



# THE PALETTE OF NATURE

SHNH SUMMER MEETING

THE SOCIETY FOR THE  
HISTORY OF  
NATURAL  
HISTORY

**13-14 JUNE 2024**

National Museum Cardiff  
Amgueddfa Genedlaethol Caerdydd  
Cardiff, Wales, CF10 3NP

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**Cover Image**

"Fügel einer Blaurake, or the wing of a Blue Roller",  
Albrecht Dürer (1471-1528)  
watercolour on vellum, c.1500.

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Programme designed by Will Beharrell

# PROGRAMME:

## DAY ONE

9:15 AM

*Arrival and Registration*

9:30 AM

*Panel One*

**Colour charts for naturalists: A Brief History**

*Leslie K. Overstreet, Smithsonian Libraries and Archives*

**Recording colour in horticulture:**

**The origin and development of the Royal Horticultural Society's Colour Chart**

*John David, RHS Garden Wisley*

**"The tints of a geological map speak to the mind as well as to the eye":**

**Colour and the representation of empirical reality on the Geological Society's early maps**

*Duncan Hawley, History of Geology Group*

11 AM

*Break*

11:30 AM

*Panel Two*

**Two approaches to ornithological illustration:**

**George Edwards (1694-1773) and Francis Buchanan (1762-1829)**

*Arthur MacGregor*

**A Mystery in a Paintbox:**

**Cracking Ferdinand Bauer's colour code for the Flora Graeca (1786-1794)**

*Jane Jelley*

**The transition from uncoloured to coloured engravings in early ichthyology books**

*Paul Martin, University of Bristol*

1:00 PM

*Lunch*

# PROGRAMME:

## DAY ONE, CONTINUED

2:00 PM

Panel Three

**The palette of nature that made the seventeenth-century florilegia**

*Jessie Wei-Hsuan Chen, Vrije Universiteit Brussel*

**Illuminating labour: National pride and female agency in the colouring of the Flora Danica**

*Christoffer Basse Eriksen, Centre for Science Studies, Aarhus University*

**Feathered hordes and winged gems:**

**Colour and vitalism in Jardine and Selby's Illustrations of Ornithology (1827-1843)**

*Joyce Dixon, University of Edinburgh*

3:30 PM

Break

3:45 PM

Panel Four

**Colours of nature in South Asian art**

*Cam Sharp Jones, the British Library*

**Painting descriptions:**

**Observing and authoring nature in Theodor Cantor's Malayan Sketches, 1840s**

*Katherine Enright, Trinity College, University of Cambridge*

4:45 PM

End of Day One

TBC

Conference Dinner  
(details to be announced)

# PROGRAMME:

## DAY TWO

9:00 AM

Arrival

9:15 AM

Panel Five

**"A Matter of Extreme Difficulty:" Robert Ridgway and the classification of colour**  
*Richard Gilreath, Smithsonian Libraries and Archives*

**Colour charts in 18th-century Europe: Natural, pigmentary, and trichromatic**  
*Giulia Simonini, Technische Universität Berlin*

**How one illustration of a mountain zebra *Equus zebra*, living in 1761 at the menagerie of royal palace at Versailles, became emblematic of all black-and-white striped African equines**  
*Graham Rowe, University of Derby*

10:45 AM

Break

11:00 AM

Panel Six

**Hand-coloured natural history illustrations for common readers:  
The publishing history of *The Naturalist's Library*, 1833-1843**  
*Sarah Finn, Milwaukee Public Library, Milwaukee, Wisconsin*

**Ferdinand Bauer's (1760 - 1826) field drawings at The Natural History Museum Vienna, his "painting by numbers" method, and the importance of historical colour systems regarding standardisation useful for scientific purposes**  
*Tanja M. Schuster, The Natural History Museum Vienna*

**Exploring the applications of line drawing in botanical illustration from the eighteenth century to the twenty first century**  
*Heather Pardoe, Amgueddfa Cymru - Museum Wales*

12:30 PM

Brief Closing Remarks & End of Conference

# PROGRAMME:

## DAY TWO, CONTINUED

12:45 PM

*Lunch Break*

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**Please note a lunch is not provided on the second day of the conference**

2:00 PM

*Tours (Optional)*

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Tours of the Museum collections featuring objects related to the conference papers.

