research Institute
ISS	International Space Station
ISTC	Institute for Scientific and Technical Cooperation (Chapter 4)
ISTC	International Science and Technology Center (Chapter 6)
ITER	International Thermonuclear Reactor
ITU	International Telecommunication Union
JECOR	Joint Economic Cooperation Office Riyadh
MAP	Mexican Agricultural Program
MEP	Malaria Eradication Program
NACA	National Advisory Committee for Aeronautics
NAS	National Academy of Sciences
NASA	National Aeronautics and Space Administration
NATO	North Atlantic Treaty Organization
NBS	National Bureau of Standards
NDRC	National Defense Research Committee
NGO	Non-Governmental Organization
NIH	National Institutes of Health
NIST	National Institute of Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NRC	National Research Council
NRDC	Natural Resources Defense Council
NSF	National Science Foundation
OES	Bureau of Oceans and International Environmental and Scientific Affairs
OMB	Office of Management and Budget

ONR	Office of Naval Research
OSRD	Office of Scientific Research and Development
OSTP	Office of Science and Technology Policy
PSAC	President's Science Advisory Committee
SITE	Satellite Instructional Television Experiment
SDI	Strategic Defense Initiative
TRIPS	Trade Related aspects of Intellectual Property rights
TVA	Tennessee Valley Authority
TWAS	The World Academy of Sciences
UNAEC	United Nations Atomic Energy Committee
UNEP	United Nations Environmental Program
UNESCO	United Nations Educational Scientific and Cultural Organization
UNFCCC	United Nations Framework on Climate Change
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USGS	United States Geological Survey
USPTO	United States Patent and Trade Office
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WMO	World Meteorological Organization
WTO	World Trade Organization