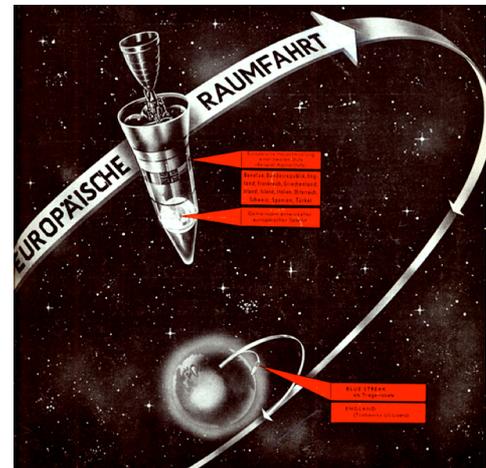


## IMAGINING OUTER SPACE, 1900-2000

### An International Conference

February 6-9, 2008

Organization: Alexander C.T. Geppert



#### – Abstracts –

**Debbora Battaglia**

Mount Holyoke College, South Hadley MA

#### ***Galaxies of E.T. Discourse.***

#### ***An Anthropologist's First Contact with the Science of Weird Life***

A striking feature of the idea of the alien is the extent to which conventionally distinct fields of knowledge cross-connect, collide, or pass through one another under its influence. For “insider” and more detached researchers alike, these *galaxies of discourse* reconfigure human and nonhuman agents and also reconstellate scholarly disciplines. The “*ET effect*” of social discourse is in this sense deeply cultural, explicitly historical, and open to the work of hybridization. Emanating from cultural imaginaries of outerspaces, it invites us to engage the horizons of subjects’ inner-spaces. Whether we train our attention on the idea of the extraterrestrial (aliens) or alien technologies (ufology), on mystical “channels” of communication or “saucerian” visions, each of these homes to places and times right here on Terra.

It follows that extraterrestrial discourse requires a wide variety of disciplinary approaches that present “an opportunity to phenomena that...would not be ‘given a chance’ [to appear]” if subjected only to the scientific gaze (Latour 2000:368). It also tests the methodological grounds of any interpretive discipline, as well as the sufficiency and necessary coherence of its models. In this paper I argue that anthropology is uniquely positioned to address the intellectual and subjective challenges posed by the trope of outer space, by presenting counterfactuals to the worlds of alien/UFO believers we think we understand, from the native point of view. Ethnography, and the historical inquiries of anthropology as a discipline, acquire a new descriptive and also a *diplomatic* function in these terms - giving expression to realms of intimate foreignness, complexly inter-related by the practical ontologies of contact in a fluid modernity. Further, the discipline’s ritualized “welcoming apparatuses” (not unlike the invitational spaces of interdisciplinary conferences) are exemplary sites for increased sensitization to multiple kinds of actors, such that models of disciplinary coher-

ence can unapologetically give way to the creative possibilities of diverse modes of knowledge exchange.

**Thore Bjørnvig**

University of Copenhagen

***Transcendence of Gravity.***

***Arthur C. Clarke and the Apocalyptic of Weightlessness***

Arthur C. Clarke's influence on the conceptualization of man's venture into space, the globalization of Earth, and the contact with extraterrestrial intelligence is immense. Not only has Clarke been chairman of the British Interplanetary Society (1947-50, 1953), is an active supporter of SETI, and is regarded as the inventor of the communication satellite. He is also one of the best known and most popular science fiction writers of the twentieth century and has in many ways been pivotal in the definition of the genre itself.

A recurrent theme in Clarke is the portrayal of earthly existence in the grip of gravity as an evil to be transcended. In a short essay, "Beyond Gravity," Clarke tells us that gravity is "killing" and "maiming" us and that it "controls our lives from birth to death". Mankind's destiny is to break the shackles of gravity and become a "heavenly being," thus obtaining "a freedom from gravity which, until the present, we have known only in our dreams."

With statements like these Clarke dives into a central theme of the space colonization/SETI discursive complex. The combined experience of weightlessness and the view from above of an unified Earth without national borders (the "Overview Effect") will transform human consciousness and even the human condition itself, propelling mankind into a prelapsarian state beyond the gravitational pull of original sin. And at the ultimate horizon awaits First Contact.

Using the comparative type of apocalyptic (heavenly sojourn, eschatological vision, cosmological revelation) as an analytical tool can shed light on the role a culturally invested narrative master plot such as apocalypse may play in the endeavor to invigorate the weaning public interest in the space exploration/SETI cause. Like many other SF writers, Clarke has time and again demonstrated a keen awareness that it is not only LOX/kerosene that will get rockets into space; of equal importance is the narrative fuel.

**Thomas Brandstetter**

Universität Wien

***Imagining Inorganic Life.***

***Crystalline Aliens in Science and Fiction***

After spectroscopy had shown that the elements of which the planets are composed are similar to the elements of the earth, speculations about life on other worlds acquired a new depth. Around 1900, an additional question entered the century-old debate: could one imagine a form of life that would be based on other chemical compounds than carbon? Scientists and writers like F.E. Reynolds, H.G. Wells or M. Benedikt advanced the idea of inorganic, crystalline life forms made up of silicon, which could even sustain the extreme demands of the sun's environment.

These speculations had a sound scientific background: since Matthias Schleiden had described the development of the cell in analogy to crystallization, biologists had blurred the boundary between the living and the non-living by pointing out the resemblance of certain crystalline structures to the structures of living cells and tissue. For researchers in synthetic biology like Moritz Benedikt, imagining inorganic life actually meant simulating it by growing such crystals. Their visual likeness to cells was taken to be evidence of their mutual dependence from purely mechanical forces: "Wüßte man nicht, daß die Bilder aus der Beobachtung der Vorgänge in einer Lösung von Salicylsäure stammen, so würde jedermann sie als organische Zellen auffassen" (M. Benedikt, *Krystallisation und Morphogenesis*, 1904). This line of research was part of the heated discussion about whether life could be reduced to known chemical components and processes, or whether one had to assume a special 'vital force'.