Further details to be announced.

**Concludes by 4:00 pm**

# PANEL ONE

## Color charts for naturalists: a brief history

***Leslie K. Overstreet, Smithsonian Libraries and Archives***

In the sciences of taxonomy and systematics color is often a distinguishing characteristic for identifying, naming, and classifying species of plants, animals, and minerals. It has been included in technical descriptions since the beginning of modern studies in the 17th century, but the terminology for specific colors has presented problems of definition and interpretation for equally as long, and the multitude of European languages in which scientific descriptions were written compounded the difficulties.

Further complicating the issue, illustrations depicting species might be colored; the pigments were prepared, mixed, and applied by the artists and artisans independently for each work - often separately for each edition or issue, and sometimes even each copy, of the work. The precise hues created and their stability over time could be quite variable, raising significant questions for researchers about their accuracy and reliability.

In the 18th century naturalists began attempting to define and standardize color nomenclature and pigment formulations, sometimes to the extent of including color charts and lists of color names in their works. This talk will present a chronological overview of books that document the path this search for clarity and standardization has taken.

### **Biography**

Leslie K. Overstreet earned a B.A. in English Literature from Reed College (Portland, Oregon, 1971) and a Master of Arts in Teaching (also from Reed, 1972); she joined the Smithsonian Libraries (SLA) in 1980. Initially staffing the Anthropology and Vertebrate Zoology libraries in the National Museum of Natural History, she earned an M.L.S. degree in rare-books librarianship (University of Maryland, 1988). As the Curator of Natural-History Rare Books, she has headed SLA's Joseph F. Cullman 3rd Library of Natural History since it opened in 2002. Her work includes reference and reader assistance, collection management and development, and participation in the Biodiversity Heritage Library ([www.biodiversitylibrary.org](http://www.biodiversitylibrary.org)) and a wide variety of outreach activities. Her own research has focused for many years on bibliographical aspects of Mark Catesby's Natural history of Carolina, Florida and the Bahama Islands (London, 1731-1743).

# PANEL ONE

CONTINUED

## Recording colour in horticulture: The origin and development of the Royal Horticultural Society's Colour Chart

*John David, RHS Garden Wisley*

The detailed description of colour has a greater significance in horticulture than in the related fields of natural history. Plant breeders and the selectors of new varieties look for new or different shades of colour (amongst other attributes) and to ensure that these can be distinguished from other similar varieties, we need to record the precise colour or colours of these plants. This process began in the late eighteenth century but it was not until the beginning of the twentieth century that a formalised chart for recording cultivated plant colour was created. In 1966 the RHS published the first edition of its colour chart, which is now in its sixth edition and is used as an international standard for the recording of colour in plant breeding. This talk will explore how the colour chart developed over the past two centuries, influenced by developments in colour recording in natural history, and how that led to the colour chart we still use today.

### **Biography**

John David PhD, FLS, is the Head of Horticultural Taxonomy, based at RHS Garden Wisley, and oversaw the publication of the sixth edition of the RHS Colour Chart (2015).



