

"Pisum quadratum," Versuche über Pflanzen-Hybriden. Verhandlungen des Naturforschenden Vereines in Brünn 4 (1860).

# Making Science of Things

Objects and Knowledge in and between the Natural and Human Sciences

Organized by Brooke Penaloza-Patzak & Tamara Fernando

June 29 – July 1, 2023

Green Lounge, University of Vienna



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INSTITUT FÜR  
WIRTSCHAFTS- UND  
ZIALGESCHICHTE  
WISO

# Workshop Schedule



**Thursday 29. June**  
*Green Lounge, University of Vienna*

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**10:00-11:30 Workshop check-in** with coffee, refreshments, and snacks

**11:30-12:00 Opening comments:** Brooke Penaloza-Patzak & Tamara Fernando (organizers), Annemarie Steidl (Inst. for Econ. & Social Hist.), Anna Echterhölter (Dept. of Hist.)

**12:00-1:15 [Timpoko Héléne Kienon-Kabore](#), “Archaeological Sites and Vestiges and their Contributions to Knowledge of the History of Science and Technology in Sub-Saharan Africa”**

**1:15 -2:45** Lunch buffet

**2:45-4:00 [Romana Bund](#), “Mermaid Bodies: Slippery Creatures between Scientific Cultures and Knowledge”**

**4:00-4:30** Coffee break

**4:30-5:45 [Staffan Müller-Wille](#), “Indexing Nature and Culture: Linnaeus in Lapland, 1732”**

**7:30** Workshop Dinner, **Stomach** (Seegasse 26, 9th district)



**Friday 30. June**  
*Green Lounge, University of Vienna*

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**9:30-10:45 [Matthew Brown](#), “Museum Preparation, Conservation, and Constructivism: Shaping Science in Paleontological Collections”**

**10:45-11:15** Coffee Break

**11:15-12:30 [Linda Andersson Burnett](#), “Instructing Racism: Natural History Instructions and the Collection of Skulls at Edinburgh University’s Natural History Museum c. 1770-1830”**

**12:30-2:00** Lunch buffet

**2:00-3:15 [Raphael Uchôa](#), “Amazonian Hallucinogenic Plants and the Making of the Ethno-sciences”**

**3:15- 3:45** Coffee break

**3:45-5:00 [Brooke Penaloza-Patzak](#) & [Tamara Fernando](#), “Mollusks. Between Resource, Specimen and Race, 1860-1920”**



**Saturday 1. July**  
*Green Lounge, University of Vienna*

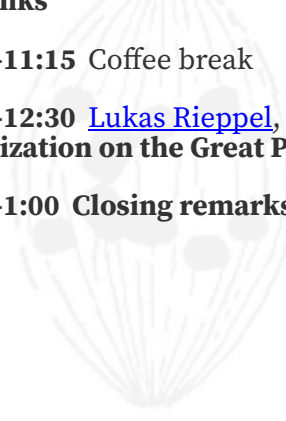
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**9:30-10:45 [Jennifer Brown](#), “Bones, Blood, and Basketry: the Curation of Life by Museums and Biobanks”**

**10:45-11:15** Coffee break

**11:15-12:30 [Lukas Rieppel](#), “Temporal Colonization on the Great Plains”**

**12:30-1:00** Closing remarks and farewells



# Paper Abstracts

LACTICOLOR ♀



## “Archaeological Sites and Vestiges and their Contributions to Knowledge of the History of Science and Technology in Sub-Saharan Africa”

[Timpoko Hélène Kienon-Kabore](#)  
Université Félix Houphouët-Boigny, CI

Research in the humanities and social sciences explores vast and complex areas of knowledge of human societies. Through the scientific investigations carried out in sub-Saharan Africa, the interdisciplinarity of science has been the basis of research that has brought important results to the knowledge of science and technology. Archaeological research, through a multidisciplinary approach, has made it possible to highlight archaeological sites and remains and to understand the sciences of societies which, for the most part, evolve in oral systems. Archaeology, history, anthropology, metallography etc. have made it possible to understand the history of science and technology through archaeological sites and remains and well-defined specific methods.