Speculations about crystalline life on other planets were a continuation of the biologists' experiments into the realm of the imagination. Outer space thereby provided a frame for thought experiments which allowed to address questions concerning the nature of life itself. In my paper, I want to present some of the contributions to this discussion and examine how they redefined the intricate relationship between the organic and the non-organic and the living and the non-living.

### **Burghard Ciesla**

Universität Potsdam/Universität der Künste Berlin

#### **Outer Space, Inner Fear.**

#### ***Cold War SF-Films in East and West***

In February 1960 the first science fiction movie of the GDR premièred in East Berlin: "The Silent Star". The film was based on the novel "The Astronauts" (1951) by the Polish writer Stanislaw Lem. The story is about the nuclear self-annihilation of an alien civilization. Two years later the movie was also shown in American theaters. However, in the US-version the film was rigorously cut and abbreviated. Taking different sequences of the film as examples, we show how people dealt with role models and enemy concepts of the respective "other side" during the Cold War. Our main focus is the historical analysis of the abbreviating, cutting, and editing practice of the DEFA-film for the US-audience.

Along with the lecture there will be an evening presentation with the filmmaker Jürgen Ast. He will show excerpts from a Soviet science fiction movie and parts of US-television-features on rocket pioneer Wernher von Braun and place them in the historical context.

### **Steven J. Dick**

National Aeronautics and Space Administration, Washington DC

#### ***Space, Time and Aliens.***

#### ***The Role of Imagination in Outer Space***

#### **(Keynote Lecture)**

Throughout the twentieth century science stimulated the imagination even as the imagination stimulated science, in what can only be described as a symbiotic relationship. For vast segments of the public the idea of space, time and aliens entered their lives not as rigorous science or philosophy but as fictional accounts in literature and the arts that imparted an emotional experience often difficult to achieve with the hard facts alone. At the same time, many who entered careers in astronomy or became involved in space programs around the world were influenced by such literature. Whether through science or the imagination, in this paper I argue that the search for our place in the universe is a central driving force for our ideas of space, time and aliens. Ideas of *space* changed radically over the century, from a static universe a few thousand light years in extent to an evolving, and then an accelerating, universe spread over 13.7 billion light years. This new universe opened a vast playing field for human (Asimov) and alien (Clarke) action and interaction. Our conception of time has also expanded profoundly. Although scientists and the public thought they knew the nature of *time* from everyday experience, Albert Einstein showed that our ideas of time needed to be radically altered, and they in turn altered our understanding of the cosmos as a space-time continuum. We now know this cosmic evolution began some 13.7 billion years ago with the Big Bang, and that humans by comparison are a rather recent and perhaps ephemeral addition. The new concept of time also added a new dimension to our place in nature. Our ideas of *aliens*, which over the century have increasingly played a central role in popular culture through the UFO debate and the search for extraterrestrial life, stimulated speculations on our place in the great chain of being. Ideas from all three areas – space, time and (alien) being – affected our place in the universe in distinctive ways, and also affected spaceflight in often unexpected ways. For example, as a young man Wernher von Braun "devoured ... with curiosity and excitement" the novel by the German Kantian philosopher and historian Kurd Lasswitz, *Auf zwei Planeten* (1897). Lasswitz – as well as his French and English counterparts Jules Verne and H. G. Wells – further illuminates the interaction between society and visions of spaceflight through his

use of the novel to illuminate strongly felt ideas about society and the important role of science and technology in it. Although it must be emphasized that “culture” is not a monolithic concept, the changes over the last century in human ideas of space, time and aliens have permanently altered our *Weltanschauung*, and have affected (and should affect more) our views on religion, philosophy and visions of human destiny.

**Kerrie Anne Dougherty**  
Powerhouse Museum, Sydney

### ***Spaceport Woomera***

Established in the central Australian deserts in 1947, as a test range for the development of British missiles and other weapons, Woomera Rocket Range rapidly acquired a ‘glamorous’ media profile—especially in Australia—as a high-tech research centre, where all manner of cutting edge and exotic aerospace research was carried out. Its mystique was further enhanced by the Cold War secrecy that surrounded the remote facility, which was only accessible to authorized personnel and carefully approved media representatives.

Although “space research” was not among the reasons for the establishment of the Range, long before space-related activities commenced at Woomera, a decade after its inauguration, science fiction writers were already envisaging it as a future “spaceport”. Even as Woomera was being established, Arthur C. Clarke in his *Prelude to Space* (written in 1947, though not published until 1951), foresaw it as a future ‘world spaceport’. Other British and Australian authors, more narrowly focused, would cast it in their works as a ‘British’ or ‘Commonwealth’ space launch facility.

This paper will consider the vision of Woomera as a major spaceport in British, Australian and, to a lesser extent, European imagination. It will examine the way in which the ‘mystique’ of the Woomera Rocket Range was created through technical journalism and the popular media and how this was transformed, via science fiction, into a popular assumption, at least within the British Commonwealth, that Woomera would become a ‘British/Commonwealth/International spaceport’, such that journalists could seriously propose the possibility that the first manned Moon mission might be launched from Woomera. It will focus on the period from 1947-1977, the operative life of the Range (after which it was obvious that the facility would never achieve its anticipated space-launch potential).

**Rainer Eisfeld**  
Universität Osnabrück

### ***Projecting Landscapes of the Human Mind on Another World. Changing Features of an Imaginary Mars***

Markings discerned on the planet Mars by astronomers through Earth-bound telescopes since the mid-17th century only in the rarest instances corresponded to “areo” morphological structures. Space probes were needed to demonstrate that they rather originated from the different reflectivity of the planet’s bright and dark regions, changed in its turn by wind activity which continues to transport and deposit fine dust across Mars. To the conjectural astronomy of the 19th century, hypothesizing on the living conditions and natural environments of other celestial bodies, subsequently to the science fiction of the latter part of the 19th and the 20th century, no other planet seemed to offer such clues for well-founded speculation. Conjectural astronomy and science fiction served as vehicles for succeeding generations to project their nightmares and pipe dreams on Earth’s neighbor planet. This paper focuses on five “faces” successively attributed to an imaginary Mars by astronomers and science fiction writers: a charming *Arcadian Mars* covered by continents and islands, oceans and rivers; an arid *Advanced Mars* whose inhabitants had constructed a vast network of canals for irrigating their world; a forbidding *Frontier Mars* where the rugged adventurer/pioneer might again come into his own; a *Cold War Mars*, source of an assault on the US/the Earth, or haven for terrestrial refugees from nuclear devastation; finally, a *Terraformed Mars*, again with strong frontier undertones, lending itself to human colonization and exploitation.

