

Stories about Science:

Exploring Science Communication and Entertainment Media

Manchester Museum, University of Manchester, 4th-5th June 2015

Day One: Thursday 4th June

08.30-09.00: Registration (refreshments)

09.00-09.15: Introduction

09.15-10.00: Keynote: Stephen Gallagher

10.00-10.30: *Refreshments*

10.30-12.30: Panel I: Walking With Animals

12.30-13.30: *Lunch*

13.30-15.30: Panel II: Science on Screen

15.30-16.00: *Refreshments*

16.00-17.30: Panel III: Performing Science

17.45-18.45: Plenary: Kevin R. Grazier

19.00- Speakers' Dinner at Christie's
Bistro, Old Quadrangle

Day Two: Friday 5th June

09.00-10.30: Panel IV: Science & Citizens

10.30-11.00: *Refreshments*

11.00-12.30: Panel V: Celebrity Science

12.30-13.30: *Lunch*

13.30-15.00: Panel VI: Science Fiction

15.00-15.45: Roundtable Discussion:

What can practitioners learn from
academic work exploring sci comm
and entertainment media?

15.45-16.15: *Refreshments*

16.15-17.45: Panel VII: Science & Comedy

17.45-18.15: Discussion & Wrap-Up

19.30-23.00 Informal after-party at the
Kirby household



Welcome to Stories About Science 2015

We would like to welcome everyone to our symposium exploring the intersection between science communication and entertainment media. This event was organized by the Science and Entertainment Lab research group within the Centre for the History of Science, Technology and Medicine at the University of Manchester. The symposium is funded as part of The Playing God Project, which is a Wellcome Trust Investigator Award in Medical History and Humanities. This long-term project is the first in-depth historical study of the interactions among the biosciences, religion, and entertainment media. The goal of this investigation is to uncover the ways that entertainment professionals converted the biosciences into cultural products like movies, television programmes, and comic books and how diverse religious communities have negotiated these texts.

A significant component of our project is an attempt to understand the intersection between science communication and entertainment media. Therefore, we felt it would be useful to bring together an exciting range of international speakers to explore this topic from a variety of disciplinary and global perspectives as it is practiced and experienced by a diverse array of publics. Science and entertainment represent two of the most powerful cultural institutions that humans have developed to understand and explain their world. Most people are not scientists and their encounters with science generally come through media especially entertainment media. In this symposium we will explore how science shapes the stories that are told through entertainment media, but we will also examine the ways in which entertainment influences science. We hope that over the course of these two days we can uncover new ways of approaching, understanding, and theorizing about the communication of science through entertainment media.



David A. Kirby, Senior Lecturer in Science Communication Studies

David is the Principal Investigator for the Playing God project. He was a practicing evolutionary geneticist who left bench science in order to explore how entertainment media serve as vehicles for science communication. His book *Lab Coats in Hollywood: Science, Scientists and Cinema* examines collaborations between scientists and the entertainment industry. He is currently writing a book entitled *Indecent Science: Religion, Science and Movie Censorship, 1930-1968* that will explore how movies served as a battleground over science's role in influencing morality.

Amy C. Chambers, Research Associate in Science Communication Studies

Amy is a post-doctoral researcher on the Playing God Project and brings a film studies, visual culture, and cultural history perspective to the team. She is working on her first book titled *From Star Child To Star Wars: American Science (Fiction), Film, and Religion, 1967-1977* that will analyse how mainline US religious communities influenced, responded to, and appropriated post-classical Hollywood science-based narrative cinema.

William R. Macauley, Research Associate in History of Science, Technology, and Medicine

Ray is a research associate with the Playing God project. He has an academic background and research experience in psychology and the history of science, technology, and medicine. His current research examines how the biosciences and medicine are communicated in Christian entertainment media. He is presently writing a book titled *Science for the Soul: The Portrayal of Biosciences and Medicine in Faith Based Entertainment Media (c. 1940–2010)*.

Schedule - Thursday 4th June

08.30-09.00: Registration and tea/coffee

09.00-09.15: Introduction from **David A. Kirby** (University of Manchester)

09.15-10.00: Keynote: **Stephen Gallagher** (Novelist, screenwriter, producer, and director)

10.00-10.30: *Refreshments*

10.30-12.30: Panel I: Walking With Animals

Moderator: **Angela Cassidy** (King's College London)

Jean-Baptiste Gouyon (University College London) "As if Eavesdropping on Actual Filming": Looking at the Origins of the Wildlife MOD Genre'

Eleanor Louson (York University, Toronto) "But Really What I'm Doing There was Capturing Stories": Wildlife Films as Storytelling'

Laura Fogg Rogers (University of West England) 'Emotional Engineering: The Story of Robots vs Animals'

Kristian H. Nielsen (Aarhus University, Denmark) 'A Curious Story: How *Curious George* was Adapted for Entertainment Media and Science Education'

12.30-13.30: *Lunch*

13.30-15.30: Panel II: Science on Screen

Moderator: **David A. Kirby** (University of Manchester)

Rashel Li (Australian National University) "'I Believe in a Gender Blind Society Like *Star Trek*": The Importance of Portraying Gender Balance in Science on *The Big Bang Theory*'

Chiara Zuanni (University of Manchester) 'Mummies on a Screen: Between Hyperreality and Popular Culture'

Caitjan Gainty (Kings College London) 'CPR, TV, and democracy in America'

Sai Pathmanathan (Freelance Science Consultant/Independent Scholar)
'Children's Entertainment Media: Inside and Outside of the Primary Classroom'

15.30-16.00: *Refreshments*

16.00-17.30: Panel III: Performing Science

Moderator: **William R. Macauley** (University of Manchester)

Christopher Herzog (University of Salzburg, Austria) 'Spectating the Mind: Concepts of the human in contemporary neuroscience plays'