Our objective in this communication is to show the importance of archaeological sites and remains in the knowledge of the history of science and technology in sub-Saharan Africa through a multidisciplinary approach. The methodological approach is based on the research of written documents, archaeological and oral data obtained on archeology in sub-Saharan Africa.

GROSSULARIATA ♂



## “Mermaid Bodies: Slippery Creatures between Scientific Cultures and Knowledge”

[Romana Bund](#)  
University of Vienna, AT

Well before the fairy tale classic *The Little Mermaid* by Hans Christian Anderson, mermaids floated through different ancient myths, religions, scientific sightings, works of literature, and their popularity clearly has not faded. Often described as beautiful women with a long fish tail, they charmed sailors, scholars, and writers alike. In Greek antiquity, mermaids called Sirens tried to lure sailors from their ships into watery doom. Christopher Columbus regularly filled his travel logs with sightings of mythical creatures, including mermaids. Medieval nautical maps were abundantly populated by those very hybrid beings. With the beginning of the modern era, though, mermaids were more and more attributed to the excesses of human imagination, without ever fully disappearing from the sciences. Despite modernist efforts of classification, mermaids remained a scientific phenomenon that eludes efforts of rationalization.

The aim of this paper is to illustrate the mermaid's manifold entanglements with various actors, institutions, and meanings in different scientific cultures and spheres of knowledge. Through different material examples of non/human remains that have been associated with the mermaid in the past, it will be shown how the myth shaped actual bodies in medical (*Sirenomelia*) and natural history (Steller's sea cow's classification as *Sirenia*), as well as in Victorian sideshows (*Feejee Mermaid*). With the mermaid bodies, the strong ties between scientific cultures and knowledge production will be uncovered, while also dominant and often violent understandings of the human and the more-than-human, fiction and fact will be troubled and questioned.



# Paper Abstracts



## “Indexing Nature and Culture: Linnaeus in Lapland, 1732”

[Staffan Müller-Wille](#)

University of Cambridge, UK

In the summer of 1732, Carl Linnaeus (1707-1778), then a young medical student from Uppsala, undertook a famed journey to the North of Scandinavia. It seems fairly obvious that he would bring a whole range of specimens back from this journey that would inform his later taxonomic writings, for example *Flora lapponica* (1737) and *Fauna suecica* (1746). But the journal also recorded information on such subjects as recipes for dairy products, practices of reindeer herding, organisation of households, property rights and conflicts over land use in what already was clearly a settler society. How can we conceive of these as “things” that were “collected” by Linnaeus? In my contribution, I will take a close look at a manuscript that so far has escaped the attention of scholars and that played a crucial role in the translation of observations from the journal into a range of print publications. Among the manuscripts related to Linnaeus's Lapland trip, we also find nine folios that constitute an index to the travel journal's content. I will analyse the way in which this index referenced the journal's contents by isolating subjects that arose from Linnaeus's curiosity. Intriguingly, as this analysis will reveal, Linnaeus did not simply apply his own ontological framework in framing his index. Rather, the index tells us that he engaged in a kind of belated dialogue with the ontology that underwrote the Sami way of life.

## “Museum Preparation, Conservation, and Constructivism: Shaping Science in Paleontological Collections”

[Matthew Brown](#)

University of Texas at Austin, US

Natural history museum collections serve as storehouses for the raw data that underpins much of the natural sciences. Hypotheses are generated and tested based on observations of evidence preserved in the form of museum specimens; amalgams of natural objects and associated data. These natural objects are altered from their original biological states through the processes of field collection and laboratory and collections manipulation. The science of vertebrate paleontology, particularly the application of laboratory methods (often referred to as fossil preparation), serves as an exemplar for illustrating the system of intervention and study common to the natural sciences. Mischaracterized as a purely technical activity centered on accurate exposure of anatomy, fossil preparation is a process of scientific interpretation. Reducing error is a focus of preparation, but in practice decision-making is based on the judgment of a worker in the laboratory. For the purposes of research, museum specimens are generally assumed to a) represent a natural organism, and b) to remain static through their life in the collections. However, fossils are a result of a complex interaction between biological and geological processes subject to physical and chemical alteration both prior to discovery and continuing through their museum life. They are transformed into museum specimens through anthropogenic intervention, yet this process is infrequently recorded or reported in the paleontology laboratory and literature. This lack of awareness about basic methods has a demonstrable negative effect on the soundness of conclusions in the science, and further examination of similar systems in natural science is warranted.