**Alexander C.T. Geppert**

Freie Universität Berlin/Harvard University (D/USA)

***European Astrofuturism, Cosmic Provincialism.  
Historical Problems and Historiographical Perspectives***

This paper will serve as a general introduction to the entire conference. It will explain its conceptual framework (spatializing space history; Europe), discuss three central aspects (science/fiction; Astrofuturism; spirituality), and present the conference's design and structure, thus introducing and developing a broad framework for all other contributions.

**Henry Keazor**

Johann Wolfgang Goethe-Universität Frankfurt am Main

***A Stumble in the Dark.  
Gerry Anderson's Space 1999***

Being launched in 1975, the European TV-series "Space 1999" can be considered as a looking glass not only on the hope and fears concerning the future (the series starts with the explosion of a lunar nuclear waste dump, hurdling the moon into deep space, taking with it the moonbase Alpha and its crew), but also as a collective lens bringing together different and former views on the future such as Stanley Kubrick's "2001 – A Space Odyssey" (1968), whose Production Designers were recruited for "Space 1999", and "Star Trek" (1966 - 1969). The positive perspectives offered here are contrasted in "Space 1999" by a rather bleak vision of the consequences and implications of Space Travel and Exploration, already distinguishable in the fact that the crew of the Alpha-moonbase during their unprepared and uncontrolled odyssey through deep space is forced to fight for their survival not only against hostile aliens (this clearly a heritage of the fact that the series originally was conceived as a spin-off of the latently xenophobic British TV-show "UFO" [1970]), but also against their own emotions and the deeds of mankind (in one episode they are e.g. confronted with the consequences of an exploration probe, earlier launched from Earth). "Space 1999" thus not only offers an European contribution, rivaling with American Science Fiction-productions, but also gives an interesting insight into the way, then contemporary problems (such as the energy crisis of the 70s and the fears of a nuclear world war) were echoed. Nevertheless, the depiction of Space exploration as a dangerous endeavor is counterbalanced by frequent hints that outer space also holds the terrifying and mystical answers to questions mankind has been asking since ever. The odyssey of the Alpha crewmen is thus also conceived as a non-voluntary but necessary mission.

**Steffen Krämer**

Ludwig-Maximilians-Universität, München

***Ancient Heroes and Early Christian Ascetics.  
Archetypes of Modern Science Fiction***

The astronaut in outer space, described in many variations of modern science fiction, is the symbolic manifestation of the old yearning for journeys and adventures, which has already fascinated the people since the antiquity. With Odysseus Homer created the prototype of the traveling hero, who only reached his home after a long period of wandering. Not only in the title of his masterpiece *2001: A Space Odyssey* Stanley Kubrick has referred to this literary myth.

In contrast to Homer's epos the expedition of the spaceship *Discovery*, which Kubrick has described, is a journey without return and ends in a dramatic crossing of the border of the last surviving astronaut, David Bowman. Lost in the endless width of outer space and locked in the cramped capsule of his space shuttle Bowman has an ecstatic vision, which brings him at the end in harmony with the cosmic structures of the universe.

Also in this case it indicates an archetype, which exists since the late antiquity: namely the hermit in the desert, who rises to religious perfection in his narrow cell. Saint Antonius, who was repeatedly tempted by the devil and received many visions, is the classic example of this arche-

type. In Arthur C. Clarke's novel of the same name, which bases only in parts on the screenplay of the film, this early Christian-mystical aspect is clearly discernible: Released from the borders of human knowledge after his odyssey, Bowman immerses in the infinity and experiences his reincarnation to a godlike creature. In the lecture these lines of tradition shall be examined. Outer space as a boundless space of action – similar to Homer's foreign countries and oceans or to the deserts of the saints and ascetics – has a central significance.

### **Pierre Lagrange**

Laboratoire d'Anthropologie et d'Histoire sur l'Institution de la Culture, CNRS, Paris

#### ***A 'Symmetrical' Explanation for Flying Saucers***

This paper is about the 'invention' of flying saucers in 1947 and the comparison between the "ghost rockets" that appeared in the European sky in 1946 and the "flying discs" that appeared in the sky of the United States the following year. When social scientists try to explain the appearance of flying saucers, they often mention causes like the influence of the cold war era or the influence of science fiction culture on the witnesses and ufologists. Flying saucers are considered as an error that need social/cultural causes to be interpreted. The problem with these explanations is that they are non symmetrical, i.e. the sociologist who uses these social/cultural causes to explain the saucers is unable to explain both ufology and their critics. Worse, he explains ufology thanks to the explanation given by its critics. These social explanations are those of some of the participants in the controversy in 1947. A sociologist can not not explain that flying saucers are cold war illusions, but he must explain why flying saucers are explained away as cold war illusions. The problem of this non symmetrical approach appears clearly when we compare the flying saucer controversy of 1947 and the ghost rockets that appeared a year before in the European sky.

In 1947, the general attitude was skepticism. In 1946, on the contrary, the experts believed in the reality of the ghost rockets. The comparison between the two stories shows that the sociologist cannot consider UFOs as a purely social phenomenon, as an error, because he must explain why the actors of the controversy can take ghost rockets as a real phenomenon and flying disc as a myth. We should not explain why people believed in flying saucers or in ghost rockets but why the situation changed so radically between 1946 and 1947. And the explanation is not that people believed this of that but it is that a major change occurred in the relation between general culture and science between 1946 and 1947.

