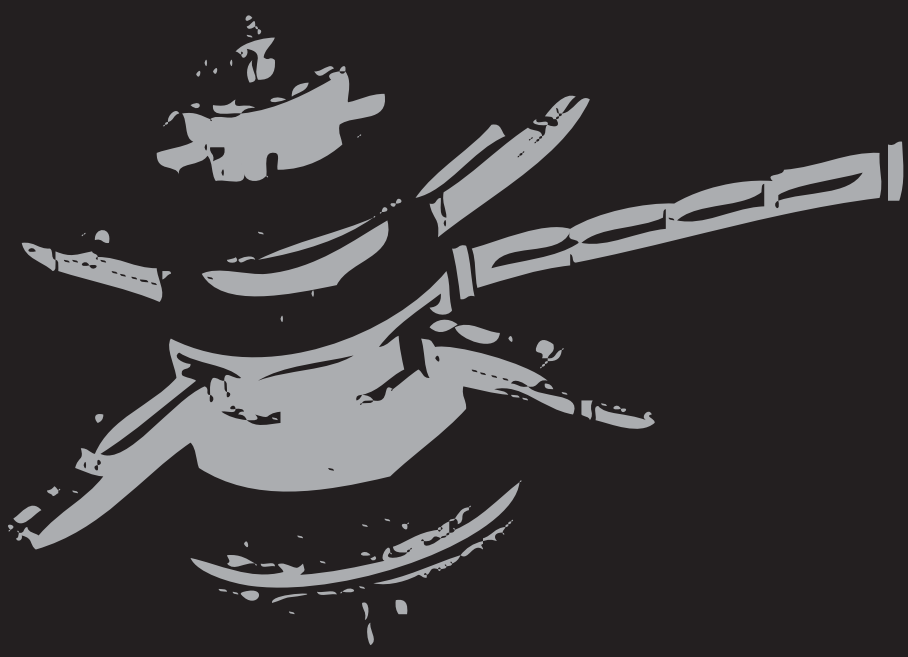
MILITARIZING OUTER SPACE

Astroculture, Dystopia and the Cold War

EDITED BY
Alexander C. T. Geppert
Daniel Brandau
Tilmann Siebeneichner



‘This lavishly illustrated volume makes a major contribution to our understanding of the Space Age. It expands historiography beyond the superpowers and radically reconceptualizes outer space. *Militarizing Outer Space* obliges us to think of “outer space” as a zone beyond the confines of the earth, produced by cultural, political and technological interventions that embed it in earthly projects and respond to a multitude of hopes and anxieties. Space is not a remote, inaccessible realm, but a nearby “non-space” that can be populated by technological infrastructures advocated by the military and appropriated by the market, colonized by earthlings fleeing Armageddon or the disasters of climate change, and filled with utopian aspirations or dystopian fears, but always appropriated by multiple stakeholders who imagine new worlds and ways of being in response to critical contingencies in everyday life. Readers will discover new and unexpected features of their life worlds presented in outstanding essays framed by a superb introduction and conclusion.’

—John Krige, Georgia Institute of Technology, USA

‘In this very fine last part of a trilogy that meritoriously orbits around the concept of “astroculture”, one is reminded of the centrality of military technologies to modernization. The fourteen fascinating chapters offer a rich and welcome contribution to the history of outer space and globality. Popular imaginaries are tied to promises of supremacy, while the fuzzy boundaries between civilian and military use are interrogated. In a global age we would be wise to re-visit these manifold projections and dreams of space technology and its cultural repercussions, as they have much to teach us about the present. A very important book.’

—Nina Wormbs, KTH Royal Institute of Technology, Sweden

'*Militarizing Outer Space* is a compellingly original collection of essays that breaks out of the conventional mold of interpreting space races and arms races narrowly as products of the Cold War. Long before we could reach it, humans imagined space as a realm of war populated with laser-wielding heroes, orbital fortresses and extraterrestrials ripe for conquest. From the moral thought of C. S. Lewis to Ronald Reagan's Strategic Defense Initiative, the authors offer a deeply researched analysis of the connections between security, fantasy and technopolitics. Although no war has ever occurred outside the earth's atmosphere, this volume convincingly shows how military anxieties more than a desire to reach the stars drove the development of spaceflight. For anyone interested in the rise of militant astroculture and actual warfare, *Militarizing Outer Space* is a must-read.'

—Joe Maiolo, King's College London, UK

Palgrave Studies in the History of Science and Technology

Designed to bridge the gap between the history of science and the history of technology, this series publishes the best new work by promising and accomplished authors in both areas. In particular, it offers historical perspectives on issues of current and ongoing concern, provides international and global perspectives on scientific issues, and encourages productive communication between historians and practicing scientists.