# Paper Abstracts



## “Instructing racism: natural history instructions and the collection of skulls at Edinburgh University's Natural History Museum c. 1770-1830”

[Linda Andersson Burnett](#),  
*Uppsala University, SE*

In 1817, the Edinburgh Magazine published a set of instructions for natural-history collectors. Penned by Prof. Robert Jameson at the University of Edinburgh, the instructions were designed to tell overseas Britons what he wanted them to collect for the university's natural-history museum and ranged from how to preserve insects to recommending the collection of "warlike instruments of different Nations and Tribes". Jameson's terminology spoke of "race" in his instructions for the collection of skeletons and in particular skulls: "Of man, the skull is the most interesting part, as it varies in the different races of the human species". During his museum stewardship, a large number of skulls arrived from across the globe (stolen, purchased or gifted). University museums such as Edinburgh's were sites of research, teaching, and public engagement, and were at the forefront of creating and disseminating colonial narratives about racial differences. By analysing Jameson's instructions and the teaching of race in natural-history courses at the University, I will discuss how thinking on human variety evolved during this period, why knowledge actors from different social strata engaged with instructed collecting, and how colonial and local conditions shaped and enabled collecting practices.



## “Amazonian Hallucinogenic Plants and the Making of the Ethno-sciences”

[Raphael Uchôa](#),  
*University of Cambridge, UK*

This presentation historicizes the Western notion of '(ethno)science' from the perspective of a colonial encounter in the Amazon basin when 19th-century European travelling naturalists described, depicted and collected Amazonian nature. Their descriptions also included the indigenous peoples in the Amazon, who were considered part of the natural history of the regions visited, side by side with their flora and fauna. Among the naturalists who explored the region were Carl F. von Martius (1794-1868) and Richard Spruce (1817-1893). Their work on natural history had a considerable impact on 20th-century conversations about "traditional knowledge." First, the paper contextualizes Martius' notions of "savage knowledge" and "ruins," elaborated after an expedition to South America between 1817 and 1820. Second, I look at Spruce's encounter and collection of hallucinogenic plants among the Amerindians while travelling the Amazon basin in the 1850s. I suggest that these are pivotal historical instances of the Western fabrication of what came to be called "ethnoscience."



# Paper Abstracts



## “Mollusks. Between Resource, Specimen and Race, 1865-1920”

[Brooke Penaloza-Patzak](#)  
*University of Vienna, AT*

&  
[Tamara Fernando](#),  
*Stony Brook University, US*

Mollusk's and their traces—fossil, food, refuse, commodity or bijouterie—are found from the heights of Prebético to the depths of the Gulf of Mannar, from the rivers of Unalaska to Hispaniola's Bloodwood branches and nearly everywhere in between. The history of mollusk-based research intertwines environmental spaces, geologic eras, forms of knowledge, and ways of knowing. In the 19th and early 20th centuries, this strand of research also became deeply imbricated in studies of human development. This paper looks at how two naturalists from two consecutive generations working for unrelated extractive colonial ventures in dramatically different environs brought natural history practices and frameworks used to study mollusk anatomy, distribution, classification, and development to bear on questions of human origin and cultural development.

