

Embattled Heavens: The Militarization of Space in Science, Fiction, and Politics

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The dawn of the Space Age was marked by a military operation. On October 3, 1942, an A4 rocket, later known as the V-2, launched from the Peenemünde Army Research Center in Northern Germany, reached an altitude of 84.5km and thus became the first man-made object to breach what was regarded as the boundary of outer space. From its inception, spaceflight was closely interconnected with rocketry; a feature which subsequently became known as the dual-use character of space technology. Yet the coalescence of space exploration and the military was not merely limited to factual spaceflight. It also applied to scientific research and unrealized ventures into outer space, as well as to fictional works about cosmic battles and alien encounters. Locating the confrontational side of astroculture therefore raises fundamental questions about the characteristics of the Space Age: How did violence and conflict relate to the opposite trend of envisioning space as a place of world peace and transcendence? Was the exceptional relevance of space a mere consequence of a fundamental political and cultural shift towards the Cold War since the mid-twentieth century? Or did outer space as such also react to basic political, social and cultural developments in an age of nuclear threat and increased yearning for security?

Covering the period from the 1940s to the end of the Cold War in the early 1990s, the conference „Embattled Heavens: The Militarization of Space in Science, Fiction, and Politics,“ organized by the Emmy Noether Research Group „The Future in the Stars: European Astroculture and Extraterrestrial Life in the Twentieth Century“ of Freie Univer-

sität Berlin, set out to address these questions. As ALEXANDER C.T. GEPPERT, DANIEL BRANDAU and TILMANN SIEBENEICHNER (Berlin) explained in their introduction, the symposium set out to investigate the „dark side of global astroculture,“ thus aiming to realign perspectives on the Cold War and the Space Age. In doing so, the conveners chose an interdisciplinary approach, which would render possible the investigation of the temporal and spatial location of the military in the history of outer space in three closely intertwined fields of study: science, fiction and politics.

The political dimension of the militarization of space featured prominently over the course of the three-day discussions, for which ALEX ROLAND (Durham, NC) sketched the historical timeframe. Reflecting upon the absence of any kind of weaponization of space since World War II, Roland concluded that space politics had been the continuation of the Cold War by other means. Large-scale military space projects, such as Ronald Reagan's well-known Strategic Defense Initiative (SDI) from the early 1980s, were eventually suspended, because the spatial expansion of the Cold War consensus into outer space established a stable state of affairs, which in turn ensured that human conflict in the low Earth orbit has remained nonviolent up to the present day.

Although the twentieth century produced no weaponization of space, there is a strong case for a general militarization. CHRISTOPHER GAINOR (Sidney, BC) emphasized the military side to the history of rocketry in the US. The development of the carrier rocket Atlas, later the workhorse of the space program, was the consequence of a shift in the US nuclear strategy, following the so-called thermonuclear breakthrough of 1952, making nuclear warheads fit into intercontinental ballistic missiles (ICBMs). Likewise, the Soviet R-7 and the European Ariane can be regarded as the offspring of national nuclear defense programs. This military legacy was far from being exceptional, as REGINA PELDSZUS (Darmstadt) showed with regard to the evolution of civilian mission control centers in the US, Europe and the USSR. While remaining architectural heirs to classic war rooms, the

civilian mission control center was gradually detached from its dual-use feature. Early on, Peldszus argued, the iconic command rooms took on the role of public relation tools to promote the ever-more-expensive space programs.

The 1970s saw another attempt to militarize outer space, this time on the part of the Soviet Union. CATHLEEN LEWIS (Washington, DC) analyzed the reframing of the USSR's space program after the lost moon race that became manifest in the launch of three Soviet military space stations (the Almaz series). For a short time, Russian cosmonauts were turned into representatives of both mankind and warfare, while the US had already canceled their Manned Orbiting Laboratory (MOL) in 1969 and proceeded exclusively with unmanned spying activities by satellites. Yet the intersection between the military and the civilian did not draw to a close with the end of the Cold War, as PAUL E. CERUZZI (Washington, DC) showed. The Global Positioning System (GPS) started off as an exclusively military program, but underwent a rapid commercialization in the wake of the First Gulf War in the early 1990s. Less than a decade later, the Kosovo War revealed Europe's dependence on the American GPS, and in turn caused the launch of the EU-run high-precision positioning system Galileo, which is not expected to achieve full operational capability before 2019.