My idea is that UFOs appeared at a time when the scientific culture changed a lot. In 1947, scientists were professional and no more amateurs, the physicist emerged as a sort of king of scientists and the problem of scientific culture was to build a difference with "popular culture". To show this point, I will also compare the situation of science regarding sky anomalies in Europe at the end of the nineteenth century and the situation of science regarding sky anomalies in the USA in 1947. We will see that the two situations are very different, because, among other things, the definition of science, the relation of science and amateurs, and the attitude of science regarding certain anomalies, had changed a lot.

### **Benjamin Lazier**

Reed College, Portland OR

#### ***The Globalization of the World-Picture.***

#### ***Towards a History of Earth and Artifact in Twentieth-Century Thought***

In 1990, the German astronomers Freimut Börngen and Lutz Schmadel named an asteroid after one of the foremost political philosophers of the twentieth century, the German-Jewish émigré Hannah Arendt. Whether Arendt would have appreciated the gesture is uncertain. After all, her philosophical masterpiece, *The Human Condition*, opens by voicing grave concerns about Sputnik. Man had for the first time propelled his artifacts into the beyond, and he was likely to follow by propelling himself as well. But the desire to depart from the scene of the world, she felt, meant also to figure the world as something worth leaving. To emancipate ourselves from its physical limits – gravity – meant also to emancipate ourselves from the gravity of its moral claims upon us. Sputnik

therefore embodied an impulse already much in evidence on earth – to create an *artificial planet*. In Sputnik the ambitions of modern man lay revealed.

My paper considers how Arendt and other mid-century intellectuals discovered in space-exploration a series of controlling metaphors to describe the modern age, whether to bemoan it, affirm it, or both. Her teacher Martin Heidegger, for example, spoke with awe and consternation about the images of Earthrise shot from the far side of the moon: they testified to man's alienation from the world and his unconstrained compulsion to master it. By contrast, her contemporary Hans Blumenberg expected those same images would prompt man to revindicate the world by revealing it as "mothership Earth" – as a life-raft suspended in the lifeless sea of space. Together, their example demonstrates how space-exploration led philosophers to reconfigure the two foundational discourses at work in virtually every discussion regarding technology and modernity – the modern reversal of the ancient injunction that art is to imitate nature, and the rise of instrumental reason. To consider the philosophical response to the exploration of space is therefore to take a first step towards a history of earth and artifact in twentieth-century thought.

**William R. Macauley**

University of Manchester

***Inscribing Scientific Knowledge.***

***Interstellar Communication, Universal Laws and Contact with Cultures of the Imagination***

In the 'Space Race' of the second half of the twentieth century, humanity sought to propagate human knowledge beyond the solar system through social and technological means, such as radio messages and artifacts attached to NASA spacecraft during the 1970s. My proposed paper will constitute a critical analysis of material practices and discourse associated with 'interstellar communication' – collective endeavors to convey intelligible messages between star systems and establish contact with supposed extraterrestrial intelligence. The need to communicate knowledge and meaning using non-linguistic means posed major challenges for scientists, because the unspecified recipient must be assumed to have had no prior contact with humankind. Scientists must therefore imagine how these alien entities will relate to human knowledge and culture. The production and transmission of interstellar messages became interdisciplinary design problems that included collaboration and exchange of ideas between scientists and others. The 1977 *Voyager* interstellar record, for example, included encyclopedic messages in audio and visual modalities, which were co-produced by visual artists, astrophysicists, historians and musicians. My paper will explore not only the role of visualization in knowledge production, but also the ways in which we relate to knowledge as a valuable resource and convey theoretical or practical understanding to cultures of the imagination. I will analyze socio-cultural aspects of interstellar communication since the late 1950s and focus on key issues regarding conception, design and production of two distinctive interstellar messages launched into space during the 1970s – NASA's *Pioneer* plaque and *Voyager* record.

**Sven Mesinovic**

Humboldt-Universität zu Berlin

***Inner Space and Outer Space.***

***Similarities, Differences and Connections***

During the 1960 and 1970s, while competing for the conquest of "Outer Space", the West and Eastern Blocs were also rivals in a race to conquer "Inner Space", the deep sea, which represented a parallel possibility for the expansion of the human living space.

Between 1960 and 1980, the industrialized nations built 65 stations on the sea-bottom. Their experiments were reflected in popular culture and in scientific papers. James W. Miller, one of the most avid aquanauts of the time, argued in 1970 in *Science* that researchers needed "to properly select crews for future space and undersea missions". Today, these plans and projects are largely forgotten. The connections between exploring the oceans and the space were also visible on institutions. In 1969 started the Underwater project "Tektite 1", in a site in the Virgin Islands. It was

conducted by the US Navy, the NASA, The US-Department of the Interior and the General Electric Company. Due to the report of the Office of Naval Research DR 153, 1970 it was NASA's primary interest in Tektite I to test scientist under stress for further long durations space flights.

An analysis of the origin of the deep sea utopia from its formation in popular culture, to its realization in the form of underwater stations may allow for more general conclusions about the relationship between the fantasy and reality of technological utopias. The story of "Inner Space", which in many ways parallels that of "Outer Space", suggests the possibility of generating a utopian reality out of the revival of a pop-cultural fantasy.

**James I. Miller**

Davidson College, Charlotte NC

***Encountering Aliens in the French Countryside.***

***UFOs and the Fabrication a New World in Quarouble, France, 1954***

The year 1954 produced a wave of UFO sightings across the globe, with nearly 300 incidents reported in France alone. Ranging from unexplained visual phenomena to tales of abduction and incapacitation, the unprecedented number of reports, which drew the attention of curious locals and intelligence agencies alike, seemed to signal a shift, if only transitory, in the postwar zeitgeist in regions as distant as Latin America and France. At a moment when economic modernization, colonial instability and European integration all contributed to dislocation and anxiety in France, it is perhaps no surprise that personal and collective attempts to grapple with the unfamiliar and unknown should have focused on apprehending otherworldly instruments of change. Focusing on the history of one highly publicized incident in the Nord, an industrialized department of France, my paper will explore the links between stories of alien visitations, colonization and the experiences of dislocation linked to postwar modernization in the French countryside.