More information about this series at
http://www.palgrave.com/gp/series/14581

Other Publications by the Emmy Noether Research Group 'The Future in the Stars: European Astroculture and Extraterrestrial Life in the Twentieth Century'

IMAGINING OUTER SPACE
European Astroculture in the Twentieth Century
(European Astroculture, vol. 1)

LIMITING OUTER SPACE
Astroculture after Apollo
(European Astroculture, vol. 2)

ASTROCULTURE AND TECHNOSCIENCE

SOUNDS OF SPACE

BERLINER WELTRÄUME IM FRÜHEN 20. JAHRHUNDERT

ROCKET STARS
Astrocultural Genealogies in the Global Space Age (forthcoming)

Alexander C. T. Geppert
Daniel Brandau
Tilmann Siebeneichner
Editors

Militarizing Outer Space

Astroculture, Dystopia and the Cold War

European Astroculture
Volume 3

palgrave
macmillan

Editors
Alexander C. T. Geppert
New York University
New York, USA

NYU Shanghai
Shanghai, China

Daniel Brandau
Freie Universität Berlin
Berlin, Germany

Tilmann Siebeneichner
Humboldt-Universität zu Berlin
Berlin, Germany

ISSN 2730-972X ISSN 2730-9738 (electronic)
Palgrave Studies in the History of Science and Technology
European Astroculture, Volume 3
ISBN 978-1-349-95850-4 ISBN 978-1-349-95851-1 (eBook)
https://doi.org/10.1057/978-1-349-95851-1

This Palgrave Macmillan imprint is published by the registered company Springer Nature Limited
The registered company address is: The Campus, 4 Crinan Street, London, N1 9XW, United Kingdom

Contents

Acknowledgments

‘Space is a war-fighting domain, just like the land, air, and sea,’ US President Donald Trump declared in March 2018. ‘Space Force all the way!,’ he tweeted a few months later, reaffirming his intentions to establish a new branch of the military designated to secure American hegemony beyond earth. Instantly noting how closely Trump’s self-proclaimed ‘great idea’ resembled Ronald Reagan’s 1983 Strategic Defense Initiative (SDI), commonly remembered as ‘Star Wars,’ critics across the political spectrum were far from convinced. What had started as a belligerent fantasy both then and now, they feared, effectively fueled the ongoing militarization of outer space. Massively underestimating the technological challenges of missile defense, both presidents seemed to favor Hollywood’s striking imaginings of space wars instead, in wide circulation long before the beginning of the Space Age.[1]

Trump’s overblown rhetoric evoked a long-established arsenal of images and artifacts, media and practices aiming to assign and extract meaning from outer space. Fantasies of space war both between nations on earth and against alien worlds have captured the imagination of artists, engineers, intellectuals and politicians, and spurred their extraterrestrial agendas throughout the twentieth century. Because images and notions of violence and conflict figure prominently in all variants of astroculture around the globe, the need for a volume on the military underpinnings of outer space was apparent long before the 45th US president gave the topic its most recent twist. Early versions of most contributions were presented at an international symposium *Embattled Heavens: The Militarization of Space in Science, Fiction, and Politics*, convened by the Emmy Noether research group ‘The Future in the Stars’ at Freie Universität Berlin in April 2014. At the time of Trump’s space war 2018 twitter barrage, publication of this volume was well under way, leaving both editors and contributors wondering what to make of the topic’s regained currency and unexpected relevance in day-to-day politics.

Militarizing Outer Space constitutes the third and final volume of the *European Astroculture* trilogy. While *Imagining Outer Space*, the first volume, set out to establish and contour the historical field of 'astroculture' largely in the 1950s and 1960s, *Limiting Outer Space*, the second volume, zeroed in on a single decade, the post-Apollo crisis-ridden 1970s.[2] Given the interplay between military and civilian rationales in the history of spaceflight, notions of crisis and confrontation also serve as a starting point for this third volume. Unlike its two predecessors, the book extends the collective inquiry into the early 1980s, up to Ronald Reagan's 'Star Wars' scenario and beyond. Constituting a preliminary climax of space militarization, SDI heavily influenced Cold War dynamics of deterrence and détente, with apocalyptic scenarios of imminent doom looming large in the popular imagination. The underlying imaginaries, however, were much older. A closer look reveals the extent to which they were grounded in early Space Age utopias. Popular notions of space exploration and conquest were more than mere rhetoric, being deeply intertwined with military strategies, technoscientific ambitions and social fears throughout the twentieth century. Scrutinizing belligerent imaginaries, popular narratives and widespread space war scenarios, from early European astroculture to Star Wars, *Militarizing Outer Space* links the cultural history of outer space more explicitly to conventional Cold War politics than the two preceding books in this trilogy. At the same time it challenges the conventional assumption that the Cold War context is a both necessary *and* sufficient framework to explain the making and ever-intensifying militarization of outer space.