# PANEL ONE

CONTINUED

“The tints of a geological map speak to the mind as well as to the eye”: Colour and the representation of empirical reality on the Geological Society’s early maps

***Duncan Hawley, History of Geology Group***

Greenough Bellas Greenough (1778–1855) directed the production of the 1st and 2nd editions of the Geological Society of London’s Geological Maps of England and Wales, published in 1820 and 1840 respectively. Greenough took great care in choosing the colours and hues used to represent ‘the several geological groups’ on his maps. His avowed intention was to give a visual impression of how each group might be encountered in the landscape, while at the same time being sensitive to the colours of adjacent groups so as to avoid ‘unsettling’ clashes. His aim was to create visual harmony with naturalistic effect of affinities. The result was a map with a palette of relatively subdued, associative colours, which matched both the aesthetic and the theoretical sensitivities of the day. This study considers how colour theory, cultural aesthetics and Greenough’s geological ideas all combined to inform his cartographical ambition. It examines the experiments and deliberations undertaken as he created the colour scheme for his first edition and the ways that this scheme was modified for his second edition. It concludes by assessing the influence of Greenough’s colour scheme on subsequent geological maps and evaluating whether Greenough’s choice of colours advanced the representation and interpretation of nature as manifest in rocks.

## **Biography**

After studying geology at UCL and at Aberystwyth Duncan enjoyed a varied career as a geography and geoscience educator in schools, field centres, university and teacher education, specialising in the teaching of physical geography. Throughout, he maintained an interest in the history of geology, joining the History of Geology Group (HOGG) in 1995. He has particular interests in the development of early geological maps and the life and work of G.B. Greenough. He is the Chairperson of HOGG and the Sheffield Area Geology Trust.

# PANEL TWO

## Two approaches to ornithological illustration: George Edwards (1694-1773) and Francis Buchanan (1762-1829)

### ***Arthur MacGregor***

The drawings associated respectively with these two subjects, both of whom aspired to compile illustrated surveys of bird life, present some interesting contrasts. Edwards was a self-taught artist, producing not only original characterful drawings but also preparing the aquatint plates for his *History of Birds* (and going to some lengths to ensure accuracy in the work of colourists employed thereafter by his publishers). While much of Edwards's career was spent in London, where he found most of the specimens he discusses, Buchanan's career was spent almost entirely in India where he had access to and further trained a group of Indian artist - several of them identified by name - who produced work in a more austere style, meticulous in detail and in colouring, designed to convey the essential details of their subjects to the scientific world in much the style that the botanists had already adopted. His work never reached publication during his lifetime, but a spectacular volume on his fish drawing, recently published by Ralph Britz, together with research now in progress on the birds and mammals, will offer a corpus of illustrations and relate them to the wider development of natural history illustration.

### ***Biography***

Arthur MacGregor has interests in archaeozoology and the history of collecting. He has published over a dozen edited volumes and is sole author of a further four. He co-founded the *Journal of the History of Collections* and edited it until the end of 2023. He was president of the SHNH, 2015-18.

# PANEL TWO

## A Mystery in a Paintbox: Cracking Ferdinand Bauer's colour code for the Flora Graeca (1786–1794)

***Jane Jelley***

The illustrations for the Flora Graeca (1786–1794) are acknowledged to be some of the finest botanical paintings in existence. But between the pages of Ferdinand Bauer's masterpiece lies a puzzle: a colour code which remained unsolved until now.

While working in the field, Bauer added numerical notations to his drawings, before his specimens had wilted or faded. These codes allowed him to work up coloured folio paintings up to 6 years after his travels had ended.

The system to Bauer's code has been very difficult to interpret because of its apparent illogicality, but a new approach, combining practicality with an understanding of historical painting methods and materials, has led to a solution.

It is suggested that Bauer related the process of identifying the qualities of colours he saw to the intrinsic properties of his pigments, and to their sequence in his paintbox. Each code he assigned gave directions not only about which paint to use, but also about how it should be applied.

It appears that rather than being a mechanical reference system, Bauer's code was a flexible mnemonic, reaching into the heart of his artistic process. Finally, we can get an understanding of his working practise, and a glimpse into his conceptualisation of the colours that enliven his painted masterpieces.