Hsiang-Fu Huang (University College London) 'Theatres of the Heavens: narratives of the wonders, from nineteenth-century playhouses to modern planetariums'

Adam R. Shapiro (Birkbeck, University of London) 'Entertaining ideas about science in the American periphery: A rural history of popularization'

17.45-18.45: Plenary: **Kevin R. Grazier**
(Planetary scientist, science advisor, writer, and producer)

19.00-22.00: *Speakers' Dinner* at Christie's Bistro, Old Quadrangle

Schedule - Friday 5th June

09.00-10.30: Panel IV: Science and Citizens

Moderator: **Jo Verran** (Manchester Metropolitan University)

Robert Bud (Science Museum, London) 'Making Science Concepts in the Media: The British Story of the Early 1930s'

Bruce V. Lewenstein (Cornell University) 'Telling Stories About Citizen Science'

Aharon Armon (Kings College London) 'Science Fiction as Current Affairs: Imaginary Landscapes and Futurist Orientations in Broadcast Scientific Interviews'

10.30-11.00: *Refreshments*

11.00-12.30: Panel V: Celebrity Science

Moderator: **Jane Gregory** (University of Manchester)

Declan Fahy (American University) 'Scientific Celebrity as Science Authority: The Case of Neil deGrasse Tyson'

Felicity Mellor (Imperial College) 'Trapped in Another Chapter of the Stephen Hawking Story: On Cosmic Origins and Narrative Beginnings'

Benjamin Gross (Chemical Heritage Foundation, Philadelphia) 'Chatting About *Cosmos*: Social Media as a Platform for Discussing Science and its History'

12.30-13.30: *Lunch*

13.30-15.00: Panel VI: Science Fiction

Moderator: **Melanie Keene** (Homerton College, Cambridge)

Jesse Olszynko-Gryn (University of Cambridge) 'Science fiction Cinema in the Malthusian Moment: *Z.P.G.* and *Soylent Green*'

Lyle Skains (Bangor University) 'The Catastrophe of Science Fiction Since 1950: The Role Reversal of Science and the Supernatural in 20th Century Narratives'

Kaijun Chen (Max Planck Institute, Berlin) 'Interplanetary War in the Eleventh Dimension: Popular Military Imagination of Basic Science in Contemporary Chinese Sci-Fi'

15.00-15.45: Roundtable discussion

What can practitioners learn from academic work exploring science communication and entertainment media?

15.45-16.15: *Refreshments*

16.15-17.45: Panel VII: Science and Comedy

Moderator: **Amy Chambers** (University of Manchester)

Emma Weitkamp (University of West England) 'Humour, Narrative, and Science: Comics as Science Communication'

Hauke Riesch (Brunel University) 'Science Comedy, Activism, and Distinction'

Oliver Marsh (University College London) '"People Seem to Really Enjoy the Mix of Humour and Intelligence": Science Fandom in Online Social Media'

17.45-18.15: Discussion and Wrap Up

19.30-23.00: Informal after-party at the Kirby household

Guest Speakers

Keynote talk: 09.15-10.00 (Kanaris Lecture Theatre, Manchester Museum)

Stephen Gallagher (Novelist, screenwriter, producer, and director)

Beginning his TV career with the BBC's *Doctor Who*, Stephen Gallagher went on to establish himself as a writer and director of high-end miniseries and primetime episodic television. He has adapted and created short and feature-length thrillers and crime dramas including *Chimera*, *Oktober*, *Life Line*, and *Silent Witness*. In the US he was lead writer on NBC's *Crusoe*, creator of CBS Television's *Eleventh Hour*, and Co-Executive Producer on ABC's *The Forgotten*. His fourteen novels include *Down the River*, *Rain*, *Valley of Lights*, and *Nightmare, With Angel*. He's the creator of Sebastian Becker, in a series of novels beginning with *The Kingdom of Bones* and *The Bedlam Detective*.



Plenary talk: 17.45-18.45 (Kanaris Lecture Theatre, Manchester Museum)

Kevin R. Grazier (Planetary scientist, science advisor, writer, and producer)



Kevin R. Grazier has served as the science advisor for several television series and movies, including SyFy's *Defiance*, TNT's *Falling Skies*, and the film *Gravity*. He performed the same advisory role for four seasons on *Battlestar Galactica*, as well *Eureka*, *Battlestar Galactica: Blood and Chrome*, *The Event*, and *The Zula Patrol*. Previously he was a research scientist and science planning engineer for 15 years at NASA's Jet Propulsion Laboratory (JPL) on the Cassini/Huygens Mission to Saturn and Titan. Still an active planetary scientist, his research areas include numerical method development, and long-term large-scale computer simulations of Solar System dynamics, evolution, and chaos.

Panel I: Walking with Animals

Moderator: Angela Cassidy (King's College London)

Jean-Baptiste Gouyon (University College London)

“As if Eavesdropping on Actual Filming”: Looking at the Origins of the Wildlife Making-of-Documentaries Genre

The making-of documentary (MOD) is now a regular appendage to any “blockbuster” natural history television series. This paper examines the emergence of this genre of natural history documentary. This took place in the early 1960s, bringing to the fore the essential tension between artifice and evidence at the heart of the documentary genre, and proposing to resolve it. In the early 1960s context, natural history television broadcasting at the BBC was being turned into a profession. In this context, the emerging MOD was instrumental for natural history broadcasters to distinguish their profession from the earlier practice of amateur naturalist cameramen, and to fashion their identity in relation to scientists'. The paper first discusses four attempts at producing MODs in relation to wildlife film-making at the BBC, between 1963 and 1984. The four instances emphasise the materiality of the film-making process, bringing forward the various pieces of equipment and techniques employed by film-makers. In all four cases artifice is presented as appropriate, and even necessary for the nature film to perform its evidential role. Natural history television is thus contradistinguished from the ethic of non-intervention that prevailed in earlier amateur natural history film-making. Then, at the end of the 1980s, a second theme is introduced in the genre, the relationship between film-makers and field scientists. These MODs serve to support the claims to cognitive authority associated with natural history broadcasts, whose. In fine, MODs participate in the fashioning of natural history film-making as a reliable practice of knowledge production.