Marius Dewilde's accounts of the two visitations he had during a six-week period between September and October 1954 captured the attention of the international press. His description of his chance encounters and communication with small, technologically advanced beings in jumpsuits arriving by flying saucer to deliver vital information to an ambivalent earthling would, of course, become a familiar trope over the next two decades. Dewilde, whose dubious biography carefully ignores his checkered past and instead focuses on his life as the son of Roma circus folk, his stint as a soldier and resistance fighter hand selected by de Gaulle, his time as a Belgian coalminer and then as a French steelworker, quite clearly casts himself as both an agent and victim of mid-twentieth-century social turmoil. By placing his story in the context of state-directed transformation and the anxieties it produced, I will explain how his tale casts light on the processes of alienation and transformation of a world in flux.

**Gonzalo Munevar**

Lawrence Technological University, Southfield MI

***Self-Reproducing Automata and the Impossibility of SETI***

If intelligent extraterrestrials do exist, Enrico Fermi once asked, why aren't they here? Some contemporary opponents of the search for extraterrestrial intelligence (SETI) realize that it may be unfeasible, even for advanced civilizations, to travel, or to send "unmanned" probes, to the (probably) billions of planets in the galaxy. Their impossibility proof depends instead on a technology they believe is inevitable: self-reproducing machines.

Their proof goes as follows: The Hungarian mathematician John von Neumann *proved* that we could design a machine to make copies of itself. NASA scientists have investigated the possibility of using such machines to explore the galaxy. More advanced civilizations would surely have discovered the equivalent of von Neumann's proof and developed the technology long ago. The exponential growth of those self-reproducing automata (SRAs) would have placed them in every planetary system by now. But we have no evidence of such machines here; therefore no advanced civilizations exist.

Von Neumann's idea depends on his analogy between natural automata (living beings) and artificial automata, and especially on the notion that the genome is like a computer program. Once we accept this analogy we put into operation the metaphor of the relation between a computer's software and its hardware and use it to explain not only life but mind. The potential application of von Neumann's idea to space exploration, however, allows us to realize some crippling shortcomings of the metaphor: genomes are not like computer programs and living beings are not automata.

Genetic "instructions" do not have meaning by themselves: They need to be expressed in appropriate developmental contexts forged by natural history, just as words have certain meanings only when expressed in certain contexts (the issue finds an analog in the philosophy of language). The SRAs are unlikely to reproduce, and the impossibility proof fails.

### **Bernd Mütter**

Universität Bielefeld

### **Per Media Ad Astra?**

#### ***Outer Space in West Germany's Media 1957-1987***

In the proposed paper I examine the role of West Germany's mass media in shaping the publicly relevant meaning and goals of space travel. This account is based on two fundamental hypotheses: Firstly, that the social constructed meaning of space travel is largely independent of technical artifacts or know how. Secondly, that, if media reporting in general is crucial to the creation of social reality, then in case of media coverage on space travel it has influence on the shaping of future expectations and hopes.

Instancing the reporting of the *Frankfurter Allgemeine Zeitung*, the first part of the paper shows by linguistic argumentation analysis how the predominant views on space travel changed quickly during the first years after Sputnik, 1957: In the beginning, German media looked at space flight primarily as a military venture of the two super-powers. By 1962 this had changed, and space projects were predominantly understood as means for evoking technological and economic progress. In my view this turn altered the cultural framework of space travel which then allowed West Germany to participate in European space projects. At the same time, 'outer space' as referred to in media coverage grew from close-to-earth to interplanetary distance even faster than any technical means.

Therefore, using the example of ZDF's programme *Aus Forschung und Technik*, 1966-1987, the second part demonstrates that for decades, and even before Apollo-11, 1969, mass media have regarded men landing on Mars as the long-term goal of space travel. This part is primarily based on visual analysis and argues that the programme *Aus Forschung und Technik* reflects the influence of science fiction on media reporting of space travel, even if it claims to be based on 'real' technical facts.

### **Michael J. Neufeld**

National Air and Space Museum, Washington DC

### **Smash the Myth of the Fascist Rocket Baron.**

#### ***The East German Campaign Against Wernher von Braun in the 1960s***

After launching the first American satellite in early 1958, Wernher von Braun was feted as a space hero in the West, nowhere more so than in Federal Republic of Germany. That hero worship, and in particular a 1960 Hollywood-Munich "biopic," *I Aim at the Stars*, stimulated a Stasi investigation into his NS past, including his SS membership and role in the use of concentration-camp labor. Beginning in 1962, the GDR launched a campaign to undermine him, leading to the publication of *Das Geheimnis von Huntsville: Die wahre Karriere des Raketenbarons Wernher von Braun* in 1963. The author was Julius Mader, an author of popular, non-fiction books in the East and a covert Stasi officer. *Geheimnis* received wide Soviet bloc distribution, but was largely ignored elsewhere. The book led to a feature film, *Die gefrorenen Blitze (Frozen Lightning)* about the Nazi rocket program, which premiered in 1967, but had little impact outside the GDR. The last attempt to bring von Braun's name into connection with the SS and camps took place in 1968-69, when the

East German lawyer at the West German war-crimes trial of 3 SS officials induced the court to call von Braun as a witness. This led to him giving testimony in New Orleans, but few further consequences.

This paper will explore this campaign and the reasons for its ultimate failure outside the Soviet bloc, including: 1) the U.S. government's successful classification of damaging documents and their unavailability to the Stasi; 2) the high value the U.S. government and the Western media placed upon him as a result of his Cold-War, space-race role; 3) the deep German division, which built a high wall against East German propaganda; 4) the relatively small resources the GDR invested in this campaign compared to its more successful attacks on West German politicians. As a result, the Mittelbau-Dora camp story remained largely unknown until the U.S. declassification of damaging information about von Braun and the German rocketeers in 1984.