### **Biography**

Jane Jelley is an artist and author, interested in the materials and processes of historical painting methods. Her research led to a paper on the use of the camera obscura in the 17th century, and a subsequent book, *Traces of Vermeer* (OUP 2017). Recently, she has focussed on 18th-century watercolour techniques, and the puzzle of Ferdinand Bauer's colour code for the Flora Graeca.

# PANEL TWO

CONTINUED

## The transition from uncoloured to coloured engravings in early ichthyology books

***Paul Martin, University of Bristol***

The three grandfathers of ichthyological illustration – Belon, Rondelet and Salviani – published their beautiful but very different books between 1553 and 1558. These were uncoloured although there was talk of several special coloured issues for VIPs; intriguingly, some of these may now live in UK libraries. Not until 100 years after Besler's coloured botanical masterpiece, *Hortus Eystettensis*, 1613, came the first coloured ichthyological book, Renard's, *Poissons, Ecrevisses et Crabes*, published in 1719. Renard's book is infamous for its surreal use of colour and somewhat naïve imagery.

Fish come in a multitude of iridescent hues but their colours completely change once out of water. Catesby described how he had fish brought to him every few minutes as he painted to best capture reality. He was rigorous in instructions to his colourists in striving to maintain consistency across engravings. The most admired fish engravings are from Bloch's *Fische Deutschlands*, 1782. He used ingenious techniques including addition of specks of silver paint and egg white to portray the sheen effect of a freshly caught fish. An army of colourists applied colours to images throughout the eras of woodcuts and metal engraving and then the cheaper lithographs, before the dawn of chromolithography gave us some of the most spectacular of all fish prints including Bleeker's *Atlas Ichthyologique*, 1862.

I will discuss this transition to colour, why it was so late coming, and why some ichthyology texts still didn't make the leap. I'll finish on the somewhat controversial topic of "fine recent colouring" of uncoloured engravings.

### **Biography**

Paul Martin is Professor of Cell Biology at University of Bristol. He studied for a PhD at King's, London, investigating how the chick wing develops, and then set up lab in Oxford Anatomy before moving onto UCL, and then Bristol Biochemistry where he's been for the last 20 years. His lab researches wound healing and cancer biology. Inspired by a colleague he first met at King's he became passionate about books of fish and fish engravings and has been collecting these for 40 years. He is interested in all things ichthyological as well as being a mad keen sea angler.

# PANEL THREE

## The palette of nature that made the seventeenth-century florilegia

*Jessie Wei-Hsuan Chen, Vrije Universiteit Brussel*

The pictorial genre of the florilegium is commonly used to refer to a collection of flower illustrations from the long seventeenth century (c. 1575-1725), most often made in the mediums of (hand-coloured) engraving/etching or watercolour. The flowers and decorative plants featured in florilegia are usually those that were rare and curious to areas in the north of the Alps during this time period. Among these are newly introduced species and/or varieties from southern Europe and the Mediterranean, Asia Minor, and the Americas, as well as cultivars that were the products of mutation and hybridisation. The rare and/or new colours of the blooming petals were one of the most important features that made a flower sought after by a plant collector.

This paper discusses how florilegia image makers utilised colourful illustrations for communicating and recording the critical information of what made flowers rare and curious in the seventeenth century. More specifically, it delves into the materials and techniques of early modern watercolour, which was a medium largely used for producing many types of natural history images. Florilegium images were coloured and painted with a wide range of natural materials, including colourants extracted from plant-based dyestuffs, and pigments derived from grinding and powdering cleaned earths and minerals, roasted metals, and charred twigs and bones. By examining how image makers used a palette full of colours from nature, this paper shows how image makers (re)produced and (re)presented the colourful world of rare and curious flowers in the early modern period.

