

17-18 July, 2012, London, United Kingdom

Sponsors: Rachel Carson Center for Environment and Society, in collaboration with King's College London and the Smith Centre of the Science Museum, London

Conveners: Helmuth Trischler (RCC), Ludmilla Jordanova (King's College London), Simon Werrett (University of Washington, Seattle), with support from Ann Poulson (King's College London), Veronica Hallas (Smith Centre, London), and Sonja Weinbuch (RCC)

Presenters: Dean Bavington (Memorial University of Newfoundland, Canada), Chiara Certomà (RCC / Sant'Anna School of Advanced Studies, Pisa, Italy), Helen Anne Curry (Yale University, USA), Sarah Ehlers (Humboldt University Berlin, Germany), Vanessa Heggie (University of Cambridge, UK), Albert Miller (University of Washington, Seattle, USA), Gregg Mitman (Keynote) (University of Wisconsin-Madison, USA), Tamar Novick (University of Pennsylvania, USA), Charu Singh (Jawaharlal Nehru University, New Delhi, India), Eva-Maria Stolberg (Gerhard Mercator University of Duisburg-Essen, Germany), Roger Turner (Dickinson College, Pennsylvania, USA), Jeremy Vetter (University of Arizona, Tucson, USA), Christina Wessely (Humboldt University Berlin, Germany), Kristoffer Whitney (University of Pennsylvania, USA),

Although the sciences have provided critical resources in environmental debates, their own role in environmental change has been little studied. Historians of science have plotted the growth of sciences dedicated to understanding the environment, while environmental historians have used scientific data to reveal long-term transformations of human and natural ecosystems. But how scientific research itself shapes and effects environments is less understood. How have scientific practices and ideas impacted on nature – for example do practices such as voyages of exploration or natural history collecting exploit plants and animals and their environments? Does scientific activity cause pollution, depletion of resources, or other forms of damage to ecosystems? How are such practices to be evaluated, and how are they related to scientific and other ideas of nature and

the environment, e.g. notions of conquest, mastery, or interrogation. How should scientific ideas about the environment be related to the impacts of scientific research on it?

From 17-18 July, eighteen international scholars from various disciplines and countries (Canada, Germany, Great Britain, Italy, India, and USA) met at the Smith Centre of the Science Museum in London to discuss these issues.

After **Ian Blatchford**, Director of the Science Museum, opened the conference, RCC-Director **Helmuth Trischler** introduced the focus of the meeting. In particular, the conveners were interested in highlighting spatial dimensions of the interactions of science and the environment, exploring the effects of the circulation of scientific knowledge and material culture on nature.

The first day of the conference focused on the entanglements between scientific research and various capitalist and socialist economic and colonial enterprises which have impacted on and generated knowledge of diverse environments. The following people presented papers: **Jeremy Vetter** (USA) on “The Industrialization of Science in the Field, 1860-1920,” **Christina Wessely** (Germany) on “The Research Spaces of Marine Biology and the Rise of Ecological Thinking around 1900,” **Eva-Maria Stolberg** (Germany) on “Soviet Geological Explorations in Western Siberia and their Impact on the Ecosystems of Taiga and Tundra, 1950s-1980s,” **Albert Miller** (USA) on “The Kotzebue Expeditions and the Cultivation of the Radack Chain, 1816-1825,” **Charu Singh** (India) on “Observers, Instruments and a Science of Weather: Early Meteorology in British India,” **Sarah Ehlers** (Germany) on “Fighting Tsetse Flies, Fighting African Disorder—Fighting Sleeping Sickness: Medical Interventions in Environment in Colonial Africa 1900-1940s.”

In the late afternoon, **Gregg Mitman**, Vilas Research and William Coleman Professor of History of Science, Medical History, and Environmental Studies at the University of Wisconsin-Madison, gave a keynote presentation on “Ecological Imperialism Revisited: Entanglements of Disease, Commerce, and Knowledge in a Global World.” Mitman showed the colonial and capitalist roots of current approaches in environmental history, demonstrated through case studies of American corporate and academic enterprises in Liberia and Mexico. Disease ecology in these locations provided a key context for the development of the historiography of ecological imperialism, the idea that human activities shapes disease and environments, best known today through the work of historians such as Alfred Crosby and John McNeill.