Eleanor Louson (York University, Toronto)

“But Really What I'm Doing There was Capturing Stories”: Wildlife Films as Storytelling

As noted by Gouyon (2011), the meagre scholarship on natural history programming has tended to focus on the ways in which scientists' work has been misrepresented. Such work includes examining the techniques of artifice within the history of the genre, cataloguing how animal behaviour is made to correspond to preconceived social norms, or criticizing the outright fakery of animal behaviour. Such approaches consider wildlife programming to be inauthentic to the extent that the commercial forces of film production interfere with or mediate audiences' access to real nature. Conversely, Kirby's (2011) account of science consultants on film projects emphasized how their work is ultimately in service to the story; our examination of scientific content in popular entertainment needs to take its role as storytelling seriously and oughtn't be reduced to fact-checking. Wildlife films are entertaining stories. Drawing from qualitative interviews of Canadian wildlife and environmental documentarians, I show how their attitudes and professional experiences undermine a characterization of wildlife films as purely factual programming, or of science documentaries being unproblematic to pitch, produce, and broadcast (Bullert 1997). Making films about animals requires the framing of footage within compelling stories, the inclusion of charismatic scientific voices who can work in service to those stories, and visual storytelling skills. These filmmakers understand themselves to be telling stories about nature; appreciating the central role of these stories makes possible a richer critical assessment of their role in science communication.

Panel I: Walking with Animals (cont.)

Moderator: Angela Cassidy (King's College London)

Laura Fogg Rogers (University of West England)

Emotional Engineering: The Story of Robots vs. Animals

We are told that engineering is in crisis, with double the number of engineers needed by 2020. Only 7% of the UK's engineering workforce is female, so many outreach programmes now focus on girls as the next generation. However, engineering is portrayed as a male world in the media; with surveys conjuring images of men in yellow hardhats and overalls. 'Robots vs Animals' is a project which set out to challenge these media portrayals using the media technique of storytelling. Stories combine emotional highs, characters, and narrative in order to provide context and relevance for an audience. The project was curated by the Science Communication Unit at UWE, Bristol, and brought together engineers from Bristol Robotics Laboratory with education officers from Bristol Zoo Gardens. Five narratives about biomimetic engineering were created; each combining the stories of three animals and two robots. The overall aim was to highlight the creativity involved in the engineering design process needed to solve real world problems. The project title aimed to engender conflict to hook audiences in. Representations of engineering as a male profession were challenged through implicit messaging by half the ten engineers being women. The narratives were presented through face to face presentations, social media, video, and blogs; and reached several audiences including schoolchildren at the zoo, family audiences at festivals, and professionals on social media. This presentation will detail results from the project and the reactions from engineers and audiences; centrally exploring whether engineering and emotions can mix through media storytelling techniques.

Kristian H. Nielsen (Aarhus University, Denmark)

A Curious Story: How *Curious George* was Adapted for Entertainment Media and Science Education

This paper traces the development of *Curious George*, the popular children's story, from 1941 and onwards. The story's main protagonist George, a small monkey with childlike attributes, has been shaped not only by its adaptation for entertainment media, but also changing understandings of children and children's learning. Famously, it was H.A. and Margret Rey who created the *Curious George* series of seven children's picture books between 1941 and 1966. Immigrants to the USA, the Reys were sensitive to post-war changes in views on children and education. Accordingly, they transformed George from a careless and nonchalant animal into a little learner. Following the death of H.A. Rey in 1977, Margret Rey in collaboration with Alan J. Shalleck adapted *Curious George* for television. The success of the television shows resulted in two new book series. An animated film, *Curious George*, featuring Will Ferrell as the voice of the Man With the Yellow Hat, was released on February 10, 2006. Due to the success of the film, the franchise was adapted into a TV series on PBS Kids. In the series, George is often featured as a proto-scientist who learns about nature and ways of doing science by interacting with his friend, Dr. Wiseman from the local Natural History Museum. In 2013, PBS sponsored research evaluating the educational impact of watching the TV series in children. Today, *Curious George* has become big business that lends credibility from curiosity-driven and inquiry-based science education.

Panel II: Science on Screen

Moderator: David A. Kirby (University of Manchester)

Rashel Li (Australian National University)

“I Believe in a Gender Blind Society like *Star Trek*”: The Importance of Portraying Gender Balance in Science on *The Big Bang Theory*

Research on the ways gender balance (or imbalance) has been portrayed on science-themed film and fiction television have often revolved around the effects on children and teenagers, in an attempt to use such media as aspirational tools to encourage girls to go into science, technology, engineering and mathematics careers. Most such research papers have explored the way female scientists are portrayed, but few have tested their speculations with human participants. Even fewer have asked adult participants about their responses to gender and science in film and fiction television. *The Big Bang Theory* is a US sitcom focussed around the lives of scientists, and presents a clear discipline-based gender distribution of men in physics and women in biology. Despite this, in their capacity to do scientific work, the show often attempts to portray the characters as equally capable in their respective science fields. In this paper, I will report on focus group data consisting of adult participants speaking about the way they felt towards these two dimensions of gender balance/imbalance. The responses varied from being annoyed by how *The Big Bang Theory* followed gender-based stereotypes of men in physics and women in biology, to not noticing the imbalanced gender distribution, to stating that the show reflected reality and humanised the sciences. No participants endorsed an imbalanced characterisation in scientific capability.

