**Animal Machines / Machine Animals**

**Book of Abstracts**

**Plenaries**

**Amelia DeFalco (University of Leeds) – Machine Animals/Animal Machines: Bodies That Matter In The Age Of Robotics And Biotechnology**

In this presentation, I explore practices and representations of the disposal of “boundary objects” and “boundary creatures,” those liminal bodies that have been central to posthumanist critique since Haraway’s initial analysis of “odd boundary creatures – simians, cyborgs, and women -- all of which have had a destabilizing place in the great Western evolutionary, technological, and biological narratives” (*Simians, Cyborgs, and Women* 2). I examine a range of literal and metaphorical machine animals, troubling boundary creatures, both organic and technological, treated as if they were machines -- that is, affect-less and insensate, utilitarian -- by the humans that own and/or use them. In particular, I consider what happens to these creatures when their function expires or is exhausted, considering how cultural narratives of disposability might further posthumanist critiques of the cult of the individual human subject.

**Clara Mancini (Open University) – Animals as Co-Designers of Machine Interactions**

From laboratories to open fields, from farms to cities, animals have interacted with interactive technology for nearly a century, usually as cogs within scientific and economic production apparatuses. The emerging field of Animal-Computer Interaction (ACI) aims to change the focus of animal-machine interactions by recognizing animals as primary stakeholders in and co-designers of these interactions, thus placing animals at the centre of the design process. In my talk, I will discuss the need for and the benefits of such a shift, as well as the design, methodological and ethical implications of animal-centred design, and ACI’s potential to reconfigure human-animal relations towards the development of biologically and morally more sustainable ecosystems.

**Ed Ramsden (Queen Mary, University of London) – Automatic Animals and their Misbehaviour: Exhibiting Nature and Behaviour at the Zoo**

“Fully automatic” was how a magazine article of 1954 described an exhibit designed by the psychologists Marian and Keller Breland for the food manufacturer General Mills. The exhibit, consisting of “base-ball playing hens”, was one of a series of acts, many coin-operated, that included tap-dancing chickens, rabbits that played piano or basketball, and turkeys that won at pinball. Behind the heavy overlay of showmanship, was, their designers argued, the serious scientific subject of behavioural control. The Breland’s had been trained by B. F. Skinner and worked closely with him during the war to produce pigeon-guided missiles; they then sought to apply the methods of operant conditioning for commercial purposes with a series of animal acts used for advertising at state and county fairs, conventions and feed stores across the United States, by training animals for the military and marine parks and at their own “I.Q. Zoo” where “educated animals” performed for public amusement. However, their attempts to bring together animal and machine also generated a series of “misbehaviours” that could not be explained through behaviourist principles. Many psychologists would use the behavioural consequences of these animal-machine interactions to challenge the experimental system of operant conditioning which they believed to be overly mechanistic. They would, like the Breland’s, turn to ethological studies of autonomous organisms and species-specific behaviour.

**Panel Papers**

**Ivana Bičak (Durham University) – Experimental Machines and Animals in Early Modern Literature**

This paper explores the relationship between animal bodies and experimental machines in late seventeenth-century English literature. With the rise of scientific experimentation, many early modern animals ended their lives in laboratory settings. In Robert Boyle’s respiration experiments at the Royal Society, hundreds of insects, birds, rats, mice, cats, and snakes suffocated in the air-pump. To gain an inside look into respiration, other experimenters cut away the thorax of a dog, bared its heart, and used a pair of bellows to pump the air into its windpipe. How did contemporary authors portray these animals as opposed to the inanimate engines and tools used in their anatomical investigation? Were animals viewed simply as more sophisticated examples of machinery? In what ways did the concept of the Cartesian beast-machine influence the dichotomy between the organic and artificial? The paper looks at examples from a range of English and Neo-Latin literary texts in the period, including satires and laudatory poems, to determine whether animals tended to be seen as mere machines or as more organic creatures capable of pain.