US-born William Healey Dall (1845-1927) served as lieutenant naturalist with the Russian-American Telegraph Expedition from 1865 to 1867. During this time he also collected ethnographic material, and crossed the Bering Strait to survey and collect in Kamchatka, Russia. Dall's passion was collecting, drawing, describing and classifying mollusks, all fundamentally informed by a neo-Lamarckian conception of morphological development. He went on to publish some of the earliest data-based claims about ancient mollusks, and curiously enough Inuit, migration across the Strait. Dall became known as an expert on Alaska, and exercised considerable influence over late 19th-century classificatory practice in the US by way of his function as Honorary Curator of Mollusks at the Smithsonian Institution. Half a century later, British-born James Hornell (1865-1949) was recognized as one of the foremost

chroniclers of marine life in the Indian Ocean, and indeed, beyond.[iv] Trained initially as a naturalist, Hornell was subsequently appointed a “fisheries expert” for the British Empire, studying mollusks, pearl formation, and undersea ecologies. Like Dall, Hornell's research was morphologically-informed, and his writing extended beyond creatures of the sea to the human societies that inhabited their shores. Alongside his work on pearl-formation in oysters and molluscan anatomy, Hornell also theorized an analogy between watercraft morphology and hierarchies of human development.

In both cases, colonial projects awakened by commercial and political interest in specific environs produced opportune circumstances for scientists enlisted to survey and monitor natural resources to turn their attention to human culture and development. Interweaving methods and considerations from the history of science, environmental studies, and museum anthropology, we take Dall's Strait-based research and Hornell's undertaken in the Gulf of Mannar as points of entry to discuss how and why specimen-based research facilitated the transfer of theories and practices between what we now consider the natural and human sciences, ethnology in particular, and how these and others projects like them endeavored to legitimize “expert” as opposed to indigenous knowledge about indigenous life and the material matter of the sea.

# Paper Abstracts



## “Bones, Blood, and Basketry: The Curation of Life by Museums and Biobanks”

[Jennifer Brown](#)

*University of Pennsylvania, US*

Museums and biomedical specimen banks (‘biobanks’) have in common the preservation of a temporal moment in the life of an individual or group. Drawing upon ethnographic research among Alaska Native people and interactions with museum collections and the Alaska Area Specimen Bank of the Centers for Disease Control’s Arctic Investigations program, this paper seeks to draw connections between human remains, biobanked specimens and museum objects and show how these parallels are creatively adopted and resisted by various actors.

While legislation such as the Native American Graves Protection and Repatriation (NAGPRA) act of 1990 have made clear the special obligations museums have to indigenous communities regarding human remains and associated grave goods, less clear are the obligations biomedical researchers and specimen banks may have regarding biological specimens or that museums may have regarding other types of museum objects. Some Alaskan Native people now seek to extend the boundaries of preserved life recognized by NAGPRA to museum objects and biobanked samples. NAGPRA has provided indigenous communities with a meaningful way to describe their relationship with certain museum objects and biological specimens. Using NAGPRA as an entrée into discussion of specimens brings into relief the connection of native peoples to these frozen samples as inalienable objects of vital importance. Biobanks and museums are both charged with preservation, in many cases of endangered and “vanishing” cultures at the moment of crisis. Connecting museum objects to frozen biological specimens, baskets to blood, pushes the boundaries of life though time and space and from the biological to the material.



## “Temporal Colonization on the Great Plains”

[Lukas Rieppel](#)

*Brown University, US*

During the second half of the 19th century, the United States sent legions of survey geologists to the North American Interior. Their primary purpose was to map the location and abundance of valuable resources for economic extraction, creating an epistemic infrastructure for settler colonialism. But survey geologists did far more than just document the material wealth of Indigenous lands. They also unearthed countless prehistoric fossils, which were then used to re-write the deep history of the lands being colonized by the United States. In this presentation, I want to ask how scientists helped the United States extend its imperial reach along a temporal as well as a spatial register. The specimens they extracted were subsequently accessioned to the “permanent collections” of urban museums. As they made their journey across the United States, prehistoric fossils were stripped of their Indigenous meaning and inserted into a new, teleological narrative about the evolutionary history of life on earth. By composing geological narratives that were billed as the one true creation story, earth scientists effectively sought to assert mastery over the deep history of newly colonized lands. In addition, they also collected origin stories from a wide range of Indigenous people. These too were treated as “specimens” and accessioned to museum collections, where Indigenous Earth histories were erroneously re-interpreted as the myths of a supposedly dying race.