Chiara Zuanni (University of Manchester)

Mummies on a Screen: Between Hyperreality and Popular Culture

Popular representations of Ancient Egypt are filled with images of mummies: movies, comics, and videogames still inform a diffused Egyptomania, which has paralleled the scientific study of this civilisation since the early 19th century. In the 20th century, the support of medical science was crucial to the development of mummies studies and, in more recent years, CT scans are allowing extremely accurate visualisations, which are often disseminated in museums' displays and in various media. This paper aims to explore reciprocal influences of popular and scientific representations of mummies, and how these different images shape public perceptions. The research draws on examples from the history of Manchester Museum, which has been at the forefront of scientific research on mummies since Margaret Murray famously unwrapped the Two Brothers in 1908. An analysis of media reception and dissemination of this research throughout the last century will allow exploring changing media discourses about mummies studies. Conversely, the impact of entertainment media images on the public understanding of scientific research on mummies will be examined by drawing on recent discussions on social media and a visitor study in the museum galleries. Finally, a comparison with the utmost famous case of Tuthankamen, from its discovery, which contributed to a shift in entertainment media's representations of mummies, to a much-anticipated recent documentary, which included an unexpected digital reconstruction of 'King Tut', will allow widening the perspective and discussing the differences and reciprocal impact of global and local science communication in media programmes.

Panel II: Science on Screen (cont.)

Moderator: David A. Kirby (University of Manchester)

Caitjan Gainty (Kings College London)

CPR, TV, and Democracy in America

In 1996, Susan Diem, John Lantos and James Tulskey published a landmark article on the topic of cardiopulmonary resuscitation on TV. Here, they evaluated depictions of CPR on television and determined that Americans were being given the erroneous impression that CPR was an efficacious, life-saving treatment. Argued Diem et al, this was a dangerous distortion of the clinical “reality”, where CPR was known to be a mostly-futile procedure in the vast majority of situations. And they concluded that the exaggerated claims for CPR's efficacy made on the shows they had studied were likely culprits for widespread public misconceptions about CPR, leading patients to overestimate their potential for survival after its administration, and to demand that it be undertaken, against medical advice. This article, as well as many more that appeared at the end of the 20th century, called for intervention, so that medical audiences could be given televisually the “truth” about CPR and thus make more “rational” health care decisions in real life. This talk examines why televisual representations of CPR in particular were targeted for intervention by examining the cultural and medical currency of CPR in the United States in this period. That more realistic depictions of CPR did not change real-life demand, I further argue, exemplifies the larger cultural disjuncture where late 20th-century edutainment was located. This talk thus offers an appraisal of edutainment's significance not as an educational enterprise, but as a performative iteration of a late 20th-century notion of American democracy.

Sai Pathmanathan (Freelance Science Consultant/Independent Scholar)

Children's Entertainment Media: Inside And Outside Of The Primary Classroom

With children's media much more prevalent than in past years, through numerous children's television channels, big budget movies, animations, games, apps and easily accessible via touch screen devices, it would seem ideal to incorporate entertainment within education. Or would it? Bringing entertainment media into the primary classroom can provide an interesting hook for children to engage with the subject to be taught. However, children often notice that the topic, perceived as dull, is being dressed up as fun...just like 'chocolate-covered broccoli'. In-school workshops in East London, the East Midlands and Hertfordshire have shown that hands-on experiments and investigations linked to entertainment clips helped frame the science in an easily understandable manner. And not only for children, but for non-specialist primary educators too. Children in afterschool science clubs, however, were less interested in viewing media clips - perhaps seeing club free-time as an opportunity to do more hands-on science, while the clips could be watched at any time outside of science club. Interestingly, after-school attendees were more likely than in-school workshop students to link what they were learning to prior knowledge from an entertainment programme or movie. This presentation will offer a practitioner perspective and preliminary findings on using children's entertainment media within the formal classroom as well as outside of the classroom.

Panel III: Performing Science

Moderator: William R. Macauley (University of Manchester)

Christopher Herzog (University of Salzburg, Austria)

Spectating the Mind: Concepts of the Human in Contemporary Neuroscience Plays

Contemporary science plays, a sub-genre marked by representations of the natural sciences, have predominantly been categorised by either the discursive truth-value of the science represented or the performative merging of theatrical structure with scientific content. Both approaches proceed from the assumption that science plays are, at their core, 'scientific', 'rational' and 'informative', structured by a density of scientific knowledge. Science plays are therefore said to differ from epistemically 'less' substantial genres (e.g., science fiction) or modes (e.g., the pop-scientific). In my paper, I will present results from my PhD project, arguing against educational or informative functions of science plays and for an epistemically more nuanced understanding of the genre. I will exemplify this by analysing neuroscience plays that represent 'deviant minds': brain pathologies (e.g., anterograde amnesia) or mental illness (e.g., depression). These representations are often combined with neuroscientific visualisation techniques of the brain via screen projections. However, the plays discussed, I argue, do not impart scientific 'facts'. Owing to theatrical communication structure, they contribute to an 'un-seeing' of neuroscientific knowledge, challenging the spectator to 'see' through the pervasive force of how 'brainhood' is equated with a monopoly of defining human identity. Neuroscience plays, then, are a form of meta-visualisation: they illustrate how theatre can critically alert us to tendencies in our contemporary culture, specifically, how the forms of presentation (e.g., the dissemination of brain images in mass media) and received (neuroscientific) facts often result in anthropological and social categories of normalcy by recourse to the authority of science

Hsiang-Fu Huang (University College London)

Theatres of the Heavens: Narratives of the Wonders, From Nineteenth-Century Playhouses to Modern Planetariums