**Monica Rùthers**

Universität Basel

### ***Outer Space, Children's Material Culture and Soviet Imagery after Sputnik***

On October 4th 1957, the Soviet Union launched the first human made object into the orbit. The whole world listened to the beeping ball in awe. Some months later, the first space dog, Laika, traveled into space to honor the 40th anniversary of the great October Revolution. Following those events, the space race accelerated. The moon no longer seemed out of reach. Every Soviet child dreamed of becoming a cosmonaut, at least the children's literature and material culture presumed so. Cosmos-related motifs abounded in Soviet visual culture. Children's surroundings were occupied by murals on school walls or climbing devices in the form of rockets on playgrounds. After Gagarin's flight in 1961, "Clubs of Future Cosmonauts" flourished all over the country. Photographs show young boys in full space gear exercising themselves in makeshift iron centrifuges. The paper concentrates on the combination of the motifs of childhood and space travel in Soviet visual culture and investigates its meanings. The pictures regularly refer to the new Soviet way of life and its signs of affluence. Therefore, a second context which will be addressed is the development of a specifically Soviet consumer culture in the late fifties and early sixties. Soviet imagery negotiated the roles of new soviet man and woman in the context of the accomplishments of space travel.

**Claudia Schmölders**

Humboldt-Universität zu Berlin

### ***Unwriting Heaven.***

#### ***Tunguska Region, June 30, 1908***

For over two thousand years the monotheistic West considered heaven the place of salvation. The overwhelming skepticism of science has put an end to that fiction, even if various strands of utopian thought have long nourished hopes at least for an innerworldly paradise. In the late 1980s Bernhard Lang and Colleen McDannell studied all this extensively, but their research bracketed the development of outer space travel and corresponding fantasies. In fact the twentieth century developed ideas explicitly against the idea of physical outer space (*Weltraum*) namely a lively discourse on "social space" (Simmel, Bachelard, Bollnow, Foucault a.o.) and increasingly also on atmosphere (G. Böhme a.o.) – that is today as physically threatened as the idea of religious heaven before. Both ideas have interceded as a last veil or screen between outer space and earth, and both did collect elementary concerns about insecure and hopes for secure existence.

My presentation will sketch the outlines of this discourse both in the intertwining realms of science fiction and anthropology. Starting point will be the ominous meteor strike in Siberia in June 1908 that Stanislaw Lem used for several novels. But in the same year 1908 Georg Simmel published his main work *Sociology*, introducing the idea of "social space". Both perspectives were once again picked up at the close of the century: The so-called "Tunguska-Event", used in a trilogy by Vladimir Sorokin (starting with *Ice* in 2002); and the social anthropology of "globular space2" (*gelebter Raum*) by Peter Sloterdijk's trilogy *Spheres* (1998ff). Both authors suggest some primordial security in spite of the former fears; and it may be asked if in fact last century's space research

has contributed to a new heaven of communication, as already conceived in the works of Teilhard de Chardin in the 1950s.

### **James Schwoch**

Northwestern University, Evanston IL

#### ***Short, Nasty, and Brutish.***

#### ***The Curious Life of Telstar, 10 July 1962 - 21 February 1963***

Arguably as famous and influential as any satellite to orbit Earth, Telstar was also a short-lived satellite, spending less than one year in service before dying. Despite its status as the key technology for the first live transatlantic television exchanges, Telstar did not establish a technological pattern for future transatlantic or global TV exchanges via satellite relay. Useable for only about 25 minutes of each 157.8-minute orbit, Telstar could not relay across the Atlantic a standard-length TV program in its entirety. In an elliptical orbit with a perigee over the Atlantic at 600 statute miles and an apogee over the Pacific at 3,500 statute miles, Telstar was nowhere near the orbit path of today's geosynchronous satellites. Yet Telstar captured the imaginations of millions of Americans and Western Europeans during its Atlantic perigees by exchanging brief TV clips of John Kennedy and Yves Montand, trading TV news clips and snippets of TV sports events, and providing European TV networks with American iconographic images such as Mount Rushmore or the Stars and Stripes. In this way, Telstar was a successful American response to the Europe-wide live TV networking of Soviet space accomplishments via Soviet TV relays with Finland to Eurovision, beginning in April 1961 with the celebrations of Yuri Gagarin's orbit.

Telstar was a relay rather than geosynchronous satellite, meaning it only was useable for signal transmission during a small duration of each orbit. In what can only in retrospect be viewed as a rejection of its creator, American Telephone and Telegraph, by the U.S. Government, American satellite policy very soon after Telstar dumped satellite relay networks such as those proposed by Telstar and AT&T in favor of global-coverage geosynchronous satellites such as those developed by COMSAT and INTELSAT during the rest of the 1960s. But beyond this policy rejection of Telstar technology, and beyond the extremely limited use of the Telstar orbit for signal relay, what made the life of Telstar particularly short, nasty, and brutish was something that happened not in its perigee, but rather its apogee: On 9 July 1962, Project STARFISH PRIME, part of a series of American high-altitude nuclear tests known as Operation FISHBOWL, had successfully detonated a 1.45 megaton explosion about 400 kilometers above Johnson Island in the Pacific Ocean. STARFISH PRIME introduced significant radiation into the upper atmospheric layers that eventually reached the Van Allen Belts (and temporarily increased the radioactive levels of the Van Allen Belts), while also creating an electromagnetic pulse (EMP) that disrupted power across the Pacific from Hawaii to New Zealand. This was the first of several FISHBOWL high-altitude nuclear explosions that conclusively proved, by the end of 1962, high-altitude nuclear explosions were a very effective anti-satellite weapon: the explosions, EMP, and radiation seriously damaged satellite circuitry and reduced the operating life of satellites. Telstar's relay circuitry, damaged by STARFISH PRIME, first failed in August 1962, and while engineers staved off total failure for several months, STARFISH PRIME had on its virgin orbit exposed Telstar to more radiation than had been expected for the entire life of the satellite. When one corrects for time zone differences, it turns out Telstar was launched only 25 minutes before the STARFISH PRIME explosion. So the greatest American device yet developed for global communication fell victim to the greatest American device yet developed for global destruction. AT&T engineers kept Telstar operative for nearly a year, but STARFISH PRIME damaged or destroyed 7 of the 21 LEO (Low-Earth Orbit) satellites known to be in orbit at the time of its detonation.

