Hearing

Abstracts and Biographies

Abstracts

**Panel 1**

**Jeremy S. Gibson and James F.C. Windmill**, **‘Engineering novel hearing systems inspired by nature’**

Biological systems provide an incredible wealth of designs which have emerged through evolutionary processes over multiple generations. Hearing organs are a good example of how different independent designs (adaptions), across different animal taxa, converge to solve similar sensory problems. Thus, the diversity of these biological solutions provides a plethora of inspiration for the creation of novel acoustic sensors. But reverse engineering hearing systems is not an easy task and often involves a multidisciplinary approach with scientists from a range of fields such as: biology, electrical engineering, material sciences, and physics to name a few. Here within the Centre of Ultrasonic Engineering, we have a multidisciplinary team which utilizes cross-disciplinary experimental approaches to investigate hearing systems. Using these methods we have characterized a variety of biological hearing systems from which novel acoustic transducers can be developed. Novel acoustic sensors have several potential applications in human health and other technologies.

**Ben De Bruyn, ‘Horse, Whisperer. Fiction, Nonhuman Voices and Stethoscopic Modernity’**

This paper examines the nonhuman voice in modern fiction, in three steps. First, I consider recent accounts of nonhuman life and sonic media, by Tobias Menely, Jacob Smith and Branka Arsić, pinpointing their strengths and weaknesses. Second, I critically examine Jonathan Sterne and John Picker’s arguments on how stethoscopes created the conditions for attentive listening in science as well as literature in order to complicate their claims that ‘sound’ is mainly useful for thinking about human life. For a closer look at René Laennec’s classic treatise on ‘mediate auscultation’ (1819) reveals that, through a stethoscope, human bodies sound remarkably like animals, their lungs revealing a ‘bleating sound like the voice of a goat’, for instance (41). And if Laennec felt his invention was of limited use in treating animals, finding the respiration of horses, for instance, ‘hardly audible’ (720), the narrator of *Middlemarch* (1871-2), which features stethoscopes, famously expresses a desire for hearing minute sounds like ‘the squirrel’s heart beat’. Third, I apply these insights to two novels dealing with vets and horses, Mary Gaitskill’s *The Mare* (2015) and Sid Gustafson’s *Swift Dam* (2016). Shifting our attention from human horse whisperers to whispering horses, these novels further enable us to place animals at the heart of ‘stethoscopic modernity’.

**Panel 2**

**Sandra Kottum, ‘Silver-Tongued Sheep and Spider-Men: Animal Speech and Social Criticism in late Seventeenth-Century England’**

This presentation examines the connections between animal speech and social criticism in three texts from late 17th century England: James Howell’s *The Parly of Beasts* (1660), Margaret Cavendish’s *The Blazing World* (1666), and Thomas Tryon’s *The Way to Health* (1683).  The significance of animal vocalizations was hotly debated by the early moderns, and while some wholly dismissed the notion of animal language, others argued that our failure to comprehend animal sounds was due to human degeneracy. In a long-lost golden age we conversed as well with animals as with each other, but to our deteriorated ears their eloquent speech had become nonsensical chirps, squeaks and howls.  Since the notion of a trans-species language was associated with a perfect world order, the language barrier confirmed human corruption, and animals used to voice social criticism effectively highlighted the contrast between a blissful past and an unsatisfactory present. I will attempt to show that animal speech in my chosen texts functions not primarily as a source of entertainment or symbolism, but rather as a reminder of all that humans have lost, not just with regards to linguistic ability, but also morals and wit.

**Alison Sealey, ‘“The song of the humpback is the most beautiful sound you can hear in the sea”: the language of how people “hear” animals’**

This presentation arises from a large research project that investigates how people talk and write about animals. We have collected a corpus of electronically stored data comprising 9 million words of texts that are all related to non-human animals. These are drawn from a wide range of genres, excluding fiction but including press reports, legislation, campaigning literature, transcripts of wildlife broadcasts – and some elicited texts (interviews and focus groups). One strand of analysis explores how other-than-human communication is represented in human language, and for this presentation I will focus particularly on the way human and other-than-human interpretations of sounds are rendered in contemporary English. The questions guiding this analysis include, in relation to this corpus of discourse about animals: Which words denote the animal sounds ‘heard’ by people and by other animals? How are the sounds made by different individuals and species described? What do these depictions of how humans ‘hear’ the sounds made by other animals reveal about their perceptions of and attitudes towards them?