**Emilia Czątkowska (University of Kent) – ‘U.R. Bandit.' Post-animal identity of the Animal Biorgs in We3**

WE3, a comic book by Grant Morrison and Frank Quitely (Vertigo, 2004) depicts the story of three animal biorgs (named collectively WE3) – the animals transformed into weapons by having their bodies enclosed in mechanical exoskeletons and their nervous systems plugged into a software. Despite the project’s success, the army orders WE3’s decommission. However, the scientist supervising the animals helps them escape. Considered a serious threat to civilians, WE3 flee from the army seeking to destroy them. This paper explores the fluid post-animal identity of the animal biorgs. I will analyse devices used in the comic book to objectify and personify the animal characters. Biorgs are no longer animals as we know them: technological modifications violate animals’ integrity and reduce them to a raw material, while giving them the ability of self-expression in human speech personifies them, resulting in their complex and unstable status. WE3 have their past as cherished pets, present as animal biorgs, thus machine-animals, and future as post-animals – animals with physical and psychological wounds, whose very being has been irreversibly transformed. WE3 echoes current debates on the animals, which makes it both a dystopian science fiction and a commentary on animals in the post-industrial society.

**Edwin Evans-Thirlwell (Royal Holloway) – Gaming Creatures - the Posthuman Menageries Of Monster Hunter World**

Creature design in video games typically expresses nostalgia for mythologised wild creatures and spaces, and this is especially true of Capcom's Monster Hunter World (2018). As with John Berger's portrayal of the zoo animal in the essay "Why look at animals?", the game's beasts are a monument to the disappearance of nonhumans from society as they are absorbed or displaced by the machinery of agribusiness. Vivid chimeras based on analysis of animals in captivity, they wander habitats that are at once reserves where extinction is impossible and hierarchical factory spaces where every piece of every beast has a prescribed function. If World perpetuates the objectification of nonhumans, however, it also captures the reduction and isolation of human labourers: while styled a hero, the player serves in practice as a lonely client and operator, feeding a network of managers much as World's monsters are said to nourish ecosystems with their corpses. In subordinating both prey and hunter to these systems, Monster Hunter unwittingly fosters a cross-species equivalence, recalling the older sense of “monster” as animal-human hybrid. In this regard, the distress believably expressed by the game's monsters comes to seem a projection of our own, unacknowledged agony at being made the objects and agents of capitalism.

**Bianca Friedman – (University of Pisa) – “That Dog Is Real”: Queer Identities in the New Wes Anderson’s Film Isle Of Dogs**

Isle of Dogs is the only film in Wes Anderson’s filmography in which many features and narrative elements lead us to the issue of animal-machine relationships. Taking into account the Japanese development in the field of robotics, Anderson invites the spectators to reflect on the ambiguous role of machines, robots and scientific research in a story in which dogs are both the protagonists and the victims. This paper tries to combine film analysis with the approach developed and used in the field of Queer Studies, a powerful tool when thinking about the construction of problematic and marginalised identities, like those of this film’s main characters. The paper starts with a reflection on the stop-motion technique and on the ways in which it has been used in Isle of Dogs to create speaking animal characters with the use of puppets, machines and digital effects. It examines how machines are depicted in the film as a real threat to the dogs but also how they can be used to save the dogs’ lives and create animal-machine hybrids. Then, it closes with a reflection on how the dogs relate to an identity constructed and ascribed to them by human society.

**Dolly Jørgensen (University of Stavanger) – Resurrecting Species through Robotics: Animal Extinction and Deextinction in Do Androids Dream of Electric Sheep?**

Philip K. Dick’s *Do Androids Dream of Electric Sheep?* (1968) is often understood as commentary on what it means to be human contra android. Less work has been done on animals in the novel, probably because the animal aspect was downplayed significantly in the movie version *Blade Runner* (1982), an entrance point for many scholars. Ecocritic Ursula Heise is one of the few who have focused on the novel’s animals, concluding that Dick demonstrates acceptance of ‘technological simulation of animal life’ to fulfil organic functions.

In this paper, I build off Heise’s assertion by looking more closely at the central narrative of animal extinction in the novel and how robotic replacements are part of a deextinction process. In the backstory, the religious figure Wilbur Mercer was punished because he could ‘bring dead animals back as they had been’ before after-war contamination caused their extinction. Mercer’s mystical resurrection was dependent on extinct animal resurrection. It is no wonder then that humans, following the teachings of Mercer, worked hard to re-fill the world with animals. Yet since many organic animals were extinct, robotic animals became their replacements. In this paper I will read the electric replacements as attempts to deextinct species through technological means that blur the boundary between natural and artificial.