Alongside profound industrial and technological implications of space politics, science – the conference's second focus – played an important role in the formation of a global astroculture in the post-war era. JORDAN BIMM (Toronto) argued that Hubertus Strughold's (1898–1986) invention of so-called Mars Jars in the 1950s was greatly influenced by the military field of space medicine, hence suggesting that we rethink the historical legacy of astrobiology, commonly regarded as a mere civilian study of the possibilities of the existence of extraterrestrial life. That military purposes remained important for the scientific appropriation of space in the decades to follow, was made clear by ANTHONY W. ENNS (Halifax, NS), who investigated a CIA-run intelligence program utilizing parapsychology and psychic experiments in support of spy

satellites from the 1970s to the early 1990s.

Just as much attention was directed at military projects that remained (almost) pure fantasy, such as scientific undertakings for ionospheric modification between the 1950s and 1990s, examined by DIETHARD SAWICKI (Paderborn). Various ventures including plans to heat up the weather and to control global radio communication gave rise to conspiracy theories regarding classified politico-military projects which have proven powerful up to today. Another popular project contained the set-up of large space mirrors to destroy enemy cities by highly bundled sun beams. Originally a science fiction idea, ISABELL SCHRICKEL (Lüneburg) explained, the sun gun underwent a transformation towards climate alteration as global warming gained more importance in the public debate.

Following these large-scale technoscientific projects, military threat scenarios and corresponding security measures occupied a special position in the conference design. DIERK SPREEN (Lüneburg) aimed at making sense of today's satellite colonization of the low Earth orbit by combining Carl Schmitt's „spatial revolution“ and Niklas Luhmann's „world society.“ PATRYK WASIAK (Wrocław), by contrast, stressed the aesthetic relevance of scientific illustrations of Anti Satellite Weaponry (ASAT). However, angst was not only caused by human warfare brought to the skies, but also by invasion scenarios of alien powers coming from the depths of the universe. In this respect, DANILO FLORES (Berlin) and GREG EGHIGIAN (University Park, PA) addressed a hitherto often neglected subject of historical research: the so-called flying saucer phenomenon. Whereas Flores took a closer look at alien infiltration in space movies since the 1950s, Eghigian proposed to read American and German UFO sightings in the first two decades after World War II as a transatlantic information transfer which would best be located in the historical and local contexts of their occurrence.

The last of the conference's three foci, the fictional dimension of the militarization of outer space, was introduced by MICHAEL SHEEHAN's (Swansea) feature presentation. Taking up Robert Kagan's famous aperçu,

Sheehan claimed that in terms of science fiction, Americans were from Mars, while Europeans came from Venus. Parallel to the political evolution of spaceflight, in the US the genre dwelled on the military and violence in space, while European science fiction from France, Spain, Germany and Great Britain rather focused on the peaceful use of outer space. Providing a first example in support of Sheehan's reading of the transatlantic disparities, Robert Heinlein's 1959 novel „Starship Troopers“ served as a prominent case study. SIMON SPIEGEL (Zurich) and PHILIPP THEISOHN (Zurich) both considered „Starship Troopers“ to be defined primarily by its military plot. With all its utopian features, Spiegel made a case for the novel's characterization as „anti-utopian utopia,“ because of its pragmatism regarding the deficient reality, which the crew had to come to terms with. Theisohn, on the other hand, analyzed the military clothing of the spaceship's staff, interpreting the combat suit as the „body politic of the Space Age,“ which would render outer space a place of distinct non-civilian imprint.