**Panel 3**

**Julia Tanner, ‘Hearing the Herd: the Soundscapes of Sensory Ethnography’**

Innumerable bleatings, bells chiming around fleecy necks and herders calling: our apprehension of sheep being herded is strikingly aural. These were the first animals to be domesticated yet the relationship between sheep and humans remains one marked by power, intimacy and violence. This paper reveals the possibilities of illuminating these complex ‘humanimal’ relationships through sound by analysing the intriguing soundscape of *Sweetgrass*,an ethnographic film thatfollows the last sheep drive in North America (2009). Lucien Castaing-Taylor’s and Ilisa Barbash’s film follows three thousand sheep and two men leaving the ranch to cross the Absaroka-Beartooth mountains. The film’s visually stunning long-takes are accompanied not by a voice-over but by the visceral immediacy of sync-sound recorded with lavaliere microphones. The soundscape dramatises the struggle for control as the herders’ voices are drowned out by cacophonous bleatings. At times of rest, we hear jaws chewing grain and herders’ gruff mutterings and breathing. It is through sound rather than vision that *Sweetgrass* achieves its startling intimacy with its human and nonhuman subjects. This sonic reminder of our shared bodily existence works to challenge human exceptionalism, the principle that justifies the violence of agrarian practices.

**Cara Clancy, ‘Hearing Anima Urbis: attending to the ‘more-than-human’ in 21st century urban conservation’**

The knowledge quest that gave birth to natural history can be held responsible for many of the tabular representations of animals that still exist today (Whatmore, 2002; Philo and Wilbert, 2000; Adams and Mulligan, 2003; Pratt, 1992). The global science of “biodiversity” that emerged during the 1980s made life (bio) quantifiable in new ways and formed the foundation for conservation as a rationalist and rationalizing project (Whatmore and Thorne, 1998; Adams, 1997; Kaufman and Mallory, 1993). Efforts to conserve wildlife are now targeted on critical priorities and locked into a tight programme of activities, often with violent consequences for those plants and animals that do not conform to the image of biodiversity *as Nature* – ‘a pure and timeless collection of objects best removed from society’ (Lorimer, 2012, p594). Such is the case with many nonhuman lives in urban areas: whether given the status of ‘non-native’, ‘invasive’ or simply characterised as ‘pests’, urban animals are frequently projected as the antithesis to the pure world of biodiversity. Drawing on ethnographic research that incorporates creative and experimental sound methods, this paper explores the lives and practices of urban animals at a reservoir system in London’s Lea Valley – currently being transformed into one of the largest urban wetlands in Europe. The paper argues that ‘hearing’ these animals on a material and sensory level, particularly the way they construct their worlds (as well as our own) is a vital step in decolonising the knowledge practices that currently underpin conservation. In recent years, geographers have drawn attention to the unique way in which sounds connect us to the spaces and places we intimately (but sometimes blindly) share with the nonhuman world, with some calling for “broader sonic sensibilities” and “expanded listening” (Gallagher et al., 2016, p3). With these sentiments, this paper elaborates on the multispecies study as a means to open up new pathways for a more inclusive environmental politics, relevant to the urban context.

**Panel 4**

**Susanne Heiter, ‘Contemporary Music with Animal Sounds’**

The question whether animal sounds are music – or whether they are certainly not – requires a reflection about both the applied concept of music and the required capacities of animals to produce this music. Since the 1950s, this question has not only been addressed theoretically, but also in various compositions. However, a characteristic shift can be observed. Works of the 1960s are especially concerned with the first aspect, the concept of music: If music is defined as “the production of sounds” (John Cage), even sounds inaudible to the human ear can be regarded as music – like the noises produced by a butterfly’s wings in La Monte Young’s *Composition 1960 #5*. In recent years the focus has turned to the animal’s capacities: Hollis Taylor has analyzed her painstaking transcriptions of the songs of the Australian Pied Butcherbird in musicological terms, disregarding vanguard concepts of music. Her compositions based on these transcripts highlight the artistic contents of the birdsongs. While more and more former exclusively human capacities are assigned to animals through scientific research, musicians examine the musical capacities of animals in artistic settings thus challenging current limits of scientific knowledge.

**Martin Ullrich, ‘Lab animals as listeners: intersections of music aesthetics and scientific research in animal experimentation (and by the way, what about ethical problems?)’**

If human music is played to nonhuman animals in the lab, some interesting questions are raised. What kind of music does the scientist (who has usually no professional training in music) use? And why? What is the reason that music is presented to the animals at all? And what does the setting of the experiment and the musical style of the playback material tell us about the aesthetical preferences of the human experimenter? Do the animals react to the music, and if so, do they seem to enjoy it? Would human listeners be able to enjoy music in a lab situation at all? These questions hint at the complex relationship between scientific approaches and their implicit aesthetical fundaments. Music of several styles has been played to lab animals from different species. Among others, rhesus monkeys (Wright et al. 2000), a sulphur-crested cockatoo (Patel et al. 2009), cats (Snowdon et al. 2015), Java sparrows (Watanabe/Nemoto 1998), a California sea lion (Cook et al. 2013), and cotton-top tamarins (Snowdon/Teie 2009) have been exposed to human music in controlled studies. And, of course, rats have been the subjects of several musical experiments (e. g. Lemmer 2008, Kim et al. 2006, Rauscher et al. 1998). On one hand, the intersections of music aesthetics and scientific research in animal experimentation are complex. On the other hand, many of the experiments raise ethical questions. In some cases, music becomes an invasive means of animal experimentation. This is evident when unborn or hypertensive individuals are exposed to music.