Coming to terms with a subject as vast as outer space could easily have been overwhelming for a research group as small as ours, and we are enormously grateful to everyone who helped us not get lost in space. This includes, first and foremost, the Deutsche Forschungsgemeinschaft (DFG) which generously funded the Emmy Noether research group 'The Future in the Stars: European Astroculture and Extraterrestrial Life in the Twentieth Century' during the six years of its existence from 2010 through 2016.[3] Group members Jana Bruggmann, Ralf Bülow, Ruth Haake, Gilda Langkau, Friederike Mehl, Tom Reichard, Katja Rippert and Magdalena Stotter were there to make it happen. Conference speakers, commentators and participants who shaped the outcome even if their contributions could, alas, not be integrated in this volume include Colleen Anderson, Norman Aselmeyer, Jordan Bimm, Thore Bjørnvig, Katherine Boyce-Jacino, David Edgerton, Greg Eghigian, Danilo Flores, Paweł Frelik, Bernd Greiner, Jörg Hartmann, Matthias Hurst, Joe Maiolo, Markus Pöhlmann, Robert Poole, Alex Roland, Diethard Sawicki, Isabell Schrickel, Kai-Uwe Schrogl, Eva-Maria Silies, Simon Spiegel, Dierk Spreen and Patryk Wasiak. Anonymous reviewers offered invaluable criticism and pointed advice.

As with the two companion volumes, Gösta Röver's brilliant designs form the basis of the book cover. Once again, photographer Hubert Graml helped prepare the more than 50 illustrations for publication, many never before shown and arguably never in such a carefully curated context. As numerous times before, Katja Rippert assisted with her excellent Russian language skills. At Palgrave Macmillan, we are indebted to Molly Beck for overseeing the long and complex publication process of the entire trilogy with calm and vigor. Meanwhile, cooperating with project manager Kayalvizhi Saravanakumar and her team of professionals was as delightful as prior. Audrey McClellan produced yet another index imbued with her impressive mixture of perceptiveness and attention to detail. We would also like to extend our gratitude to those who came along later, including Michel Dubois, Grégoire and Janine Durrens, Michael Najjar and NYU Shanghai's Xinyi Xiong. Last but not least, we are once again profoundly indebted to Ruth Haake. Without her infectious optimism and indefatigable assistance in securing obscure copyright permissions, tireless and astute fact-, manuscript- and footnote-checking, both this volume and its editors would be in very different shape. Although constituting the last volume in the *European Astroculture* trilogy, *Militarizing Outer Space* does not purport to be the final say on past space futures, either in Europe or among the stars. We are too well-adjusted a crew to abort our mission midstream. Hence stay tuned and keep watching the skies. Klaatu barada nikto.

New York and Berlin
July 2020

Alexander C. T. Geppert
Daniel Brandau
Tilmann Siebeneichner

Notes

1. See Christina Wilkie, 'Trump Floats the Idea of Creating a "Space Force" to Fight Wars in Space,' *CNBC* (13 March 2018), https://cnb.cx/2Xo2pre; Donald J. Trump on Twitter, 9 August 2018, https://twitter.com/realdonaldtrump/status/1027586174448218113?); 'Trump in Space,' *New York Times* (27 July 2018), A18. All Internet sources were last accessed on 15 July 2020.
2. Alexander C. T. Geppert, ed., *Imagining Outer Space: European Astroculture in the Twentieth Century*, Basingstoke: Palgrave Macmillan, 2012 (2nd edn, London: Palgrave Macmillan, 2018) (= *European Astroculture*, vol. 1); idem, ed. *Limiting Outer Space: Astroculture after Apollo*, London: Palgrave Macmillan, 2018 (= *European Astroculture*, vol. 2).
3. A detailed conference program can be found at http://heavens.geschkult.fu-berlin.de. For comprehensive reports, see Norman Aselmeyer, 'Stellare Kriege,' *Technikgeschichte* 81.4 (2014), 371–8; Katherine Boyce-Jacino, 'Embattled Heavens: The Militarization of Space in Science, Fiction, and Politics,' *Foundation: The International Review of Science Fiction* 118 (2014), 96–100; Paweł Frelik,

'"Embattled Heavens" Conference,' *Science Fiction Studies* 41.2 (July 2014), 446–7; Ulf von Rauchhaupt, 'Als der größte Großraum zum Schlachtfeld wurde: Die Raumfahrt zwischen Politik, Technik und Science-Fiction,' *Frankfurter Allgemeine Zeitung* (16 April 2014), N3; Tom Reichard, 'Battlefield Cosmos: The Militarization of Space, 1942–1990,' *NASA History News & Notes* 31.3 (2014), 20–1; idem, 'Embattled Heavens: The Militarization of Space in Science, Fiction, and Politics,' *H-Soz-u-Kult* (8 August 2014), online available at https://www.hsozkult.de/conferencereport/id/tagungsberichte-5496; and Stephan Töpper, 'Krieg in den Sternen: Wie Konflikte auf der Erde unsere Vorstellungen vom Weltraum prägten,' *Der Tagesspiegel* (13 April 2014), B6. For further information on the Emmy Noether research group 'The Future in the Stars: European Astroculture in the Twentieth Century,' consult http://www.geschkult.fu-berlin.de/astrofuturism.