Then I will apply my analysis of Dick’s writing to the contemporary development of robotic bees in the face of predicted bee extinctions. The Wyss Institute at Harvard University first introduced RoboBees in 2013, and in March 2018, the American company Walmart filed a US patent for ‘Systems and methods for pollinated crops via unmanned vehicles’ using small flying devices as pollinators. The novel helps explain both the rationale behind these developments and how the natural-artificial boundary is made meaningless through them.

**Taija Kaarlenkaski (University of Eastern Finland) – Cows and Humans as Machine Users: Discourses of Milking Robots in Contemporary Finland**

The first automated milking systems were put into operation on Finnish dairy farms in the beginning of 21st century. Subsequently, the number of milking robots has increased rapidly at the same time as herd sizes have grown. In this paper, I will discuss how milking robots and other automation used in contemporary cattle tending are represented, firstly, in professional magazines of cattle husbandry, and, secondly, in the marketing materials of these technologies. The main questions are: What kinds of arguments are used in marketing? How are the different agents (humans, cows and machines) represented? How are the human-cow relationships that are formed in the technologized environment described? The research material consists of articles and advertisements focusing on technology and particularly automated milking systems, published in the professional magazine *Nauta* (Bovine) between 2000 and 2018. In addition, marketing materials of milking robot manufacturers are investigated. The materials are examined using discourse analysis. In accordance with new materialist theories and cultural studies of technology, the relationships of humans, technology and animals are seen as intertwined and intra-active. Taking into account the recent history of the gendered division of work in Finnish cattle husbandry, these issues are analysed also from the point of view of gender.

**Felicity McWilliams (Kings College London) - Equine Machines: horses and tractors on British farms, 1920-1960**

Between 1920 and 1960 the technological landscape of Britain’s farms underwent a profound change, as the horse was displaced by the tractor as the prime source of draught power. This was often described at the time, and subsequently by many historians, as a revolution. For many farmers and experts, the benefits seemed to lie in the tractor’s mechanical nature in opposition to the horse’s animality. Through a discussion of horse care and tractor maintenance in particular, this paper will argue that the animal/machine boundary between the horse and tractor was neither conceptually nor practically so distinct.

Though many writers did value the tractor’s machine qualities, such as its ability to keep working without tiring and the apparently reduced time needed for maintenance, throughout the period there was also significant discussion of the horse as machine and conversely, of the tractor in surprisingly horse-like terms. More than symbolism, these ways of thinking and talking about farm animals and machines reflected the literal impact that the technologies had on each other and on the people who worked with them. The impact is such that this paper suggests that both the horses and tractors of the period might usefully considered as ‘equine machines’.

**Andrew Mitchell (Stockholm University) – Human-Canid Technologies: GPS and Sensing Beyond Species Boundaries**

In Sweden, GPS (Global Positioning System) has become an integral method for the authorities to ‘monitor’ and ‘manage’ the Scandinavian wolf population. It is also a technology that is increasingly being used by hunters, enabling them to keep track of their dogs while hunting game. However, in these instances, the technology is reliant upon a form of empathy that connects a number of species-specific ways of perceiving and behaving. Experience and empathy allow trackers to comprehend GPS data more effectively. Though this human-canid technology is mediated by a canid-GPS-transmitter hybrid working together with a human-GPS-receiver hybrid via satellites and mobile phone networks, both canid and human senses play a crucial role. Olfactory traces perceived by dogs as they track quarry are converted into visual traces as perceived by the human handler, as a digital trail on the screen of the GPS receiver. Reflecting upon extensive fieldwork in wolf territories in Sweden, this paper will consider how human and canid senses entangled with GPS technologies facilitate transspecific perception.

**Steve North (University of Exeter) – A Computational Anthrozoology Perspective on Horse-Machine Interaction: Explored Through the Umamimi Robotic Horse Ears**

Computational Anthrozoology includes both (i) using computers (or any other digital-era technology) to study human interspecies relationships and (ii) studying human interspecies relationships that are themselves mediated by computers. ‘Umamimi’ is a prototype machine (fitting into category (ii), above), providing a human-animal with animated horse ears. This work is not intended as a subject of serious quantitative evaluation, but more about exploring communicating as horses do, with subtly of expression, mediated by a machine. Umamimi means ‘horse ears’ or ‘horse eared’ and the author has used this name to reflect the Japanese tradition called ‘Kemonomimi’ (animal eared), which is found in both anime and manga. When the human makes small changes in the inclination of her head, Umamimi’s built-in accelerometer responds with programmed ear movements: fully forward, fully back or either ear turned outward. When in neutral (meaning that the accelerometer and therefore the device is level), a range of random default ear flicks and movements have been specified. The author will describe his autoethnographic work, which reflects on his experiences as an ‘embedded horse’, spending time within his own small herd of domesticated horses. How did it feel to communicate with horses through the movements of robotic ears?