Biographies

**Ben De Bruyn** is associate professor of comparative literature at Maastricht University. He is the author of *Wolfgang Iser. A Companion* (De Gruyter, 2012) and co-editor of *Literature Now. Key Terms and Methods for Literary History* (Edinburgh UP, 2016). In addition, he has published various articles on environmental themes in journ a ls including *Critique*, *Studies in the Novel* and *Oxford Literary Review,* and is presently working on a new book about the changing cultural meanings of animal sounds (Palgrave, 2018).

**Cara Clancy** has an academic background in environmental philosophy and worked for several years in conservation, mainly as a wildlife campaigner for WWF. After spending a year in South America researching land rights issues and the local, cultural significance of natural resources, she returned to the UK to embark on a PhD ‘Conservation in the Anthropocene’ within the department of Geography at Plymouth University.

**Jeremy Gibson** is a Research Associate in the Centre for Ultrasonic Engineering at the University of Strathclyde. His research interests are broadly in the fields of animal behaviour and communication. He is specifically interested in the evolution of animal signals / communication. Mating displays provide incredible opportunities to understand how selection forces contribute to the design of communication systems. Animal communication / signals are under numerous constraints such as environmental filtering, receiver filtering, and eavesdropping, just to name a few. Investigating these constraints provide numerous research opportunities across a wide range of biological approaches (e.g., behaviour, ecology, genetics, bioacoustics and neurobiology). His current research involves investigating the mechanical properties of insect ears to better understand their passive signal processing characteristics. These investigations provide insights into how ear mechanics can drive signal evolution, and additionally can provide insights for the creation of biologically inspired bioacoustic devices.

**Susanne Heiter**, musicologist at the Berlin University of the Arts, has studied biology in Vienna and Glasgow and music education in Berlin. Both major interests converge in her current PhD project which investigates the issues and the mechanisms that are prominent when contemporary avant-garde musicians work with animals or animal sounds. Moreover, since 2011 she is research assistant in the project “Darmstadt Events. The Darmstadt International Summer Courses for New Music from 1964 to 1994 as a space of aesthetic, theoretical and political action”.

**Sandra Kottum** is a third-year PhD student in the History of Ideas at the University of Gothenburg, Sweden. She received a Bachelor’s Degree in Religious Studies from Scripps College, USA, and a Master’s Degree in the History of Ideas from the University of Gothenburg. Her dissertation deals with “natural utopias” in the 17th century works of James Howell, Margaret Cavendish, and Thomas Tryon. She is interested in animal-human relations, the early modern period, and the history of dietics.

**Alison Sealey** is Professor of Applied Linguistics at Lancaster University, UK. She has published widely about the role of discourse in representations of the social world, often using corpus-assisted methods, and is the author of a number of books. She has also published several articles concerning the way animals are represented in discourse, including, with Nickie Charles, ‘What do animals mean to you?’: naming and relating to non-human animals, *Anthrozoos* (2013) 26/4 and, with Guy Cook, ‘The discursive representation of animals’, in A. Fill and H. Penz (eds.) *The Routledge Handbook of Ecolinguistics* (in press, to appear 2017). She is currently co-investigator on the project ‘”People”, “products”, “pests” and “pets”: the discursive representation of animals’, funded by the Leverhulme Trust.

**Julia Tanner** works on contemporary American ethnographic film and poetry.  A fellow at Harvard University’s Department of Visual and Environmental Studies last year, she is currently completing her PhD in the School of English at the University of Leeds. Julia’s thesis investigates the aesthetics of the swarm in the works of three creative artists who are based at Harvard: the poet Jorie Graham and collaborators at the Sensory Ethnography Lab, Lucien Castaing-Taylor and Véréna Paravel. Her research asks whether swarmic encounters such as those found in these contemporary works can generate a heightened awareness of our own ecological connectedness.

**Martin Ullrich** studied piano and music theory in Frankfurt and at Berlin University of the Arts. 2005 he received his PhD in musicology. His main research area is the function of sound and music in the interdisciplinary context of animal studies. He presented and chaired at international conferences, among them *Animals in History* (Cologne 2005), *Minding Animals I* (Newcastle/Australia 2009), *Arte e Natureza* (São Paulo 2011), *Animals and Aesthetics* (Berlin 2011), *Minding Animals II* (Utrecht 2012), *Minding Animals III* (Delhi 2015) and *Animal Biographies* (Kassel 2016) and has published on animal music and the relationship between animal sounds and human music. Since 2005 he was professor for music theory at Berlin University of the Arts. Since October 2009 he has been president of Nuremberg University of Music and since October 2013 professor for interdisciplinary musicology and human-animal studies at Nuremberg University of Music.