This paper will divide into two parts: onstage astronomy lectures in theatres in the nineteenth century, and a comparison with today's astronomy shows. Astronomy lectures were fashionable pursuits in early nineteenth-century Britain, particularly during Lent as an alternative entertainment. Examples of Lenten astronomy popularisers include Deane Franklin Walker (1778-1865), George Bartley (c. 1782-1858), and C. H. Adams (1803-1871). The *Ouranologia*, a lecture syllabus written by Samuel James Arnold (1774-1852) and delivered by George Bartley at the English Opera House (Lyceum), was a representative instance of this kind. With large visual apparatus, orchestra music and theatre facilities, these astronomy lectures were a show combining informative instruction and amusing effects. Natural theology played a significant role: narratives of the Creation and the sublime were prevalent. The beauty, awe, and order of the universe were common appeals. Similar narratives are not strange for today's audiences of popular astronomy, whether watching TV programmes or sitting in a planetarium. Today's narrators – of whom many are professional scientists – no longer speak of religious reverence, yet they still use the same language as of the popularisers two centuries ago. Astronomy popularisers usually exploit the sublime: the rhetoric and visual display to invoke the emotions of awe and wonder. A 'comparative' study of the past and the present of narratives in popular astronomy, I suggest, would be a worthwhile direction for understanding science communication.

Panel III: Performing Science (cont.)

Moderator: William R. Macauley (University of Manchester)

Adam R. Shapiro (Birkbeck, University of London)

Entertaining Ideas About Science in the American Periphery: A Rural History of Popularization

In the late nineteenth and early twentieth centuries, rural America received news about science through several different ways. Even in places where science wasn't part of the established school curriculum, syndicated newspaper columns, popular science magazines, and books brought news to small towns from the urban centers where universities and museums were most often located. Looking at networks of print circulation reinforces an impression of a center-periphery model of science communication within the growing American republic at a time of rapid urbanization and internal migration. However, this model of science popularization is complicated when looking to more ephemeral sources of communication - meetings of local literary and debating societies, natural history clubs, and speaking tours by scientists and other popular figures. In these informal contexts, science presentations served as a form of popular entertainment that carried with it forms of social legitimation and helped to shape the rhetorical spaces that define community values. In this paper, I will examine the local practices of discussing, presenting, and experiencing science in two distinct rural American communities. Lancaster county Pennsylvania, whose first white settlers came in the early seventeenth century, and Butler county Nebraska, largely settled for the first time by European-Americans in the 1870s and 80s. The contrast between these two communities demonstrates the problems with seeing American reactions to popular science as monolithic, or easily divided along geographical lines. Exemplary cases of scientific entertainment and communication in rural America also show that geographies of American science popularization based on print networks are incomplete

Panel IV: Science and Citizens

Moderator: Jo Verran (Manchester Metropolitan University)

Robert Bud (Science Museum, London)

Making Science Concepts in the Media: The British Story of the Early 1930s

This paper deals with the presentation of the science story in the press and the BBC in the period 1929-1934. Here was a time when science seemed the unpopular cause of excess production and unemployment. The media were not just representing elite conceptions of science, rather they crystallised and responded to popular concepts: reacting against them and engaging with them. The paper will thus explore how popular narratives of science in the media constructed “science” as a social category. This lecture will explore the construction of the concept of science argued through tales in the media. Thus the *Daily Mirror* represented science as risking the end of the world. Against that sentiment was set exhibits in the new Science Museum opened in 1928. The article will explore particularly the enterprise of Julian Huxley which began as an ethnographic survey of research in Britain which led to a series of wireless broadcasts, serialisation in the *Listener* and then publication as a book entitled *Scientific Research and Social Needs*. This laid out a narrative of science which Benoit Godin has identified as the source of the formalised “linear model”. The sources of that enterprise in the work of the novel thinktank PEP (Political and Economic Planning) with which Huxley was deeply involved, the roles of communist scientist, Hyman Levy and of Mary Adams, and the DSIR (Department of Scientific and Industrial Research) will be explored. The paper will review the book not as mirror of the times but as part of an attempt to change them through then new media.

Bruce V. Lewenstein (Cornell University)

Telling Stories About Citizen Science

The term “citizen science” first appeared as an analytic term in the 1990s, most notably through Alan Irwin's attention to a democratic science in which citizens more fully participate in the practice and governance of science. But essentially simultaneously in time, the term was adopted by practitioners to describe a collection of activities in which nonscientists participate in some or all of the design, implementation, data-gathering, analysis, and communication and use of research projects. Thus “telling stories” about citizen science is both something that practitioners do and something that analysts do. In this talk, I will try to identify the range of issues captured by stories about citizen science, including places where the distinction between practitioners' stories and analysts' stories becomes unclear. I will argue that as the practice of citizen science has grown, practitioners themselves are increasingly telling stories that sound like analysts' stories. I will draw examples from various public presentations of citizen science, including a forthcoming public television documentary series called *The Crowd and The Cloud*.

Panel IV: Science and Citizens (cont.)