### **Biography**

Jessie Wei-Hsuan Chen is a postdoctoral researcher on the project BIO&IMAGO at Vrije Universiteit Brussel. Her plant-based research interests stand at the intersection of the history of art, knowledge, science and technology, and the book. Chen recently defended her PhD thesis at Utrecht University on the forms of knowledge and the making of seventeenth-century florilegia, a research project funded by the Dutch Research Council (NWO) and received a fellowship from the Oak Spring Garden Foundation in the USA. Additionally, she has published on the woodblock-making and printing of botanical woodcuts at the early modern Plantin Press in Antwerp.

# PANEL THREE

CONTINUED

## Illuminating labour: National pride and female agency in the colouring of the Flora Danica

***Christoffer Basse Eriksen, Centre for Science Studies, Aarhus University***

In 1754, King Frederik V of Denmark-Norway ordered that the German physician Georg Christian Oeder should publish a series of books presenting all known plants within his territories, the Flora Danica (1761-1883). Importantly, the King and his government specified that the tables of these books should not only be available in black and white, but also in colour. To this end, the government decided to establish an "Illumination School for the Fair Sex" in which two female natural history illustrators would supervise young women from the Christianshavn Orphanage in the art of illumination. In this paper, I investigate the labour politics of natural history illumination, or colouring, in the making of the Flora Danica. Recently, scholars like Mary Terrall, Alix Cooper and Anna Marie Roos have drawn our attention to the collaboration between female illustrators and male authors in the domestic production of natural history. Yet, less is known about the dynamics that emerged when the image production left the household to become institutionalised. To study this process, I trace the records of colour taken on the botanical field trips of Oeder and his successor as editor, Otto Friedrich Müller, and the original illustrations made by Müller's brother, Christian Friedrich Müller, as well as multiple illuminated copies of the Flora Danica held in Danish libraries. Through conversation with Kärin Nickelsen's analysis of colour standardisation, I argue that both gender and social class played an important role in the acceptance of colour as an essential component in natural-historical representation.

### **Biography**

Christoffer Basse Eriksen is a postdoctoral fellow at the Centre for Science Studies, Aarhus University supported by the Carlsberg Foundation. Fascinated by knowledge of flowers, bees and seeds, he is currently investigating the making of the Danish multi-volume botanical atlas, the Flora Danica, and has published widely on early-modern microscopy in journals such as BJHS, Centaurus, History of Science, and Nuncius. His first monograph, *Scaling Science: Microscopes, Mechanism, and Generation in the Early Royal Society*, is under preparation.

# PANEL THREE

CONTINUED

## Feathered hordes and winged gems: Colour and vitalism in Jardine and Selby's *Illustrations of Ornithology* (1827-1843)

*Joyce Dixon, University of Edinburgh*

Edinburgh in the mid-nineteenth century was a vibrant centre of ornithological enquiry and image-making. The preserved skins of foreign specimens flowed in and out of the northern capital by sea and land. Coloured prints piled up in its engraving studios, while avian enthusiasts met regularly in its College Museum. Most prominent among this "tribe of Scottish ornithologists" were Prideaux John Selby and Sir William Jardine, whose jointly-edited series *Illustrations of Ornithology* began publication in February 1827. Comprising two-hundred hand-coloured lithographs depicting new and rare bird species, the *Illustrations* spanned fifteen years, nineteen parts, four volumes and two series.

This paper will explore the different mechanisms for chromatic depiction, description and standardisation employed in Selby and Jardine's work. It will approach *Illustrations of Ornithology* as a collection of elaborately-coloured and aesthetically-motivated image-text diptychs, whose commercial success depended on both chromatic accuracy and life-like execution. Excavating the various iterations of the work, including proof plates, manuscript pages and the preserved specimens themselves, the paper will unpick the different complexions of colour embodied in its letterpress and plates. In doing so, it will reveal the scientific, aesthetic, commercial and colonial agendas underpinning the construction of Selby and Jardine's *Illustrations*. It will also shed new light on methods of production in the studio of the Edinburgh engraver William Home Lizars.