OLIVER DUNNET (Belfast) similarly focused on the body in space: that of Ransom, the protagonist of C. S. Lewis' so-called Space Trilogy (1938–45). Unlike in „Starship Troopers,“ Lewis' depiction of Ransom's sensitive body carried a warning about the moral threat of space travel, Dunnet argued. Opposed to this pessimistic view of outer space, the notion of a universal struggle for evolutionary fitness has been interrogated through the human body's potential capabilities to survive in harsh and alien environments. As PATRICK KILIAN (Zurich) demonstrated, this problem became obvious pre-eminently in the context of the Cyborg.

Stressing the visual side of the genre, JÖRG HARTMANN (Karlsruhe) reported on his archival findings regarding the rare German film „Weltraumschiff I startet“ (1938), which was exceptionally accurate in its depiction of state-of-the-art rocketry at the time. MATTHIAS HURST (Berlin), by contrast, laid emphasis on the specific political and cultural background of „Raumpatrouille Orion“ (1966), one of the most successful German TV series of all time. According to Hurst, Orion should be read as a classical mani-

festation of post-war *Befindlichkeit* (sensitivity) in West Germany. Probing another type of visual culture, namely satirical cartoons published in East and West German magazines, COLLEEN ANDERSON (Cambridge, MA) showed that space in West and East German caricatures only became heavily militarized with the SDI program, having been hitherto the stage for a replication of the terrestrial conflict between the US and the USSR. Shifting the gaze towards arcade and computer games, PAWEŁ FRELIK (Lublin) addressed the specific characteristics of the hands-on experience of virtual worlds. Right from the first computer game ever from 1962, concisely named „Spacewar!,“ Frelik argued that outer space provided an exceptional setting for science fiction as a technoscientific genre to redirect the focus away from the everyday threats of the Nuclear Age.

Ultimately, what does this history of the dark side of astroculture tell us about the twentieth century's salient occupation with outer space? A concluding panel discussion between three experts – DAVID EDGERTON (London), BERND GREINER (Hamburg) and MICHAEL J. NEUFELD (Washington, DC) – set out to reconfigure common narratives in modern space history. One of the key questions concerned the way that the imagination of outer space and spaceflight has contributed to the history of the military and vice versa. In this respect, Michael Neufeld challenged Alex Roland who had earlier expressed skepticism about the extent to which science fiction influenced space policy in the course of the twentieth century. Yet, with regard to its weaponization, Neufeld emphasized that the imaginative powers of science fiction have long outstripped those of „real“ spaceflight.

Bernd Greiner, on the other hand, stressed the importance of the Cold War for the coming of the Space Age. In a „culture of fear“ with its peculiar notion of preparedness and the continued national struggle for social prestige and global credibility, outer space provided an „exit option“ of boundless expanse. Lastly, by referring to the notion of a „liberal militarism,“ David Edgerton argued that the military had not been only a secondary condition, but the driving force from the very outset of spaceflight activities and

continued as such, although in transformed shape.

In sum, space with its peculiar characteristics provided a place for the spatial expansion of human conflict and, at the same time, affected the way conflicts on Earth were conceived. After two disastrous world wars and in the ensuing formation of a global age, the infinity of outer space equally provided the background for scenarios of sustained and perpetuated conflict as well as a basic quest for transcendence. In times of nuclear bombs and the worldwide divide between two rival camps, fears of destruction as well as visions of security were shared on a global scale. Having undergone several transformations the militarization of outer space in science, fiction and politics proved crucial throughout the twentieth century and made possible the onset of an age in which getting lost became increasingly difficult and avoiding surveillance almost impossible. With the ever-growing impact of commercial space technologies and satellites on the everyday life of millions of people around the globe, an end to the military dimension of outer space is not in sight.