List of Figures

Within the past 60 years over 70 nations have launched more than 8,000 spacecraft, more than half for military purposes. The cover image portrays one of them, an idealized reconnaissance satellite orbiting planet Earth. © Gösta Röver, Freie Universität Berlin.

Abbreviations

ABM	Anti-Ballistic Missile
AFES	AG Friedensforschung und Europäische Sicherheit
AFRA	Arbeitsgemeinschaft für Raketentechnik
AGARD	Advisory Group for Aerospace Research and Development
ASAT	Anti-Satellite Weapon
ASTP	Apollo-Soyuz Test Project
ATV	Automated Transfer Vehicle
BBC	British Broadcasting Corporation
BDS	BeiDou Navigation Satellite System
BIS	British Interplanetary Society
BMD	Ballistic Missile Defense
CA	Canada
CAT	Computer of Average Transients
CCD	Charge-Coupled Device
CERN	Conseil Européen pour la Recherche Nucléaire
CH	Switzerland
CIA	Central Intelligence Agency
CNES	Centre National d'Etudes Spatiales
COSPAR	Committee on Space Research
CRV	Coordinate Remote Viewing
CSG	Centre Spatial Guyanais
DAG	Deutsche Astronautische Gesellschaft
DDR	Deutsche Demokratische Republik
DE	Deutschland
DEFA	Deutsche Film-Aktiengesellschaft
DFG	Deutsche Forschungsgemeinschaft
DGRR	Deutsche Gesellschaft für Raketentechnik und Raumfahrt
DIA	Defense Intelligence Agency
DK	Denmark
DLR	Deutsches Zentrum für Luft- und Raumfahrt
DoD	Department of Defense
DOS	Long-Term Orbital Station

DRG	Deutsche Raketengesellschaft
DVL	Deutsche Versuchsanstalt für Luftfahrt
EEC	European Economic Community
ELDO	European Launcher Development Organization
ELF	Extremely Low Frequency
ESA	European Space Agency
ESDAC	European Space Data Acquisition Centre
ESOC	European Space Operations Centre
ESP	Extrasensory Perception
ESRO	European Space Research Organisation
ESTEC	European Space Technology Centre
ESTRACK	ESA Tracking Stations
EU	European Union
EURATOM	European Atomic Energy Community
FAA	Federal Administration Agency
FDJ	Freie Deutsche Jugend
FGB	Functional Cargo Block
FOIA	Freedom of Information Act
FR	France
FTD	Foreign Technology Division
GfW	Gesellschaft für Weltraumfahrt
GNSS	Global Satellite Navigation System
GPS	Global Positioning System
GSOC	German Space Operations Center
IAC	International Astronautical Congress
IAF	International Astronautical Federation
ICBM	Intercontinental Ballistic Missile
IGY	International Geophysical Year
INSCOM	Intelligence and Security Command
IRBM	Intermediate-Range Ballistic Missile
ISS	International Space Station
IT	Italy
ITAR	International Traffic in Arms Regulations
JP	Japan
JPL	Jet Propulsion Laboratory (NASA)
KH-1	Keyhole-1
KSI	Information Return Capsule
LEO	Low-Earth Orbit
LEOP	Launch and Early Orbit Phase
LORAN	Long-Range Navigation
MAD	Mutual Assured Destruction
MBB	Messerschmitt-Bölkow-Blohm
MIDAS	Missile Defense Alarm System
MIT	Massachusetts Institute of Technology
MOL	Manned Orbiting Laboratory
MOU	Memorandum of Understanding
MRBM	Medium-Range Ballistic Missile
MSSS	Multi-Satellite Support System
MTR	Military-Technical Revolution
n.p.	No publisher/pagination