### **Biography**

Joyce Dixon has recently completed her PhD in History of Art at the University of Edinburgh, funded by the Scottish Graduate School for Arts and Humanities Doctoral Training Partnership scheme. Her research explores the intersections of art, science and book history, with a particular focus on the visual and print cultures of British natural history. Joyce has presented her research at the Linnean Society of London, the Scottish National Gallery and the Universities of Cambridge and Oxford, among other venues. Her work has been supported by grants from the British Colour Group, the AHRC and the Association for Art History.

# PANEL FOUR

## Colours of nature in South Asian art

### ***Cam Sharp Jones, the British Library***

From landscapes to studies of plants and animals – the natural world, in all its colourful glory, is a pervasive theme in South Asian art. Whether it is a backdrop or the main subject of a work, artists have used a range of mediums, including gouache, watercolour, ink and metallic pigments to try and accurately document the variety of nature found in the region. Whilst the styles and techniques used have adapted over time – moving from the lushness of miniature paintings to the more static Company School works, colour and pigmentation has remained critical to these works.

Focusing on the British Library's collections, including works acquired by the Mughal court, East India Company officials, as well as local rulers, this paper will trace the changing styles and mediums of South Asian natural history illustration from the 16th century to the 19th century to understand better the colour spectrum of South Asian natural history.

### **Biography**

Cam Sharp Jones is Visual Arts Curator at the British Library. She joined the Library in 2018 and previously worked in The Royal Botanic Gardens, Kew and the British Museum. With a background in South Asian art history and the history of science, Cam is currently responsible for the Library's collections of prints, drawings and photographs relating to Asia in the broadest sense, British photographic archives and contemporary artworks on public display. She co-authored the British Library publication *Animals: Art, Science and Sound* that explored the historical importance of a range of zoological material from the Library's collection and was lead curator for the exhibition of the same name held in 2023 at the British Library.



# PANEL FOUR

CONTINUED

## Painting descriptions: Observing and authoring nature in Theodor Cantor's Malayan Sketches, 1840s

*Katherine Enright, Trinity College, University of Cambridge*

The surgeon-naturalist Theodor Cantor (1809–1860) made around 150 zoological paintings in Malaya—mainly in Singapore and Penang—in the 1840s, now held by the Zoological Society of London. Taking together Cantor's watercolours and his published papers on mammals, reptiles, and fish, I argue that he draws on complementary elements of both genres to assert his authority in each. In written observations, Cantor invokes his artistic practice by describing animals with reference to the materiality and processes of painting. He refers to colours as specific pigments, describes the effect of light on shifting colouration, and uses painterly verbs to describe animals' skins as blending, producing mixtures of colours, and imparting tints. Cantor establishes himself vis-à-vis other naturalists by emphasizing his method of observing and sketching animals alive (or only recently dead), advocating such a method over descriptions from preserved specimens, which may have altered colouration.

Cantor's publications often give behavioural accounts and collecting histories of the specific animal in the corresponding illustration, producing eye-witness accounts rather than attempting "true-to-nature" types. Thus, these writings reveal much about the complex social worlds that he and these animals inhabited, and the local knowledges and labour required to produce such illustrations. Cantor's watercolours follow on the heels of—and refer back to—illustrations made in Malaya by diaspora Chinese artists under East India Company men several decades earlier. They offer a valuable window into the twin processes of painting and writing Malayan nature into the annals of natural history in the 19th century.

### **Biography**

Katherine is a Gates Cambridge Scholar pursuing an MPhil in Digital Humanities at Trinity College, where she researches approaches to connecting natural science collections data with digitised archival material. Her current project explores the use of herbarium data as an alternative archive to study histories of local and foreign plant collectors for the Singapore Botanic Gardens (1859–1945). She earned a B.A. from Harvard College in History and Anthropology, with a focus on the history of natural history and museum studies. She has worked at the National University of Singapore and on exhibits across the Harvard Museums of Science and Culture.