Conference Overview:

Introduction

Alexander C.T. Geppert / Daniel Brandau / Tilmann Siebeneichner (Berlin), Heavenly Utopias and Ultimate Battlefields. The Dark Side of Global Astroculture

Feature Presentation I

Alex Roland (Durham, NC), The Cold War in Space

Panel I: Angst

Chair: Markus Pöhlmann (Potsdam)

Christopher Gainor (Sidney, BC), The Nuclear Roots of ICBMs

Greg Eghigian (University Park, PA), Flying Saucers, America, and the Specter of War in Postwar Germany, 1946–1960

Panel II: Territories

Chair: Katherine Boyce-Jacino (Baltimore, MD)

Dierk Spreen (Lüneburg), Global Security and Spatial Revolution

Danilo Flores (Berlin), Envisioning Infiltration. Epistemic Border Disputes of Militarized Astroculture

Panel III: Evolutions

Chair: Jana Bruggmann (Berlin)

Jordan Bimm (Toronto), Simulating Mars in the 1950s and the Military Origins of Astrobiology

Patrick Kilian (Zurich), Darwin vs. Cyborg. Cold War's Struggle for Evolutionary Fitness in Space

Panel IV: Plots

Chair: Natalija Majsova (Ljubljana)

Jörg Hartmann (Karlsruhe), „Weltraumschiff I“ startet. The Dual-Use of a Spaceflight Science-Fiction-Film between Fact and Fiction, V-2 and Sputnik

Matthias Hurst (Berlin), „Raumpatrouille – Die phantastischen Abenteuer des Raumschiffs Orion.“ Defending Earth in a German Spaceship

Feature Presentation II

Chair: Daniel Brandau (Berlin/Mainz)

Michael Sheehan (Swansea), Star Wars – Mars against Venus. Strategy, Science Fiction, and Contrasting Visions of Space Security

Panel V: Infrastructures

Chair: Eva-Maria Silies (Berlin)

Regina Peldszus (Darmstadt), Architecture of Command. Dual-Use Legacy in Mission Control Centers of Civilian Space Operations

Isabell Schrickel (Lüneburg), The Geopolitics of Space Mirrors

Panel VI: Domination

Chair: Tilmann Siebeneichner (Berlin)

Cathleen Lewis (Washington, DC), Space Spies in the Open. Military Space Stations and Heroic Cosmonauts after the Moon Race, 1971–1975

Paweł Frelik (Lublin), War Play. Space Combat and Galactic Conquests in Arcade and Computer Games

Panel VII: Depictions

Chair: Joe Maiolo (London)

Colleen Anderson (Cambridge, MA), The Militarization of Outer Space in East and West German Satirical Cartoons, 1957–1989

Oliver Dunnett (Belfast), C. S. Lewis and the Moral Threat of Space Exploration

Panel VIII: Utopias

Chair: Thore Bjørnvig (Copenhagen)

Simon Spiegel (Zurich), Utopian Soldiers. Robert Heinlein's „Starship Troopers“ as a Utopian Novel

Philipp Theisoehn (Zurich), The Suits of Invasion. Extra-Terrestrial Warfare and the ‘Clothing’ of the Body Politic in Twentieth-Century Fiction

Panel IX: Strategies

Chair: Kai-Uwe Schrogl (Paris)

Anthony W. Enns (Halifax, NS), Satellites and Psychics. The Militarization of Outer and Inner Space

Diethard Sawicki (Paderborn), Modification of the Ionosphere in Science, Defense Scenarios, and Conspiracy Theories

Panel X: Surveillance

Chair: Robert Poole (Preston)

Patryk Wasiak (Wrocław), Visual Imagery and the Public Life of Anti-Satellite Weapon Systems

Paul E. Ceruzzi (Washington, DC), The Global Positioning System. Military Origins, Civilian Application, and the Culture of Precise Positioning

Panel Discussion: Reconfigurations

Chair: Alexander C.T. Geppert (Berlin)

David Edgerton (London) / Bernd Greiner (Hamburg) / Michael J. Neufeld (Washington, DC)

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