NASA	National Aeronautics and Space Administration
NASM	National Air and Space Museum
NATO	North Atlantic Treaty Organization
NICE	National Institute for Co-Ordinated Experiments
NMD	National Missile Defense
NORAD	North American Air Defense Command
NRL	Naval Research Laboratory
NRO	National Reconnaissance Office
NSA	National Security Agency
NTS-1	Navigation Technology Satellite 1
NVA	Nationale Volksarmee
OPS	Orbiting Piloted Station
ORD	Office of Research and Development
OSI	Office of Strategic Intelligence
OST	Outer Space Treaty
OTRAG	Orbitale Transport- und Raketen Aktiengesellschaft
OTS	Office of Technical Service
PL	Poland
RAND	Research and Development
SAGE	Semi-Automatic Ground Environment
SAM	Surface-to-Air-Missile
SAMOS	Satellite and Missile Observation System
SCOS	Spacecraft Control and Operations System
SDI	Strategic Defense Initiative
SDIO	Strategic Defense Initiative Organization
SDS	Strategic Defense System
SED	Sozialistische Einheitspartei Deutschlands
SIPRI	Stockholm International Peace Research Institute
SPADATS	Space Detection and Tracking System
SPASUR	Space Surveillance System
SRI	Stanford Research Institute
STS	Space Transportation System
TALOS	Tactical Assault Light Operator Suit
TCBM	Transparency and Confidence-Building Measure
TCP	Technological Capabilities Panel
THAAD	Terminal High Altitude Area Defense
TKS	Transport Supply Spacecraft
UCL	University College London
UFO	Unidentified Flying Object
UK	United Kingdom
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNISPACE	United Nations Conference on the Exploration and Peaceful Uses of Outer Space
URDF	Unidentified Research and Development Facility
USA	United States of America
USAF	United States Air Force
USSR	Union of Soviet Socialist Republics
VfR	Verein für Raumschiffahrt
WEU	Western European Union

Notes on Contributors

Daniel Brandau teaches at Freie Universität Berlin. After studying history and literature at Universität Bielefeld (BA, MEdu) and the University of Cambridge (MPhil), he joined the Emmy Noether research group 'The Future in the Stars: European Astroculture and Extraterrestrial Life in the Twentieth Century' at Freie Universität. Brandau completed his PhD in 2017 with a dissertation on the cultural history of rocketry, published as *Raketenträume: Raumfahrt- und Technikenthusiasmus in Deutschland, 1923–1963* (2019). His research interests include the didactics of history and public history. From 2016 to 2019 he was postdoctoral researcher in the 'Meta-Peenemünde' project at Technische Universität Braunschweig, focusing on the remembrance of technologies and former military sites in East Germany after the end of the Cold War.

Paul E. Ceruzzi is Curator Emeritus of Aerospace Electronics and Computing at the Smithsonian National Air and Space Museum in Washington, DC. He has written several books on the history of computing and aerospace including *Beyond the Limits: Flight Enters the Computer Age* (1989); *A History of Modern Computing* (1998); *Internet Alley: High Technology in Tysons Corner, 1945–2005* (2008); *Computing: A Concise History* (2008); and, together with Andrew K. Johnston, Roger D. Connor and Carlene E. Stephens, *Time and Navigation* (2014). His most recent book publication is *GPS: A Concise History* (2018).

Oliver Dunnett is a Lecturer in Human Geography at Queen's University Belfast. His research interests focus on the ways in which cultures of science, technology and outer space are connected to questions of place, landscape and identity. Oliver Dunnett has published in journals such as *Cultural Geographies*, *Geopolitics* and *Social and Cultural Geography*, on topics

including the moral geographies of light pollution and understandings of tropicality in twentieth-century space science. He is also the author of the forthcoming book *Cultures of British Outer Space, 1900–2020*.

Anthony Enns is Associate Professor of Contemporary Culture in the Department of English at Dalhousie University in Canada. His work in media studies has appeared in such journals as *Senses and Society*, *Screen*, *Culture*, *Theory & Critique*, *Journal of Sonic Studies*, *Journal of Popular Film and Television*, *Quarterly Review of Film and Video*, *Popular Culture Review* and *Studies in Popular Culture*.

Christopher Gainor has written extensively on the history of space exploration and aeronautics, and studied the history of intercontinental ballistic missiles for his PhD dissertation in the history of technology from the University of Alberta. He is the editor of *Quest: The History of Spaceflight Quarterly*, has taught history at the University of Victoria and for the Royal Military College of Canada, and is writing a history of the Hubble Space Telescope. He is the author of five books, including *Arrows to the Moon: Avro's Engineers and the Space Race* (2001); *To A Distant Day: The Rocket Pioneers* (2008); and *The Bomb and America's Missile Age* (2018).

Alexander C. T. Geppert is Associate Professor of History and European Studies at New York University, jointly appointed by NYU Shanghai and NYU's Center for European and Mediterranean Studies with the Department of History. From 2010 to 2016 he directed the Emmy Noether research group 'The Future in the Stars: European Astroculture and Extraterrestrial Life in the Twentieth Century' at Freie Universität Berlin. In 2019–20 he held the Charles A. Lindbergh Chair in Aerospace History at the Smithsonian National Air and Space Museum in Washington, DC. In 2021–22 he will serve as the Eleanor Searle Visiting Professor in History at the California Institute of Technology and the Huntington Library in Los Angeles. His book publications include *Fleeting Cities: Imperial Expositions in* Fin-de-Siècle *Europe* (2010, 2013); *Wunder: Poetik und Politik des Staunens im 20. Jahrhundert* (2011, co-ed.); *Imagining Outer Space: European Astroculture in the Twentieth Century* (2012, 2018, ed.); *Obsession der Gegenwart: Zeit im 20. Jahrhundert* (2015, co-ed.); *Berliner Welträume im frühen 20. Jahrhundert* (2017, co-ed.); and *Limiting Outer Space: Astroculture after Apollo* (2018, 2020, ed.). At present Alexander Geppert is completing a cultural history of outer space in the European imagination, entitled *The Future in the Stars: Europe, Astroculture and the Age of Space*.