# Workshop Venue & Hotel

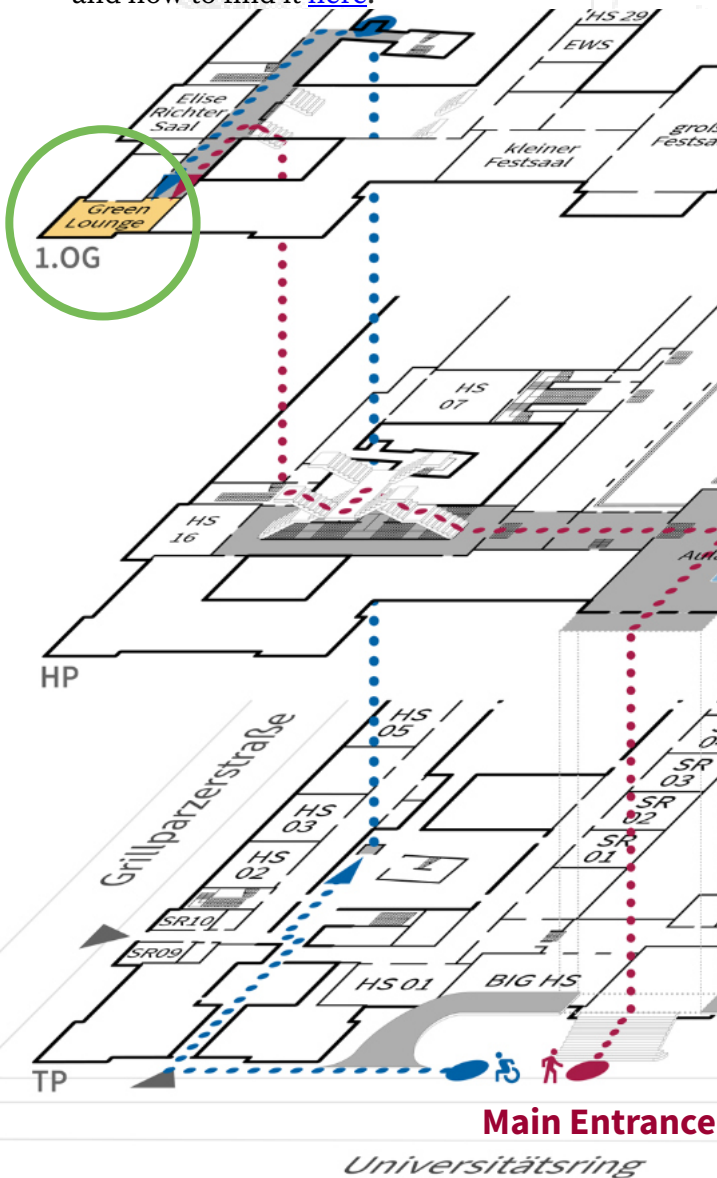


## Green Lounge University of Vienna, Main Building

Universitätsring 1  
1010 Vienna, Austria

The **Green Lounge** is located on 1. OG (1. Obergeschoss), in other words, two levels above the TP (Tiefparterre, i.e. ground floor).

You can find information about the Green Lounge and how to find it [here](#).



## Hotel Atlanta

Währinger Strasse 33  
1090 Vienna, Austria

There are several ways to reach Hotel Atlanta from Wien Schwechat airport:

### City Airport Train (CAT):

The City Airport Train will take you from the airport to Wien-Mitte in 16 minutes (more information [here](#)). Take the U3 from Wien-Mitte to Westbahnhof, then the U6 to Volkstheater. Transfer to the 41 or 42 tram and get off at Sensengasse (more information on Vienna public transport [here](#)).

### Vienna Airport Lines:

Alternatively, use the Vienna Airport Lines bus service (more information [here](#)).

### Taxi:

A taxi that will take you directly to the hotel can be hired at the airport taxi stand. Prices begin at around 46 euros and the transfer time is roughly 30 minutes.

More information about Hotel Atlanta [here](#).

Please note, breakfast is optional. Should you wish to take advantage of this option, please advise hotel staff upon your arrival, the additional cost will be charged to the workshop.