Moderator: Jo Verran (Manchester Metropolitan University)

Aharon Armon (Kings College London)

Science Fiction as Current Affairs: Imaginary Landscapes and Futurist Orientations in Broadcast Scientific Interviews

The impact of science fiction and futurist frames on science coverage and framing was widely explored and demonstrated. Content analyses of science news identified the use of science fiction and popular culture frames in projecting future developments and applications (Haran et al., 2008, Petersen et al., 2005) or Frankensteinian imageries and technophobic visions (Mulkay, 1996, Huxford, 2000, Jensen, 2010). Drawing on current affair interviews with scientists reporting on astronomical discoveries, brain research, cloning, nanotechnology and robotic technologies, this paper explores constructions and transgressions of fictional/ factual boundaries as enabled by the science-media talk event. Adopting a an interactional approach to narrative analysis (Georgakopoulou, 2007) this study focuses on interlocutors' stories as argumentative strategies, reflected in the positioning of tellers and characters, the sequencing of events and their structuring in plots (Carranza, forthcoming). Retrospective content analyses and interviews indicated that while journalists are usually faulted for their hyped and semi-fictional narratives, scientific sources tend to representing early research as positive and promising as well (Jensen, 2010). Rather than examining interviews and contents retrospectively, this study engages science and media discourses as they intersect, packing and unpacking culturally familiar story lines (Gamson & Modigliani, 1989) in placing anticipated developments as newsworthy or contesting fictional representations of scientific identities and work.

Panel V: Celebrity Science

Moderator: Jane Gregory (University of Manchester)

Declan Fahy (American University)

Scientific Celebrity as Science Authority: The Case of Neil deGrasse Tyson

Described by *The Washington Post* as a worthy heir to Carl Sagan, astrophysicist Neil deGrasse Tyson is perhaps the best-known living scientist in the United States. He is director of New York's Hayden Planetarium, the author of several popular science books, the presenter of the 2014 reboot of the television show *Cosmos* and host of a new late-night talk show on the *National Geographic* channel. He is a critical case study that, I argue in this paper, illuminates and embodies a cultural trend: the enhanced power of scientific celebrity. I present in this paper a cultural-historical analysis of Tyson's decades-long public career to demonstrate how he became a scientific star. I argue that his fame rested on how he came to symbolize three wider historical movements in post-1960s U.S. culture: the rise of the African-American public intellectual, the endeavors to enhance scientific literacy, and the drive to reignite space exploration. I explain also how Tyson's star status has impacted on culture, politics, and science. His stardom has earned him social power to spread scientific ideas through wider culture. But moreover, his fame granted him influence over science policy, the US space program, and astronomical research. As a consequence, his celebrity -- created and sustained in popular culture -- is now a potent form of scientific authority.

Felicity Mellor (Imperial College)

Trapped in Another Chapter of the Stephen Hawking Story: On Cosmic Origins and Narrative Beginnings

Since the publication of his bestselling book *A Brief History of Time* in 1988, the physicist Stephen Hawking has been extensively mythologized, to the extent that his daughter Lucy has worried about being "trapped" in her father's story. Film treatments range from Errol Morris's 1991 documentary of the same title to the recent feature film *A Theory of Everything* starring Eddie Redmayne as Hawking. Scholarly analyses by H  l  ne Mialet and Declan Fahy have critically examined the ways in which this mythologizing centres on the embodiment of the disembodied mind. Building on these analyses, this talk will explore the treatment of Hawking's science within popular film, looking in particular at the intersection of life story with the narrativity of cosmology. Key features include the temporal properties of narrative and cosmology, and notions of boundedness and confinement.

Panel V: Celebrity Science (cont.)

Moderator: Jane Gregory (University of Manchester)

Benjamin Gross (Chemical Heritage Foundation, Philadelphia)

Chatting About *Cosmos*: Social Media as a Platform for Discussing Science and its History

The 2014 premiere of *Cosmos: A Spacetime Odyssey*, Neil DeGrasse Tyson's reimagining of Carl Sagan's seminal 1980 miniseries, inspired debates among scientists, media professionals, and STS practitioners over the capacity of television programming to alter the public's understanding of science. The producers of *Cosmos* hoped that its simultaneous embrace of skepticism and wonder, high production values, and all-star cast would not only inspire a new generation of scientists but serve as an effective counter to the persistent drumbeat of science denialism. Although the show's political aspects, most notably its treatment of evolution and climate change, received the majority of press attention, historians and sociologists of science recognized its capacity to highlight the complexity of scientific practice and the perils of disciplinary mythmaking. This paper will explore how a group of scholars and communications personnel at the Chemical Heritage Foundation (CHF) successfully organized a weekly Twitter conversation, or #CosmosChat, examining the show's presentation of science and its history. Each #CosmosChat mobilized CHF's library and artifact collections, as well as the expertise of its in-house research fellows, to critique *Cosmos* and supplement a given episode's content. In addition to exploring the challenges associated with launching and maintaining a new social media campaign, I will consider the substantive themes that emerged during the course of these discussions and evaluate the potential applicability of the #CosmosChat model to other works that lie at the intersection of science and entertainment.

Panel VI: Science Fiction

Moderator: Melanie Keene (Homerton College, Cambridge)

Jesse Olszynko-Gryn (University of Cambridge) and Patrick Ellis (UC, Berkeley)

'Science Fiction Cinema in the Malthusian Moment: *Z.P.G.* and *Soylent Green*

Building on recent historical studies of the population control movement and of science fiction cinema, this paper will recover and analyze the production and reception of the two most prominent films of American environmentalism's 'Malthusian moment': *Z.P.G.: Zero Population Growth* (1972) and *Soylent Green* (1973). Though often assumed to be exemplary ecological 'message' films, we argue that the reality was far more ambivalent. Namely, we use the Paul Ehrlich Papers and Academy Film Archives as well as extensive published sources to show how activists recoiled from and fought back against the defiantly reproductive heroes of *Z.P.G.* and how the political message of *Soylent Green* was watered down in the production process. We frame our study as a model of rapprochement between film history and history of science and conclude that entertainment media need to be more fully integrated in the historical understanding of scientific authority and science-based activism around hotly contested and politically divisive issues—from population control to climate change and beyond.