The second day focused on the impact of scientific surveillance and observation on species and ecosystems, and the role of human culture (religion, leisure, sport, heritage) in shaping scientific interactions with the environment. The following presented papers: **Roger Turner** (USA) on

“Invisible Science: How Routine Environmental Surveillance Makes the World Safe for Infrastructure,” **Dean Bavington** (Canada) on “Scientifically Managed Annihilations: Scientific Constructs and the Destruction of Fisheries,” **Kristoffer Whitney** (USA) on “Circulating Shorebirds: Specimens, Data, and Agency in Wildlife Biology,” **Chiara Certomà** (Italy) on “The Influence of Scientific Paradigms and Practices in the Shaping of Modern Cityscape,” **Tamar Novick** (USA) on “Milk, Dance, and Dig: Shepherding and the Creation of a Holy Environment in Palestine,” **Vanessa Heggie** (UK) on “One Man’s Trash: The Many Lives of Mountaineering Technology,” and **Helen Anne Curry** (USA) on “Landscapes and Genescapes: A History of Efforts to Restore the American Chestnut Tree, 1925-2000.”

The intensive discussions within the five conference sessions and the final discussion articulated numerous themes emerging from the papers presented and generated new questions for future research. It was first evident that to speak of the “impact” of scientific research on the environment is too simplistic to capture a complex interactional relationship between forms of knowledge and research, natural kinds, and human cultures. Research in the “field” (itself a site constructed by science) was shown to generate knowledge that shaped state, commercial, and colonial enterprises in addition to public ideas and perceptions about nature. New knowledge then transformed environments, species, and populations, prompting novel research enterprises and changing forms of exploitation. Such cycles have occurred in capitalist and socialist contexts, and might be motivated by commerce, religion, tourism, and many other cultural and historical contingencies.

Furthermore, these processes have taken place in and produced diverse spatial configurations. The concept of milieu discussed by Christina Wessely highlighted how much scientific effort has gone into preserving environments to allow species to live in new locations, for scientific, colonial, commercial, and other reasons. Greenhouses, aquaria, the ‘Wardian case,’ ships, and gardens were all used to this end, and in raising the question of how species demanded particular living conditions to thrive, they also motivated new ecological understandings of nature. Further research is necessary to establish the chronology of this activity—for example, did the rise of European empires, with their need for transnational circulation of plants and animals, contribute to the growth of ecological thinking?

Another spatial configuration evident in many papers concerned the dependence of environmental knowledge on restricted movements. Scientists do not know “the environment” but a series of often narrow paths through the global habitat, constrained by transport, infrastructure, climate, and cultural and historical contingencies. Changes in any of the latter prompt new trajectories and so new conceptions of environments and species, and their capacities for human exploitation.

Many other configurations of space, science, and the environment were discussed, as were a range of questions for further research. Anthropologies of different communities' understandings of nature, culture, knowledge, disease, and space would greatly enrich our understanding of how these entities interact. More comparative work across political, economic, and religious boundaries would also be valuable. It would be useful to explore further the role of visual and material culture in these interactions, and to assess the role of time in scientific and environmental engagements.

It also became evident that scientific knowledge was but one form of knowledge in complex historical settings of often competing forms of knowledge. Although historians of science have emphasized the importance of skills and tacit knowledge in recent years, the role of non-scientific forms of knowledge in shaping "the environment" and transforming landscapes is still underexplored. The novel concept of the "sciences of the infrastructure" discussed by Roger Turner could serve as an analytical tool to better understand the seamless interrelations of scientific knowledge and practical skill.

Another key question concerned the role of history in changing scientific practices with regard to their effects on the environment. How might academics engage scientists, corporations and governments with their perspectives on science and the environment? At the most general level, how can history of science and environmental history learn from one another, and how do we bring a more active, policy and action-centered role to these enterprises?