



*Sounds of Space*. William R. Macauley / Alexander C.T. Geppert, Emmy Noether Research Group “The Future in the Stars: European Astroculture and Extraterrestrial Life in the Twentieth Century,” Friedrich-Meinecke-Institut, Freie Universität Berlin, 30.11.2012-01.12.2012.

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## Sounds of Space

Voices whistling from deep space, a dull drumming rhythm, recurring high beeps – this ‘extraterrestrial’ music of the fictional alien race Krell formed an integral element of the first exclusively electronic soundtrack to “Forbidden Planet” (1956), one of the most iconic Hollywood science fiction movies. Released just one year before the launch of Sputnik, the movie took a prominent place in the popularization and imagination of outer space during the early Space Age.

The close relationship between moving pictures, electronic music and outer space in postwar culture became apparent during the workshop “Sounds of Space.” While ambient space sounds took participants on sonic adventures, their analysis proved to be a challenging expedition into an academic field hitherto largely uncharted, despite the recently much-debated ‘acoustic turn.’ Why do certain sounds evoke images of the universe even though humans cannot experience sound in outer space, due to the absence of sound waves in a vacuum? The variety of sounds explored, ranging from different music genres, environmental sounds, human voices and sound effects to sonified data, reflected the complexity of the subject. Three questions were at the core of this enterprise: First, what sonic forms and material encompassed imagined sounds of space? Second, what role did technology and actual space exploration play in developing such sounds? And third, how were these sounds of space embedded in the history of postwar astroculture?

Organized by William R. Macauley and the Emmy Noether Research Group “The Future in the Stars: Euro-

pean Astroculture and Extraterrestrial Life in the Twentieth Century,” the workshop gathered more than two dozen scholars at Freie Universität Berlin in late November 2012. It set out to investigate how outer space was sonically imagined between the late 1940s and 1980. Broadening academic work on astroculture – hitherto focused on visual aspects – into another sensorial dimension was the main objective, ALEXANDER C.T. GEP- PERT (Berlin) explained. In his introduction, WILLIAM R. MACAULEY (Berlin) argued that postwar sonic ventures into space extended from the end of the Second World War, when new technologies such as radio astronomy fuelled sonic space fiction prior to successful spaceflights. The ‘Golden Age’ of comprehensive planetary exploration programs came to an end by 1980, simultaneously marking the limit of the workshop’s timeframe.

Keynote speaker JAMES WIERZBICKI (Sydney) suggested four analytical categories from science fiction – signals, technology, planets and space travel – that influenced twentieth-century music. According to Wierzbicki, the soundtracks of “2001: Space Odyssey” (USA 1968) and “Solaris” (USSR 1972), together with the music of the 1970s “Berlin School,” expressed a notion of timelessness and weightlessness. The music echoed human experience in outer space by breaking with traditional tonal music based on harmony and measured rhythm. Composer Arnold Schönberg first challenged the tonal ‘laws of gravity’ in his String Quartet No. 2 (1908), which had a soprano sing of “wind from other planets.”

French music theorist and composer Pierre Schaeffer was a key figure in the 1940s endorsing this critical stance on traditional music structure. TATJANA BÖHME-MEHNER (Leipzig) described his radio play “La Coquille à Planètes” (1944) as a crucial step in radio-phonetic art. For Schaeffer, radio constituted a powerful medium to create new art forms appealing solely to the sense of hearing. In his depiction of space travel Schaeffer experimented with recordings of ‘concrete’ sounds from nature, in addition to musical instruments and human voices. Similar sounds fascinated listeners of Karl-Birger Blomdahl’s opera “Aniara” (Sweden, 1959), a rare example of an avant-garde opera set exclusively in outer space. JOHAN STENSTRÖM (Lund) gave a detailed account of the so-called Mima tapes, in which the goddess-like computer Mima informs evacuated humans on spaceship Aniara about the decline on war-ravaged Earth. In their sonic narration of the protagonists’ consciousness and dreams, Schaeffer’s and Blomdahl’s space journeys contemplated quests for human identity recently shaken in the Second World War. Employing new technologies for their ‘futuristic’ electronic sounds, both works aimed to modernize the genre.

Artists on the other side of the iron curtain drew upon progressive developments in electronic music. Numerous Soviet and Eastern European science fiction films followed in Sputnik’s footsteps as they advanced into space to the rhythm of their experimental soundtracks. KONSTANTIN KAMINSKIJ (Konstanz) analyzed the function of planet Venus’ voice in the film “Planet of Storms” (USSR 1962). The “Ensemble of Electro-Musical Instruments” had mixed recordings of Peruvian folklore singer Yma Sumac (1922-2008) with a melodic composition of a Theremin, an early electronic instrument. The ‘pre-historic’ and exotic notion of the traditional music style appealed to basic human knowledge and expressed ideas of colonial adventure at the same time.