**Antonella Sciancalepore (Universite Catholoque de Louvain) – Human, Animal and Technology: Multiple Hybridizations In Perceforest**

In the late Middle Ages, hybrids invade the imaginary space of literature and art. Abnormal bodies of humans with animal features were common in human imagination since at least the Antiquity, but *Perceforest*, a 14th-century masterpiece of French romance and an extraordinary testimony of late medieval European culture, invents new hybrid bodies that, although inspired by the previous tradition on monsters, combine uniquely human, animal and artificial objects.

These combined bodies create animal-machines, in which the human works as a passage, a temporary form bridging the organic and the artificial. Such animal-machines are not dissimilar to what Donna Haraway calls a “techno-hybrid”, as they too represent an alternative to the human appropriation of nature. But what is the purpose of these techno-hybrids in late medieval chivalric literature? And what is their place in pre-modern imagined biosphere?

In this paper, I will tackle two examples of techno-hybr ds from *Perceforest*: the *Chevaliers de mer*, fully armored fish-knights, and Passelion, literally “Over-lion”, a child-knight born with a crossbow in his body. I will argue that the romance uses the human-animal-technology hybrids to imagine an alternative relationship between nature and culture, and disrupt monolithic concepts of the human through ironic and utopian discourse.

**Ryan Sweet (University of Leeds) – Victorian Animal-Machines: Prostheticised Animals in Nineteenth-Century Print Culture**

The nineteenth-century periodical press reveals that the history of prostheticising animals has a much deeper and richer history than we might think. Indeed, not only were animals with prostheses depicted in Victorian literary stories and other cultural artefacts, but there is evidence to suggest that real domestic and agricultural animals were fitted with artificial body parts in the nineteenth century too. From 1783, reports appeared in local and national newspapers and journals that described instances where farm animals, in particular cattle, were fitted with wooden legs following accidents that ended in amputation. These reports were rarities to begin with but became more prevalent and were responded to more frequently as the nineteenth century progressed. By the 1890s there were reportedly animal hospitals where wealthy pet owners could go to get their beloved nonhumans fitted with all manner of prosthetics, ranging from false teeth to artificial paws. This paper will trace the history of animal prostheses from their emergence in bovine agriculture through to their breakthrough into what Harriet Ritvo has called “the Victorian cult of pets”. As I will show through an analysis of journal and newspaper contributions, animal prostheses divided opinions. Emotional responses were varied, ranging from admiration and amazement to annoyance and disgust. By analysing these reactions, I will argue that representations of animal prostheses were inflected by a variety of discourses, including those concerning economics, pet culture, social class, and gender.

**Biographies**

**Plenaries**

**Amelia DeFalco (University of Leeds)**

Amelia DeFalco is University Academic Fellow in Medical Humanities in the School of English, University of Leeds. She is author of *Uncanny Subjects: Aging in Contemporary Narrative* (Ohio State University Press 2010), *Imagining Care: Responsibility, Dependency, and Canadian Literature* (University of Toronto Press 2016), along with essays on contemporary cultural representations of ageing, disability, gender, care, witnessing and the posthuman. Her current book project, *Curious Kin: Fictions of Posthuman Care*, investigates representations of nonhuman care in literature, film, and television.

**Clara Mancini (Open University)**

Dr Clara Mancini is a Senior Lecturer in Interaction Design at The Open University’s School of Computing and Communications. She is the founder and head of The Open University’s Animal–Computer Interaction Lab, has been principal investigator on a number of ACI projects and has supervised a range of ACI doctoral research, including ubiquitous and ambient interfaces for mobility assistance and medical detection dogs, interactive enrichment for captive elephants, and wearable animal biotelemetry. Her work has been published in the leading interaction design and ubiquitous computing venues, and she has lectured on ACI nationally and internationally. Clara was general chair for the ACI2016 and ACI2017 conferences, in co-operation with the Association for Computing Machinery and Minding Animals International, and in 2017 she was lead guest editor for the first ACI Special Issue, in the International Journal of Human-Computer Studies. Clara is interested in the design, methodological and ethical challenges, and innovation opportunities, presented by ACI, and is committed to demonstrating ACI’s potential to contribute to animal and human wellbeing, social inclusion, interspecies cooperation and environmental restoration.