# PANEL FIVE

## “A Matter of Extreme Difficulty:” Robert Ridgway and the classification of Colour

***Richard Gilreath, Smithsonian Libraries and Archives***

Robert Ridgway’s landmark 1912 publication, *Color Standards and Color Nomenclature*, became a standard for American naturalists and many other fields in color classification in the early twentieth century. He describes the process of creating 1,115 colors across 53 plates as a “matter of extreme difficulty,” involving coordination with colleagues and the careful creation of the colors and plates.

The Smithsonian Institution Archives holds the original materials used by Ridgway to create the plates used in the books as part of Record Unit 7167, the Robert Ridgway Papers. I would like to propose a talk that explores the following:

1. A brief introduction to Ridgway, an American ornithologist and head curator of the Division of Birds at the United States National Museum, and the background of his early efforts to create color classifications.
2. A discussion of the preparation and importance of the 1912 publication.
3. An overview of the portion of the Robert Ridgway Papers and other archival material that concerns the preparation of *Color Standards and Color Nomenclature*, with an eye towards how the material artefacts in the Archives can offer us important insights about the book’s creation.
4. Concluding by discussing how archives and rare books can document the study of color in natural history, by letting us see both the finished publication and the materials used by Ridgway to create the book. Together, these offer us a clearer idea of how such an important book was created.

### **Biography**

Richard Gilreath is a Reference Archivist with the Smithsonian Institution Archives, which is part of the Smithsonian Libraries and Archives. He answers questions from Smithsonian staff, scholars, journalists, and the public using the many different collections in the Archives. These collections span from the 1840’s to present day, covering topics related to the history of the Smithsonian Institution, the history of science, and the many different fields that these collections touch upon.

# PANEL FIVE

CONTINUED

## Colour charts in 18th-century Europe: Natural, pigmentary, and trichromatic

**Giulia Simonini, Technische Universität Berlin**

With this paper, I would love to present a summary of the results of my thesis, which I defended in 2021 and will be published this year in open access with arthistoricum.net (Heidelberg University Library). In my thesis I present, for the first time, a comprehensive study of color charts in 18th-century Europe, combining various methodologies from art history, the history of science, and conservation sciences. For the first time, this study also conjoins in one monograph color charts stemming from different disciplines and practices which have been hitherto treated in separate works. The interdisciplinarity of this book is visible, for example, in the simultaneous presentation of color charts used in natural sciences, in painting, in trade, and in mathematically organized schemes.

The main result of this study is the first-time threefold distinction in natural, pigmentary, and trichromatic color charts, into which 18th-century color charts can be grouped. These categories emphasize lines of development that are rooted in specific historical traditions, and likewise clarify the later reception during and after the 18th century. My thesis also highlights interactions across categories, thus revealing a long and wide network of color understandings both chronologically and geographically.

I will present three colourful case studies stemming from my work, which are paradigmatic for the three groups of color charts I have highlighted: Abraham Gottlob Werner's natural approach to colour, Jacob Christian Schäffer's pigmentary organized charts, and Moses Harris's trichromatic system(s).

### **Biography**

Giulia Simonini is a postdoc researcher at Technische Universität Berlin, Institute of History and Philosophy of Science, Technology, and Literature, Department of History of Science, and member of the research group "Dimensions of techne in the arts" <https://techne.hypotheses.org/> since 2021. Giulia studied conservation at the Accademia di Belle Arti in Bologna and at the Fachhochschule Potsdam (2010), as well as art science and art technology at the Technische Universität Berlin and the Jagiellonian University in Kraków (2015). I completed my PhD at the TU Berlin under the supervision of Friedrich Steinle and Karin Leonhard, on eighteenth-century colour charts (2021). For the list of my publications see <https://orcid.org/0000-0003-0188-0268>

# PANEL FIVE

CONTINUED

How one illustration of a mountain zebra *Equus zebra*, living in 1761 at the menagerie of royal palace at Versailles, became emblematic of all black-and-white striped African equines