The singing planet Venus illustrated how sound changed the appearance of objects. Similarly, giving museum spaces and their objects a ‘voice’ could enrich visitors’ experience in contemporary exhibitions. TIM BOON (London) criticized the lack of attention paid to noise and sounds in museums. However, in 2009, the London Science Museum celebrated the fortieth anniversary of the Apollo moon landings by staging a performance of Brian Eno’s “Apollo” album. Incorporating an ambient music score into his own presentation, Boon explained how spaces could embody sound – and thus transform historical thinking. Throughout the workshop participants integrated sound into scholarly prac-

tice, thus merging academic and acoustic performances while, at the same time, analyzing sonic sources as historical evidence.

In recent years, cultural historians have embraced a focus on sound and changing listening practices. Such analyses of auditive cultures proved especially fruitful in TREVOR PINCH’s (Ithaca, NY) examination of the role electronic music synthesizers played in the emergence of ‘spacy’ sounds in the 1960s and 1970s. Paradoxically, critique of technological and scientific progress prevailing in hippie counterculture was communicated with the help of new instruments such as Moog and Buchla synthesizers, providing a basis for psychedelic sound. Rather than celebrating advances into outer space, hippie culture embarked on a refuge into inner worlds. The fusion and exploration of inner and outer space constituted an integral element of their rationale and proved closely connected to psychoanalysis and the emancipation of the self. Outer space then functioned as a transcendental, utopian, spiritual or simply alternative site. Pinch emphasized how difficult it is to draw boundaries between outer space, inner space and utopian places.

As eminent instruments of auditive cultures, synthesizers seem to have influenced both the development and popularization of superstring theory in the 1970s. AXEL VOLMAR (Siegen) proposed that the speculative theory claiming the synthesis of all elements via strings offered a modern version of the cosmological ‘harmony of the spheres,’ a concept tracing back to Pythagoras’ organization of the cosmos in mathematical equations. However, Volmar clarified, relating string theory to synthesized music required further evidence.

Bringing the first day to a close, ELIAD WAGNER’s (Berlin) stimulating musical performance passionately rejected the interpretation of the universe as a harmonic cosmos. Instead, the sonic structures, stories and scenes told by his synthesizer conjured images of chaos, disorder and unpredictable encounters. Musical harmony, melody and rhythm were mostly absent and no recognizable motif held the composition together. The sounds not only evoked mechanical processes and war-like events but also included beeps reminiscent of bird songs, appearing like familiar elements in the midst of an unknown space. The ambiguity of his impromptu composition demonstrated the potential of sonic forms to express one object or event under changing light and perspective.

The workshop’s second day started with a focus on popular music. MICHAEL MOORADIAN LUPRO (Portland, OR) asked whether the exploration of space affected

labor relations. He analyzed how promises of space tourism contrasted with the future of labor in outer space as depicted in David Bowie's "Ground Control" (1969) and Elton John's "Rocket Man" (1972). From the perspective of many artists, space exploration and its promotion in mass media collided with a plethora of problems faced by society during the 1960s and 1970s. Critics of capitalist labor conditions did not halt at earthly borders, but rather denounced the vast expenses allocated to space exploration over societal needs. CATHLEEN LEWIS (Washington, DC) demonstrated that musicians Bulat Okudzhava (1924–1997, USSR/Russia) and Gil Scott-Heron (1949–2011, USA) used irony as an effective artistic tool to articulate their political concerns. The integration of critical songs into entertainment media raised the social awareness of the public on the one hand and softened more radical protests on the other, Lupro and Lewis exemplified.

In the 1980s, governmental space programs of the two major space powers were in retreat. Parallel to this process reemerged the question whether outer space was, after all, a worthwhile place for human exploration. PAWEL FRELIK (Lublin) familiarized the audience with three contemporary musical subgenres: Space Ambient, Dark Ambient and Space Black Metal. The anthropocentric and hopeful cosmic vision promoted in popular Space Ambient differed from the dark existential agenda of Dark Ambient's misanthropic, empty cosmos and Space Black Metal's universe of human loneliness and desperation. Reflecting on problems of categorization, Frelik explained the plurality of genres as social phenomena, shaped by marketing strategies as well as identity politics.

Initiatives to sonify space were not limited to the spheres of art, but likewise extended into scientific research. The sonification of planets disclosed the thin line between art and science as well as deception and authenticity (ALEXANDRA SUPPER, Maastricht). Astero-seismologists use specific electronic sounds to represent planets in public presentations that aim at legitimizing and popularizing their research. To their lay audiences it remains unclear how these fictional planet sounds are technically produced, so that listeners get the false impression of listening to 'real' star movements. The power of audible data to increase belief in science also bolstered supporters of the Search for Extraterrestrial Intelligence (SETI) to prove that extraterrestrials communicated in mathematical forms, which humans could 'hear' and decipher. Concentrating on the technoscientific practices of 'listening' and 'messaging,' KLARA ANNA CAPOVA

(Durham) showed how attempts of SETI practitioners to ground their scientific credibility on audible evidence were smashed by a persistent silence from outer space. Exchange of language remained bound to human abilities and technologies, therefore complicating any allegations on communication with the extraterrestrial Other.