This curious tale of Telstar and high-altitude atomic weapons testing also opens the possibility of considering weapons proliferation and eventual superpower disarmament in conjunction with the development of global satellite technologies. In conclusion, I argue that the Telstar-STARFISH PRIME encounter foreshadows the eventual codification of the Limited Test Ban Treaty of 1963, which banned high-altitude atomic explosions (indeed, banned all atomic tests save for those conducted underground.) This period precisely coincides with the first major deployment by both superpowers of satellite surveillance systems, suggesting the Treaty may also have been seen as a way to discreetly protect space espionage assets. Included in this research are a discussion of the

South Atlantic Anomaly, the Van Allen Belts and the magnetosphere, and the first set of commonly used orbital paths for satellites and manned spacecraft from the 1957-1962 period. If time permits, I will also screen a 10-minute clip from an AT&T documentary on Telstar, depicting Telstar in action as part of a national TV special program telecast in the USA as part of the Telstar launch.

**Werner Suppanz**

Karl-Franzens-Universität Graz

***Nazis in Space.***

***Distant Worlds as Projection Screen of Cultural Memory***

It is a truism that in science fiction mankind always finds itself or a mirror image of itself in outer space respectively. What space travel stories as they are depicted both in literature and in visual media often tell us in the first line is about the imagination of human history and about cultural memory in the (national, cultural) context from which emerged a certain oeuvre of SF. The paper takes two episodes from the Star Trek "universe" as case study that were produced in a US American context, narrate in different ways about European history and are controversial from the point of view of European memory: "Patterns of Force" (Original Series, released 1968) and "The Killing Game" (Voyager, 1998). In the episode from the late 1960s the Enterprise crew intervenes on a planet settled by a human society built, by accident, according to the National Socialist model. In the second one, released thirty years later, aliens reproduce on the holodeck the combat between the French Resistance and the Nazi German army in 1944. In both cases conflicts in outer space serve as opportunity to present narrations that are based on imaginations of German/European history and use them for creating suspense. The paper presents the view of the study of European memory cultures on the two episodes and asks for the specific influence of the setting in outer space on these narrations on "terrestrial" history.

**Guillaume de Syon**

Albright College, Reading PA

***Between the Bubble and the Moon.***

***Visions of Space Travel in Francophone Comic Strips***

The purpose of this paper is to survey and analyze the place of space travel in the Francophone comic tradition (Belgium and France primarily) as a means of charting what role the "bubble" (the space in comic strips reserved for text) may have played in spreading the notion of space travel. The choice of French language media is justified on the basis of the substantial production of materials and the advanced state of the field a.k.a. "the ninth art"); furthermore, many such sources were eventually translated into other European languages. The paper intends to show that with a few rare exceptions, actual space travel was less about reaching out to new frontiers as an end, than to suggest this was but one aspect of a technologically-advanced future.

The focus on technological advancement as either a central theme of a prop to other themes can be found in Franco-Belgian comics as early as the 1920s, first in aviation. There were of course translations of American series (*Flash Gordon* and *Buck Rogers* in particular), yet it was not until the 1950s that, in response to early Soviet and American flights, some series focused occasionally on space travel.

In that respect Belgian artist Hergé's *Tintin* series, considered nowadays one of the most defining strips worldwide, offers an important starting point. The two-part episode about hero Tintin's successful journey to the moon remains a paramount classic, and the reasons for its success, in a luminal space between fiction (though not science fiction) and reality, will serve as the comparison basis with other series (in particular the aerospace strips *Buck Danny* and *Dan Cooper*) to explain why rather few authors crossed over to focus on space alone, preferring instead a science fiction-oriented realm that suggested time travel and other Jules Verne-style adventures, but rarely an exclusive space realm.

**Tristan Weddigen**

Universität Bern

***Alien Spotting.***

***Damien Hirst's Beagle 2 Mars Lander Calibration Target and the Exploitation of Outer Space***

Outer space is a counter-image of the human mind, a product of science and art. Human messages for aliens are addressed to an imaginary absolute audience residing in modernity's last resort of metaphysics, i.e. outer space. Damien Hirst's *Calibration Target* for the Beagle 2 Mars Lander (pigments on aluminum, 8 x 8 cm, 26,5 g) is one of the most recent art-in-space projects reflecting the contemporary state of the visual arts in Europe. Basically, Hirst's artwork consists in a calibration target for on-board spectrometers, covered with dots of different hues of the iron pigment Mars Yellow, green and blue referring to Earth, and black and white. Damien Hirst has become world-famous for his 'art-less' series of 'spot paintings' which link chemical, alchemistic and art historical ideas about the psychic and physical power of colors with a cynical reflection on modernist art discourses, mainly Abstraction as a universal language and Pop Art as its commercialization. The *Calibration Target* positions itself in a tradition of messages and artworks for aliens and therefore testifies for a changing concept of art: How did it evolve from the 'humanistic' Voyager 1 (quoting Leonardo's homo quadratus) and the 'modernist' Voyager 2 (using semiotics, anthropology and new media)? Are Hirst's functionalist and pseudo-scientific 'spots' a rejection of previous metaphysical beliefs in the power of art and science, and a post-ideological statement? Or do his commercial and nihilistic neo-pop and neo-abstract artworks stand for a new globalized, 'universal' language apt to communicate humanity's greatest value, i.e. Capitalism? Is Hirst's retro-avant-garde the perfect PR and marketing gag for the increasing commercialization of scientific space exploration which utilizes the new phenomenon of space nostalgia and does not refrain from resuscitating the Martians? Are Hirst's oxidized iron 'spots' just an ironic facet of 'space exploitation'? "I'm sure there'll be a great demand for my work out there – they'll love me!" (Damien Hirst). These are some of the issues which will be addressed in a critical analysis of Hirst's *Calibration Target* and similar art-in-space projects.