Patrick Kilian is a PhD candidate at the Research Institute for Social and Economic History at Universität Zürich and a graduate fellow at the Zentrum Geschichte des Wissens (ZGW) in Zurich. His dissertation project on 'Astronautic Bodies in the Cold War' is funded by the Swiss National Science Foundation. His research interests include the history of the Cold War, space history, science and technology studies, as well as the history of knowledge

and French theory. Since 2015 Patrick Kilian has been a co-founder and co-editor of the interdisciplinary open-access journal *Le Foucaldien*. He is the author of *Georges Bataille, André Breton und die Gruppe Contre-Attaque* (2013). Recent publications include 'The Well-Tempered Astronaut' (co-authored with Jordan Bimm, 2017) and 'John C. Lilly auf Tauchstation' (2018).

Cathleen Lewis is Curator of International Space Programs and Spacesuits at the Smithsonian National Air and Space Museum in Washington, DC. She has completed both a bachelor's and master's degree in Russian and East European studies at Yale University and a PhD in history at George Washington University. Her current research is on the history of the public culture of Russian fascination with the idea of human spaceflight. Cathleen Lewis has written about artifacts in the Smithsonian's collection, and articles comparing Soviet and American approaches to exhibiting and portraying spaceflight. At present she is working on a history of the development of space suit gloves.

Natalija Majsova is a postdoctoral researcher at Université Catholique de Louvain (UCL), Belgium, where she investigates nineteenth- and early-twentieth-century visual mass media, and an assistant professor at the University of Ljubljana, Slovenia, where she contributes to courses in cultural studies and sociology. She earned her PhD (2015) and MA (2011) in cultural studies, and a BA in international relations (2010) from the University of Ljubljana. In 2014 she was a visiting scholar in the Emmy Noether research group 'The Future in the Stars: European Astroculture and Extraterrestrial Life in the Twentieth Century' at Freie Universität Berlin. In 2017–18 she carried out a postdoctoral project on the aesthetics of Soviet science-fiction cinema at the Research Centre for Visual Poetics at the University of Antwerp. Her recent book publications include *Konstruktor, estetika in kozmonavt: Vesolje v sodobnem ruskem filmu 2001–2017* (2017).

Michael J. Neufeld is a Senior Curator in the Space History Division of the Smithsonian National Air and Space Museum, where he is responsible for the early rocket collection and for Mercury and Gemini spacecraft. He is also the lead curator of the Destination Moon exhibit project. Born and raised in Canada, he has four history degrees, including a PhD from Johns Hopkins University. Michael Neufeld has written four books, *The Skilled Metalworkers of Nuremberg: Craft and Class in the Industrial Revolution* (1989); *The Rocket and the Reich: Peenemünde and the Coming of the Ballistic Missile Era* (1995); *Von Braun: Dreamer of Space, Engineer of War* (2007); and *Spaceflight: A Concise History* (2018). He has edited five others: *Planet Dora* (1997); *The Bombing of Auschwitz: Should the Allies Have Attempted It?* (2000); *Smithsonian National Air and Space Museum: An Autobiography* (2010); *Spacefarers: Images of Astronauts and Cosmonauts in the Heroic Era of Spaceflight* (2013); and *Milestones of Space: Eleven Iconic Objects from the Smithsonian National Air and Space Museum* (2014). In 2017 Secretary David Skorton gave him the Smithsonian Distinguished Scholar Award, the highest research award of the Institution.

Regina Peldszus is a policy officer with DLR Space Administration, Department of Space Situational Awareness, focusing on the intersection of European governance, operations, security and infrastructure for Space Surveillance and Tracking. From 2013 to 2015 she was a Research Fellow and then consultant at the European Space Agency (ESA), based at the European Space Operations Centre, Studies and Special Projects Division. Prior to this, she contributed to various future systems and safety projects in Europe, Russia and the United States. Regina Peldszus holds a PhD in crewed exploration mission scenarios and simulation from Kingston University, London. Her interests focus on resilience and foresight of complex systems in high-reliability domains including space, polar and nuclear.

Michael Sheehan is Professor of International Relations at Swansea University. His research focuses on international security, particularly theories and conceptualizations of security. He teaches space policy on both the BA and MA programs. His current research interests include Chinese popular understandings of, and attitudes towards, the Chinese space program, and the relationship between cyber-security and social exclusion in the European Arctic. He is the author of 13 books, including *International Security: An Analytical Survey* (2005); *The International Politics of Space* (2007); and *Securing Outer Space* (2009, co-ed.).