**Ed Ramsden (Queen Mary, University of London)**

Edmund Ramsden is a Wellcome Trust University Award Lecturer in the history of science and medicine in the School of History, Queen Mary, University of London. His current research is centred around two themes, the first being the role of animals in experimental psychiatry and in the social, biological and behavioural sciences, the second, the influence of the social and behavioural sciences on urban planning, architecture and design with a focus on mental health and illness.

**Panel Papers**

**Ivana Bičak (Durham University)**

Ivana Bičak is a Junior Research Fellow at Durham University, hosted by the Department of English Studies and the Institute of Medieval and Early Modern Studies. Her postdoctoral project examines the English and Neo-Latin satiric tradition that accompanied the development of experimental philosophy in seventeenth-century England. In 2016, she held a research fellowship at the Ludwig Boltzmann Institute for Neo-Latin Studies in Innsbruck. She holds a PhD in the reception of Roman satire in eighteenth-century English literature from the University of Leeds. She has published articles in *The Seventeenth Century* and *Milton Quarterly*.

**Emilia Czątkowska (University of Kent)**

Emilia Czątkowska is a CHASE-funded PhD candidate in Film Studies at the University of Kent, where she is in the process of writing a thesis on cinematic representation of the animal perspective. Among her research interests are human animal studies, film theory and analysis, sound theory, and visual culture.

**Edwin Evans-Thirlwell (Royal Holloway)**

Edwin Evans-Thirlwell is a video game critic, journalist and PhD student at Royal Holloway, University of London. He is completing a procedural verse response to the ideologies, social or species dynamics and spacetime-keeping practices of NASA's Golden Record, the archive of cultural data sent beyond our solar system aboard the Voyager probes. His other projects include a bestiary of virtual, artificial and extinct creatures,  a “planetary encounter” poem generator and a series of paired procedural texts inspired by NASA's Gemini missions. He lives and works in London.

**Bianca Friedman – (University of Pisa)**

I am a postgraduate student in Comparative Literatures and I have always been interested in Film

Studies. I have studied at the University of Pisa, where I moved to from Genoa when I finished my upper school. For the final paper of my BA degree, I studied Wes Anderson’s cinema and in particular *Grand Budapest Hotel*, which was the main object of my analysis. Then, for my MA thesis, I analysed Mel Brooks’ film parody of the gothic horror genre in *Young Frankenstein*, combining film analysis, theories of literary and film parody and Wolfgang Iser’s reader’s response critic approach. I cultivate my passion for films and cinema daily by writing on my website www.intrattenimento.eu, which I created with friends and collegues. I quite often attend international film festivals as a journalist in Venice, Rome, Berlin and Turin. I have recently been invited to hold a lecture on Scandinavian cinema at the University of Pisa. My interest in Animal Studies comes both from my own love for animals and from my beloved sport, horse riding, and I am thinking of studying the representation of animals in cinema in the future.

**Dolly Jørgensen (University of Stavanger)**

Dolly Jørgensen is Professor of History at University of Stavanger, Norway. She has broad research interests at the junction of environmental and technological history, with publications spanning from medieval urban sanitation to the modern use of offshore oil structures as artificial reefs. Her current research agenda focuses on cultural histories of animal extinction and recovery of lost species. She has co-edited two volumes at the envirotech intersection—*New Natures: Joining Environmental History with Science and Technology Studies* (2013) and *Northscapes: History, Technology & the Making of Northern Environments* (2013)—and one volume in premodern studies, *Visions of North in Premodern Europe* (2018).

**Taija Kaarlenkaski (University of Eastern Finland)**

Taija Kaarlenkaski received her PhD in Folklore Studies at the University of Eastern Finland (UEF), Joensuu campus, in 2012. In her doctoral dissertation, she investigated the construction of human-cow relationships in written narratives gathered by a public writing competition. In 2013, the UEF granted her the Young Researcher Award for her dissertation. She is currently working as a post-doctoral research fellow, funded by the Academy of Finland, at the UEF. In her research project she examines the impacts of technologization and modernization on cattle husbandry and the concomitant human-animal relationships in Finland from the late 19th century until the 21st century. Her research interests include posthumanist theories and new materialism, gendered human-animal relations and the effects of the use of technology on human-cattle relationships.