**Christina Wessely**

Max-Planck-Institut für Wissenschaftsgeschichte, Berlin

***Cosmic Spectacular.***

***Rocketry, Weltanschauung and the Quest for Cosmic Ice in Weimar Germany***

Around 1920 Austrian and German physicists and astronomers, journalists and science popularizers were puzzled by the enormous public fascination with a purportedly absurd cosmology that was published just before the beginning of World War I. It was introduced by the Austrian engineer Hanns Hörbiger who claimed that the basic substance of the universe was ice. Although scientists referred to Hörbiger's *Welteislehre* as an obscure, pseudo-scientific heresy the idea of the pervasive cosmic ice enjoyed a remarkable career. Thousands of people felt attracted by the theory, *Welteis*-societies were founded, *Welteis*-movies were produced and more than forty books promoting Hörbiger's idea were published in the mid-1920s. Later, the *Welteislehre* was heavily promoted as the "German antithesis" of the theory of relativity and was eventually adopted by the National Socialists.

One of the most prominent popularizers of the Cosmic Ice Theory was the amateur astronomer, writer and engineer Max Valier who is now mainly remembered for popularizing the idea of spaceflight in the Weimar republic and for his spectacular public demonstrations featuring rocket cars and rocket ice sleds. In numerous essays, „cosmic phantasies“ and books, Valier wrote about the possibilities the cosmic ice theory offered for space travel – the moon could be used as a "petrol station" for a rocket run by liquid oxygen and hydrogen on Valier's way to Mars, for example –, thus connecting the results of his experimental work in rocketry with fantastic stories of the cosmic ice and philosophical ideas deriving from his third major field of interest, the development of an *Okkulte Weltallslehre*.

I will take the case of Max Valier to show how technological and scientific knowledge, utopian visions and popular imaginations were mutually reinforced in the public discourse of outer space in

Weimar Germany. Looking both at the cosmic visions deployed in Hörbiger's *Welteislehre*, and at Valier's interpretations of those in the popular representations of his technical work in rocketry, I hope to trace the specific amalgam of facts and fictions that shaped contemporary notions of the cosmos.

## Feature Presentations

**Jürgen Ast/Burghard Ciesla**

Dialog Film, Berlin

### ***Screening of Historical Films***

Jürgen Ast and Burghard Ciesla will show excerpts from various rare Soviet science fiction films and parts of US-television-features on rocket pioneer Wernher von Braun, and place them in the respective historical context.

**Philip Pocock**

Zentrum für Kunst und Medientechnologie, Karlsruhe

### ***SpacePlace. Art in the Age of Orbitization***

After being installed in public space on Maximilianstrasse, Munich for seven months in 2006, and presented at the University of Karlsruhe's Informatikjahr 2006 event, *SpacePlace*, a Bluetooth mobile media curatorial work raising the specter of concern for the 'peaceful and cultural utilization of space' will be presented in the *YOUiverse* exhibition at ZKM running for 14 months from October 18, 2007.

*SpacePlace* revolves around a metaphor that media has developed to the extent that we the people are all 'co-travelers' (Sputnik means co-traveler) in a media universe that opens the mass-media global (centrally controlled, closed) paradigm to a 'trans-local' (networked, open) source of information, with all sorts of new challenges this entails.

*SpacePlace* reawakens interest in Galileo's *Dialogue Concerning the Two Chief World Systems* (1630) from the point of view that mass media moguls have relocated subjects not at the center of a celestial but rather a media universe, where planets are renamed after major television news and entertainment enterprises. On the contrary, *SpacePlace* is a Web2.0 experiment in 'user-generated media'. All entries curated into its database are collected from blogs and portals online. Some are provided by users, and as consumers gain the self-confidence that mass media has repressed for decades, such open information-gathering will continue to find more Net air-time and audience.

The curatorial starting point of *SpacePlace* is to make a cultural experience openly navigable by its audience/users. Using a limited number of mobile phones, users may not only select their own journey through *SpacePlace* content, but upload from their handy, images to an entry of their choice, therefore, blurring the border between cultural user and producer. The message or 'message' is that Web2.0 cultural users are slowly merging with mass-media culture producers and this new emancipation of the consumer is a factor to be considered, especially in a contemporary paradigm of globalization. *SpacePlace* proposes that near Earth orbit affords media space for individual and cultural exchange and as such becomes an opportunity within the public grasp to revitalize democratic participation in, as well as acting as a check and balance on, the currently tumultuous process of media-driven homogenizing globalization, that overlooks or exoticizes local concerns.

The curatorial position *SpacePlace* takes is that the museum of the future will open curatorship to involve its guests in a collaborative, truly interactive process of constructing aesthetic knowledge. *SpacePlace* embraces all art media and forms that somehow represent the human condition vis-à-vis space travel and exploration, expanding the traditional horizons of 'space art' to include what may appear at first glance unlikely works of 'space art'. One work included in *SpacePlace*, Piero Manzoni's *Base of the World* (1961), makes this point. A solid cube placed on the ground near Tycho Brahe's restored Observatory in Denmark, presents a text on one face written upside-down and reading 'socle du monde'. As such, the cube cleverly transforms itself for the savvy viewer into a standard pedestal upon which both the viewer and the entire Earth wryly rest, insinuating that the ground below this pedestal (and the viewer's feet) is Earth's orbit itself. All in all there are over 400 thought-provoking entries in *SpacePlace*, all freely navigable via some mobile phones. When no interaction takes place, *SpacePlace* replays previous user navigation itineraries through its content hypercinematically.

## **Chairs and Commentators**

### **Peter Becker**

Johannes-Kepler-Universität Linz

### **Ralf Bülow**

Berlin

### **Paul Ceruzzi**

National Air and Space Museum, Washington DC

### **Andreas W. Daum**

State University of New York at Buffalo

### **Peter Davidson**

National Museums Scotland, Edinburgh

### **De Witt Douglas Kilgore**

Indiana University, Bloomington IN

### **Kai-Uwe Schrogl**

European Space Policy Institute, Wien

### **Angela Schwarz**

Universität Siegen

### **Helmuth Trischler**

Deutsches Museum, München

### **Bernd Weisbrod**

Georg-August-Universität Göttingen