Tilmann Siebeneichner is a postdoctoral researcher at Humboldt-Universität zu Berlin. He holds a degree in philosophy and history, and graduated from Georg-August-Universität Göttingen in 2011 with a PhD thesis on the workers' militia in the DDR. From 2013 to 2016 he was a member of the Emmy Noether research group 'The Future in the Stars: European Astroculture and Extraterrestrial Life in the Twentieth Century' at Freie Universität Berlin. His recent publications include *Proletarischer Mythos und realer Sozialismus: Die Kampfgruppen der Arbeiterklasse in der DDR* (2014); 'Die "Narren von Tegel": Technische Innovation und ihre Inszenierung auf dem Berliner Raketenflugplatz, 1930–1934' (2017); *Berliner Welträume im frühen 20. Jahrhundert* (2017, co-ed.); and 'Spacelab: Peace, Progress and European Politics in Outer Space, 1973-85' (2018). His current research focuses on the militarization of outer space in the 1970s.

Philipp Theisohn is Professor of Comparative Literature and Modern German Literature at the German Department of Universität Zürich. He also directs the research project 'Conditio extraterrestris: The Inhabited Galaxy as the Space of Literary Imagination and Communication (1600–2000).' His current research interests include the history of the alien reader, the use of literature as a futurological medium as well as the history of literary property. Theisohn's book publications include *Die Urbarkeit der Zeichen: Zionismus und Literatur – eine andere Poetik der Moderne* (2005); *Die kommende Dichtung: Geschichte des literarischen Orakels 1450–2050* (2012); *Literarisches Eigentum: Zur Ethik geistiger Arbeit im digitalen Zeitalter* (2012); and *Des Sirius goldne Küsten: Astronomie und Weltraumfiktion* (2019, co-ed.).

Introduction

CHAPTER 1

Spacewar! The Dark Side of Astroculture

Alexander C. T. Geppert and Tilmann Siebeneichner

> The time has come to ask what the people of the Earth are going to do about Space. Are they to use it to make themselves masters of the Universe, or to destroy themselves?
>
> *Daily Mail,* 1959[1]

History may not repeat itself, a truism goes, yet it often rhymes. When the 45th US president first floated the idea of creating a new 'Space Force' in March 2018, many observers were bemused. Those who knew their space history could not help but recall a remarkably similar announcement another American president had made 35 years earlier, in March 1983.[2] In his 'Address to the Nation on Defense and National Security,' broadcast live on television and radio, then commander-in-chief Ronald Reagan proclaimed a 'long-term plan to make America strong again.' After a 'decade of neglecting our military forces,' the US president called for a comprehensive technological modernization program. Soon nicknamed the 'Star Wars' speech, after George Lucas's eponymous 1977 space opera, Reagan's announcement underscored the strategic significance of outer space as the battlefield of the future and (re)militarized international cosmopolitics (Figure 1.1).[3]

Alexander C. T. Geppert (✉)
New York University, New York, USA
NYU Shanghai, Shanghai, China
e-mail: alexander.geppert@nyu.edu

Tilmann Siebeneichner
Humboldt-Universität zu Berlin, Berlin, Germany
e-mail: tilmann.siebeneichner@hu-berlin.de

Alexander C. T. Geppert et al. (eds), *Militarizing Outer Space*
European Astroculture, vol. 3
https://doi.org/10.1057/978-1-349-95851-1_1

Figure 1.1 Even before SDI, the armament of outer space was perceived as imminent. A 1978 study conducted by the renowned Stockholm International Peace Research Institute (SIPRI) pictured the future of global warfare as dependent on satellite technology.
Source: Bhupendra Jasani, *Outer Space: Battlefield of the Future?*, London: Taylor & Francis, 1978, cover image. Courtesy of SIPRI.

Often described as a climax of Cold War confrontation, Reagan's bid for control of earth orbit constituted the preliminary endpoint of a longer historical development. For much of the twentieth century, outer space was a site of utopian thinking that drew upon prospects of peaceful expansion. Yet the development of modern spaceflight technology was equally grounded in violent and often outright dystopian scenarios of warfare. More than anything else, SDI illustrated that the so-called conquest of space, first envisioned (and termed as such) during the interwar period, was as much driven by futuristic fantasies of interplanetary expansion as by mundane aspirations of securing military control from out of space. 'So far as sovereign power is concerned […], control of the moon in the interplanetary world of the atomic future could mean military control of our whole portion of the solar system. Its dominance could include not only the earth but also Mars and Venus, the two other possibly habitable planets,' spaceflight propagandist Edward Pendray (1901–87) speculated in 1946, bringing – and thinking – together peaceful outreach into space and its hegemonic benefits.[4]

Concentrating on weapons, warfare and violence beyond planet Earth, *Militarizing Outer Space* explores this military dimension of astroculture and zeroes in on the oscillations between peaceful and aggressive, imaginary and material, national and international dimensions of human and robotic spaceflight. Rather than invoking oft-repeated narratives of bipolar Cold War rivalry and an escalating Space Race between the two superpowers, *Militarizing Outer Space* examines the ways in which fantastic anticipation and political rationales, technological failures and apocalyptic threats were part and parcel of the legitimization and popularization of space exploration from the 1920s through the 1980s, from early space war imaginaries to Reagan's 'Star Wars' scenario.