So we cannot hear aliens – but what if they hear us? Provoking questions rather than providing answers, STEFAN HELMREICH (Cambridge, MA) dug further into the field of communication by proposing another category: sounds as alien ears might apprehend them. Based on the "Scrambles of the Earth" music project, an alleged 2010 alien remix of the phonograph records launched on Voyager spacecraft in 1977, Helmreich qualified meaning of sound and models of audition. Throughout his presentation the lines between meaning and message, author and audience, sending and receiving became increasingly blurred. The effect, rethinking the possibilities and limits of communication, was achieved through music, an audio-visually distorted video interview and perspective-shifting irony.

Uncertainties about meanings attached to sounds of space reconnected with the initial paradox of the workshop's theme. The absence of genuine sonic material has not stopped humans from imagining sounds inspired by the universe. On the contrary, the scarcity of sonic experiences has fueled fantasy and spurred the multiplicity of sounds associated with outer space. Perhaps the emergence of a common sonic language of space was a necessary cultural response to a lacking factual repertoire. In postwar culture, new technologies promised to have a decisive impact on future society, evoking curiosity and giving room to imagine their unknown potential. The exploration of outer space went hand in hand with a boost in electronic music and science fiction cinema. These media could create and alter space and time, presenting knowledge and ideas of the universe, and allowing an escape into other worlds. New, non-conventional musical elements, rooted in atonal music, developed into central ingredients of sonic space fiction.

The workshop demonstrated the significance of sound and music in the exploration and perception of outer space during the postwar period. The historical evolution of sounds of space, their roots in social, economic and political change as well as their place within the history of music, participants agreed, would be worthwhile topics for future ventures. Another would be the complex interplay between visual and sonic representations of space. "Sounds of Space," an event both

highly successful and innovative, finished with a question mark, echoing the last sounds of Eliad Wagner's synthesizer performance on the first day: rhythm was not discernible until the very end, when a short sequence of beats faded into an accelerating sound seemingly rising into the air – like the inflection of a voice at the end of a statement expressing an impetus for further insight.

**Konferenzübersicht:**

*Welcome*

Alexander C.T. Geppert (Berlin)

*Introduction*

William R. Macauley (Berlin): Venturing into Sounds of Space during the Postwar Period

*Feature Presentation*

James Wierzbicki (Sydney): The Imagined Sounds of Outer Space

*Panel I: Sounds of Space in Art and Opera*

Chair: Claudia Schmölders (Berlin)

Tatjana Böhme-Mehner (Leipzig): Outer Space and Space Travel in Pierre Schaeffer's "La Coquille à planètes"

Johan Stenström (Lund): The Significance of Electronic Music in the Space Opera "Aniara"

*Panel II: The Human Voice and Sounds of Space*

Chair: Matthias Schwartz (Berlin)

Konstantin Kaminskij (Konstanz): The Voices of the Cosmos: Electronic Synthesis of Special Sound Effects in Soviet vs. American Science Fiction Movies from Sputnik 1 to Apollo 8

Tim Boon (London): Music for Spaces – Music for Space

*Panel III: Synthesizing Sounds of Space*

Chair: Peter Moormann (Berlin)

Trevor Pinch (Ithaca, NY): Inner Space and Outer Space: How the Early Electronic Music Synthesizer Took Us There

Axel Volmar (Siegen): Cosmic Symphonies: Electronic Music Culture, Analog Synthesizers, and the Birth of Superstring Theory in the 1970s

*Performance*

Eliad Wagner (Berlin): Crossing Streams: Instant Composition Using the Sound Vocabulary of Science Fiction

*Panel IV: Sounds of Space in Popular Music*

Chair: Klaus Nathaus (Bielefeld)

Michael Mooradian Lupro (Portland, OR): "Just my Job, Five Days a Week:" Soundscapes of Space Labor in Apollo Era Pop Music

Cathleen Lewis (Washington, DC): Okudzhava and Scott-Heron: The Social Critique Soundtrack of the Space Race

*Panel V: Sonification of Outer Space*

Chair: Daniel Brandau (Berlin)

Alexandra Supper (Maastricht): Eerie Whistling and Tribal Cosmic Heartbeats: The Silencing of Craft Skills in the Sonification of Astrophysics

Paweł Frelik (Lublin): Dark Transmissions: Cosmic Visions in Contemporary Music

*Panel VI: Intelligent Sounds from Outer Space*

Chair: Alexander C.T. Geppert (Berlin)

Klara Anna Capova (Durham): Listening to the Sounds of Space

Stefan Helmreich (Cambridge, MA): Listening Through Alien Ears to the Voyager Interstellar Record

*Closing Session*

Chair: William R. Macauley (Berlin)

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