R. Lyle Skains (Bangor University)

The Catastrophe of Science Fiction Since 1950: The Role Reversal of Science and the Supernatural in 20th century Narratives

Interstellar (Nolan, 2014) summed up a disturbing trend in current cultural attitudes, as Collette Wolfe's schoolteacher chastises former astronaut Matthew McConaughey for encouraging his daughter's "belief" in the now-branded-as-hoax 1969 moon landing. In a wasteland resulting from environmental collapse, science has become dark, superstitious magic. The culture of *Interstellar* is presented as a parallel to that of the so-called Dark Ages: as every day is a struggle for survival, the previous "wonders" of science are so far distant as to be magic. And as in the Middle Ages, those who engage in such magic are isolated, ridiculed, and even persecuted. In 1945, post-Hiroshima and Nagasaki, science in fiction began to evolve into the monstrous, and magic into a comfort. Pre-1950s, science was a source of hope, capable of triumphing over time, space, and death. The threat of nuclear war, however, heralded decades of fiction portraying science as a source of destruction. Despite wondrous advances in technology and medicine, fiction continues to see the end of the world in artificial intelligence, alien contact, and influenza. And while evangelists continue to burn the Harry Potter books as blasphemy, fiction by and large has done an about face on the supernatural: wizards are heroes, vampires are love interests, and werewolves are people living bravely with disabilities. This paper will explore this reversal between the portrayals of science and the supernatural in fiction of the 20th and 21st centuries, and how these portrayals influence public perception of science and its role in our lives

Panel VI: Science Fiction (cont.)

Moderator: Melanie Keene (Homerton College, Cambridge)

Kaijun Chen (Max Planck Institute for the History of Science, Berlin)

Interplanetary War in the Eleventh Dimension: Popular Military Imagination of Basic Science in Contemporary Chinese Science Fiction

This project aims to shed light on the popularization of “fundamental science” such as militarized astrophysics, computer science, and nanotechnology in a particular economic-political regime—contemporary China. Specifically, I examine the phenomenal success and the entertainment products following a Chinese sci-fi epic, the *Three Body Problem*, written by Liu Cixin, a professional energy scientist. Published between 2008 and 2010, the three volumes have sold more than a million copies. The first volume has been translated into English and received multifaceted reviews. In this project, I begin by tracking the dissemination of the novel via a series of journal publications, books, English translation, and comic book productions by fan clubs—a trail that eventually lead to the book’s adaptation as large budget movie. Referring to the published interaction between the author and the audience from several different cultural backgrounds, I explain the censorial modification in each transition. Second, I analyze how the traumatic experience of the Cultural Revolution in early Communist China and the Cold War is allegorized as an interplanetary struggle between a consolidated population on earth and an advanced alien civilization that suffers from the radical uncertainty of their environment. In sum, I highlight the interplay between the reception of the fiction-industry and the simulation of such interaction internalized in the novel in the form of a Virtual-Reality game. I reveal how the budgetary situation for and significance of fundamental science, which is entangled in military imagination and energy anxiety in the fiction, inadvertently attracts attention via the entertainment industry.

Panel VII: Science and Comedy

Moderator: Amy C. Chambers (University of Manchester)

Emma Weitkamp (University of West England)

Humour, Narrative, and Science: Comics as Science Communication'

Can the combination of humour, narrative and science help to show how science is part of our everyday lives? This is the central question I will explore in this talk, drawing on two projects aimed at young people (*ScienceComics* and *Cosmic Comics*) to explore the role of both humour and narrative as ways to situate science within everyday society. Comics have a long history as entertainment media, but they have traditionally been seen as just that: entertainment. I would suggest that these media have much more potential, both as learning aids and as creative ways to situate science. Their fictional nature allows juxtaposition of the real and the imaginary allowing the author to pose 'what if' questions; such as what if the world didn't work the way it does?

Hauke Riesch (Brunel University)

Science Comedy, Activism, and Distinction

Science comedy has undergone a remarkable expansion over the past decade in the UK. Comedians like Robin Ince, Dara O'Briain or Tim Minchin have plugged into wider cultural phenomena associated with the rise and increasing cultural mainstream nature of the "geek" subculture. In this the movement works with various constructions of insider audiences, appealing often directly to science enthusiasts, by speaking their language and engaging in their social causes. As Friedman recently explored, comedy tastes and preferences are bound and shaped by the audience's cultural capital and habitus. I will argue that science comedy in its current form has developed to speak mainly to specialised audiences that have the cultural capital resources to decode, make sense of and appreciate it. In its often explicitly intellectualised focus, science comedy relies on an aesthetic of art appreciation where the value lies not so much in the amount of laughter the comedian generates, but how much they make us think and appreciate science and rational thought, and which consequently often has a rather explicit activist focus of combating various forms of perceived pseudo-science and sloppy thinking. Within this outwardly focused activism, the science itself is usually presented uncritically and almost never the butt of the joke or the focus of the activism. This paper will look at the construction of jokes and humour within science comedy and attempt to explore how science and "pseudo" science are represented and how various activist causes are defined and pursued.

Panel VII: Science and Comedy (cont.)

Moderator: Amy C. Chambers (University of Manchester)

Oliver Marsh (University College London)

“People Seem to Really Enjoy the Mix of Humour and Intelligence”: Science Fandom in Online Social Media

An important class of entertainment media in the 21st century are online social networking tools, which are rapidly becoming the major leisure-time activity for many user groups across the world. In this paper I draw on my research into online social networking sites based specifically around science enthusiasm. Examples include the Facebook group *I Fucking Love Science (IFLS)*, which has over 18m 'likes' and regularly tops Facebook's user engagement statistics, or Reddit threads such as r/science or r/AskScience which offers its thousands of users the chance to informally chat with Nature writers and other leading scientists. Such sites frequently ascribe their popularity to their entertainment potential – in the words of Elise Andrew, founder of *IFLS*, they provide “a page where [users] can come and laugh but still know that everything they see is accurate”. The share-and-comment based infrastructure of social media sites allows science-based jokes and memes, pictures, news stories, and conversations to intermingle with other leisure-time uses of social media. Such features also provoke conversations within and outside these groups over the role of entertainment and enthusiasm in these groups; detractors of *IFLS* claim that it spreads poorly-informed science under the guise of humour and social solidarity, while conversely many of the largest Reddit science threads are criticised for disallowing jokes and informal banter. By considering these conversations from a combined perspective of both STS and online fan scholarship, I aim to illustrate particular opportunities and challenges for science conversations in a non-professional, user-generated entertainment setting.