I 'Dual use' and other technopolitical fictions

In the beginning there was war, both on earth and in the skies. Rockets were imagined as weapons of the future long before their first combat deployment in the early 1940s. When the popular German magazine *Die Gartenlaube* published an article on 'The Three Faces of the Rocket' in 1930, doubts about the technology's feasibility were widespread. Naming the so-called father of spaceflight Hermann Oberth (1894–1989) as author, the article went to great lengths to distinguish itself from science fiction, however it might have mimicked the genre's aesthetics. Lavishly illustrated by A. B. Henninger, it praised the benefits of liquid-fuel rocketry while elaborating three classes of objectives: scientific, belligerent and futuristic. While long-range missiles would serve a number of earth-bound purposes, for the author only the third type – the *Weltraumschiff* (spaceship) – constituted the ultimate goal of technological progress, as it would aim to leave the confines of earth behind.[5] In their colorful brutality the accompanying illustrations spoke a more candid language of threat and destruction. Here, a bleak picture of a nocturnal raid on New York City, featuring the Brooklyn Bridge in the foreground and the Manhattan Bridge behind, introduced a belligerent technology that would soon capture the minds of military theorists all over the world: the ballistic missile (Figure 1.2).

Figure 1.2 Depicting a nocturnal missile raid on New York City, this illustration by A. B. Henninger featured in a 1930 article published under Hermann Oberth's name anticipated the strategic value of rocketry for future warfare.
Source: A. B. Henninger, 'Nächtlicher Raketenüberfall auf New York,' *Die Gartenlaube* 43 (23 Oktober 1930), 887. Courtesy of Martin Kelter Verlag.

Oberth, his American counterpart Robert H. Goddard (1882–1945) and others had proposed using rockets as weapons as early as 1917.[6] But it was only after the First World War when public debate began to latch onto the idea of revolutionizing warfare by means of rocketry, 'death-rays' and other fantastic weapons. Historian Peter Bowler has recently shown that the logic of deterrence, commonly considered a Cold War product, was effectively conceived at that time.[7] A year before the *Gartenlaube* article was published, Oberth had already made headlines with *Wege zur Raumschiffahrt*, a revised edition of his seminal 1923 treatise *Die Rakete zu den Planetenräumen* with an added section on the conduct of future warfare. The use of rockets would enable their proprietors to strike against concentrated military facilities and civilian infrastructures such as ammunition dumps or railway junctions rather than squander them on individual combatants widely dispersed through the trenches. 'One would not go to war as easily if one knew: "The first one to be hit will be me",' Oberth cautioned his readers.[8] As a consequence, he concluded during a lecture held in Vienna in 1931, these 'deadly death-rockets […] would force the world, in self-protection, to outlaw all war.'[9] Recognizing the simultaneously utopian and dystopian implications of this powerful new technology, Oberth contributed to the making of deterrence as a strategic concept, one which would only later rise to fame and serve to legitimize the militarization of outer space throughout the twentieth century.

Germany's defeat during the First World War prepared the ground for its fascination with rocketry. Most notably, members of the Verein für Raumschiffahrt (VfR), an amateur lobby group founded in 1927, rallied for the development of rocket technology by promising 'benefits of a kind that would immediately restore Germany's erstwhile international standing.'[10] The exact extent to which these early rocketeers were driven by futurist space-mindedness or rather advocated the ballistic missile as key to national rebirth is still a matter of debate. But there can be little doubt that ideas and images such as those featured in *Die Gartenlaube*, *B.Z. am Mittag* and other popular outlets made the new technology's appeal anything but utopian, innocent and immaculate.

Similar enthusiasm for all matters space and widespread interest in utilizing the third dimension for military purposes existed also in the United Kingdom, France, the United States and the Soviet Union after 1918. 'Rockets are in everybody's thoughts just now,' a British journalist observed. Popular science magazines such as *Science and Invention*, *Popular Science Monthly*, *La Science et la Vie* and *Everyday Science and Mechanics* simultaneously discussed both the likelihood of reaching the moon and the military potential of rocketry.[11] The deployment of aircraft during the First World War convinced military theorists Giulio Douhet (1869–1930), Hugh Trenchard (1873–1956), Billy Mitchell (1879–1936) and others that airpower would be the deciding factor in any future warfare, enabling the aggressor to achieve a