**Felicity McWilliams (Kings College London)**

Felicity McWilliams is undertaking a PhD in the Centre for the History of Science, Technology and Medicine at King’s College London, researching the use of draught power technologies in British farming c. 1920–1970. As a recipient of an AHRC Collaborative Doctoral Award, she is based in the Museum of English Rural Life, where she formerly worked as a curatorial professional, most recently on the redevelopment of the Museum’s permanent galleries. She is a co-convenor of the Animal History Group, the London-based research network with the goal of inspiring, creating and developing new knowledge about animals within history.

**Andrew Mitchell (Stockholm University)**

Possessing a Master’s in Palaeolithic Archaeology and Palaeoanthropology (UCL) as well as a Master’s in Social Anthropology (Stockholm University) Andrew’s research interests have always been broad and trans-disciplinary in nature, exploring phenomena classed within the boundaries of the social and natural sciences. Presently, Andrew’s key research interests lie in the areas of human-animal relations, science and technology studies, archaeology and material and visual culture. Having worked in the British film industry as a director of photography, camera operator and stills photographer for many years, Andrew also uses visual methods as part of his research practice, and was also the founding Director of the Visual Lab at the Department of Social Anthropology, Stockholm University. His PhD thesis, *Tracing wolves: materiality, effect and difference* (Stockholm University), explores the human practices that are entangled together with the Scandinavian wolf, and considers how the traces wolves leave (tracks, GPS data, or genetic material, for example) rather than direct visual observation, predominantly facilitate comprehension of what a wolf is and what a wolf does.

**Steve North (University of Exeter)**

Steve has been described in the media as ‘The Digital Horse Whisperer’. He is a Computer Science researcher, mainly working in Computational Anthrozoology and Animal-Computer Interaction (ACI). Through the HABIT (Horse Automated Behaviour Identification) project, he studied Horse-Computer Interaction, focusing on automated behavior identification from video. This involved the development of software for machine learning and computer vision. Steve is also a qualified ‘natural horsemanship’ instructor, with animal behaviour, ethology and horse training experience. His research crosses the methodological boundaries, using quantitative, qualitative and descriptive approaches, as appropriate. He has also proposed new hybrid methodologies, which combine ethnography with ethology. More recently, he has been exploring the more esoteric avenues of: nonhuman animal somatechnics, autoethnography, design / speculative fiction and ethnographic science fiction.

**Antonella Sciancalepore – (Universite Catholoque de Louvain)**

After receiving my Master in European literary cultures at the University of Bologna (2011), I completed my PhD in Medieval Studies at the University of Macerata and the University of Edinburgh (2015). My doctoral thesis, titled “The knight and the animal. Aspects of warrior theriomorphism in medieval French literature (1150-1300)”, investigated the role of animals in the construction of male, aristocratic and warrior identity through a wide range of literary texts. This work has won me the University of Macerata publication prize in 2015 and has been published by EUM in 2018.

At the moment, I am a postdoctoral fellow (Marie Curie co-fund) at the Université catholique de Louvain, where I lead my research on human-animal hybrids in late medieval science and romance, topic on which I have organised an international conference and am writing a book.

I have presented papers and published monographs and articles on a range of topics, including: drinking rituals across Romance and Celtic epics, feminine sovereignty in French and Occitan 12th-century literature, animals as givers of meaning in chivalric literature (12th-13th century), wilderness and violence in the construction of warrior identity, aspects of hybridism and human/animal (in)difference in late medieval culture.

**Ryan Sweet (University of Plymouth)**

Dr Ryan Sweet is a Lecturer in English at the University of Plymouth. Prior to his appointment at Plymouth, Ryan completed a PhD at the University of Exeter and a Wellcome Trust ISSF Fellowship at the University of Leeds. He also taught at Bath Spa University. His first book, Prosthetic Body Parts in Victorian Literature and Culture, will be published by Palgrave Macmillan in 2019. Ryan is now beginning work on two animal-related projects: 1) a cultural history of animal prostheses, and 2) a cultural and literary history of disabled human-animal relationships.