Hotel Ibis

Bus stop
(towards the museum)

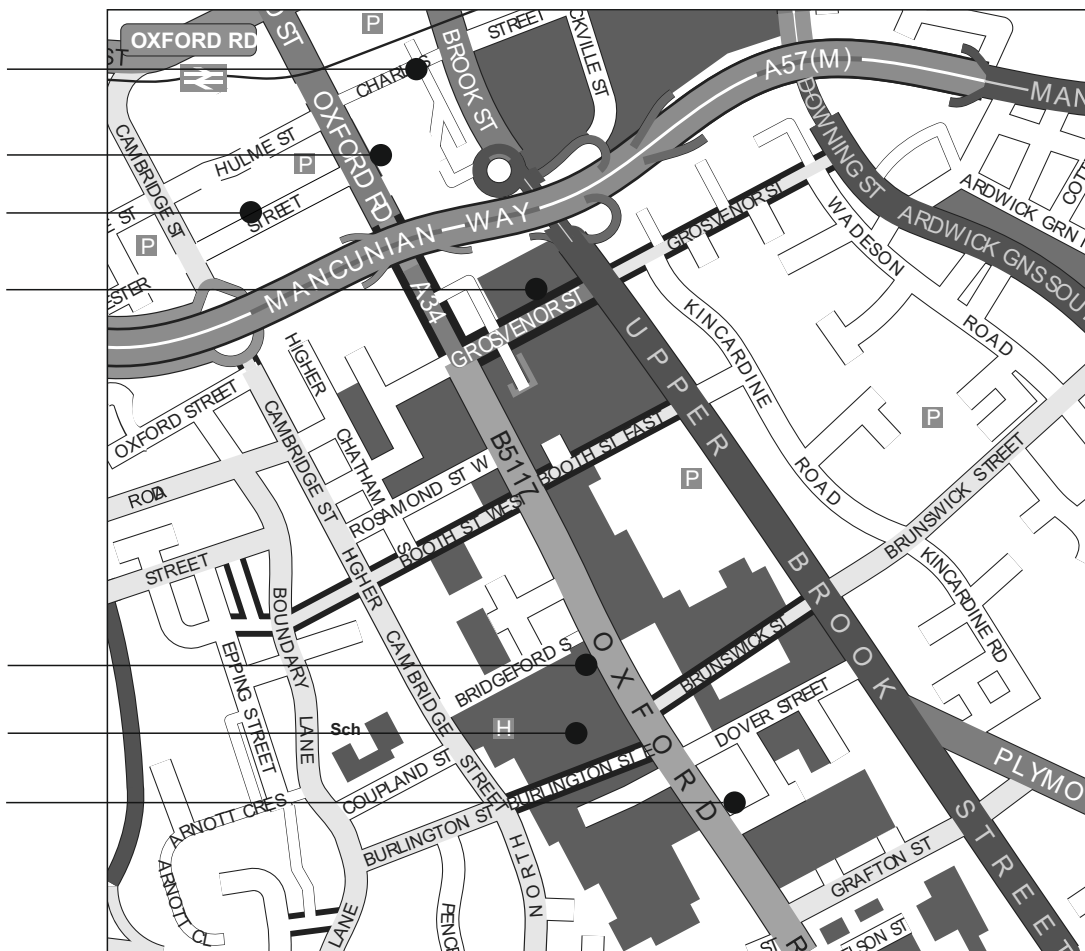
Zouk Bar & Grill

Sandbar

Manchester
Museum

Christie's Bistro

Kro Bar



Getting from Hotel Ibis to Manchester Museum:

Head towards Oxford Road down Charles Street. Turn left down Oxford Road and continue down the street for about 15 minutes. The Manchester Museum is on the right side of the road in the University's iconic neo-gothic Whitworth Building. The Kanaris lecture theatre is on the 2nd floor.

You can get a bus (142, 42, 143, 43 - towards East or West Didsbury) just as you round the corner from Charles Street onto Oxford Road. Taxis are also plentiful on Oxford Road.

Restaurant Suggestions for Wednesday and Thursday Night

Close to Hotel Ibis and Manchester Museum (near to Oxford Road)

Kro Bar (bar food with a Danish flavour) - 325 Oxford Road (2 minutes from the museum)

Sandbar (Great craft beer selection, stone-baked pizzas) - 120 Grosvenor Street

eastZeast (Punjabi cuisine - curry, grill, good vegetarian menu) - part of the Hotel Ibis

Zouk Tea Bar & Grill (Indian and Pakistani) - The Quadrangle, Chester Street

Don Giovannis (Italian) - 1-2 Peter House, Oxford Street (beyond Oxford Rd. train station)

Further afield

The Curry Mile - a region of the city known for its large mixture of award-winning restaurants and fast food curry houses - we recommend **Mughli**. Catch a bus towards East or West Didsbury (142, 42, 143, 43) to get to this neon-lit city attraction.

Town Centre - there are plenty of places to eat in the city centre (find more suggestions here: <http://www.ichstm2013.com/manchester/restaurants/index.html>). Take a bus going towards Piccadilly Bus Station (142, 42, 143, 43) to get into the centre.