**Graham Rowe, University of Derby**

Occasionally, one illustration of a particular living animal has been so frequently reproduced that, for a period, it became emblematic of a whole species, genus, or family: Dürer's 1515 stylised woodcut of an Indian Rhinoceros *unicornis* is a well-known example. Less well-known is one the engravings of 'Le Zèbre' (The Zebra), first published in 1764, in Volume 12 of Buffon's *Histoire Naturelle, Générale et Particulière, avec la Description du Cabinet du Roi*. Jean Charles Baquoy's engravings, after illustrations by Jacques De Sève, were of a male Cape Mountain Zebra *Equus zebra* gifted to King Louis XV that, in 1761, lived in the menagerie of the Royal Palace at Versailles. However, although not described scientifically until 1824, even in the eighteenth century, the distinctive Plains Zebra *E. quagga* was more abundant and widely distributed than the Mountain Zebra; nonetheless, for many decades, a De Sève/Baquoy illustration of the 1761 Versailles individual became emblematic of all black-and-white striped African equines. Following initial publication, the De Sève/Baquoy images were reproduced widely, in original, colourised, and modified forms; apart from many reprints and translations of the original work, one image was plagiarised in early editions of *Encyclopaedia Britannica* and spread globally, appearing in many other works over the following century. Indeed, Bewick's Zebra woodcut was also based on that of De Sève/Baquoy, appearing in all eight editions of *General History of Quadrupeds* (1790–1824). 260 years after initial publication, the copyright-free 1764 De Sève/Baquoy illustration is still widely reproduced today.

## Biography

Graham Rowe is a Senior Lecturer in the Environmental Sciences area of the College of Science and Engineering at the University of Derby, UK. A molecular ecologist by training, he is primary author of Rowe et. al. (2017) *An Introduction to Molecular Ecology*, Oxford University Press, Third Edition. He worked for more than a decade on the conservation genetics and phylogeography of Natterjack Toads across Europe. Graham also has long-standing interests in the history of natural history, and the production of eighteenth- and early nineteenth-century natural history illustrations.

# PANEL SIX

## Hand-coloured natural history illustrations for common readers: The publishing history of *The Naturalist's Library*, 1833-1843

***Sarah Finn, Milwaukee Public Library, Milwaukee, Wisconsin***

The nineteenth century is known for some of the most lavishly illustrated natural history books ever produced. Well-known figures like John James Audubon and John Gould created exorbitantly priced folio books of hand-coloured plates that only the upper class could afford. During the same period, Europe experienced a boom in printed materials due to technological advances in printing and growing literacy rates among the middle class. Publishers began to set their sights on a growing group of "common readers" and experimented with new formats such as number publications, miscellanies, and cheap periodicals. Some naturalists and their printers were producing both luxury folios for the wealthy and cheaper illustrated works for a popular audience.

Drawing on archival material held at the National Library of Scotland and National Museums Scotland, this paper will examine the production of *The Naturalist's Library*, a popular forty-volume book series published in Edinburgh from 1833-1843 by William Home Lizars and Sir William Jardine. Each volume cost six shillings and included over thirty hand-coloured steel engravings. Lizars and Jardine were able to coordinate the labour of authors, artists, printers, and colourists to cheaply produce tens of thousands of volumes during its original print run. The hand colouring of the millions of steel engravings was achieved through a team of women working at Lizars' printing firm. The popularity of *The Naturalist's Library* contributed to the proliferation of images of animals and acted as a bridge between the traditional practice of luxe natural history publishing and a new popular audience.

### **Biography**

Sarah Finn is a Special Collections and Rare Books Librarian at Milwaukee Public Library in Milwaukee, Wisconsin. Finn earned a MLIS with an Archival Concentration and a History MA from the University of Wisconsin-Milwaukee. She is passionate about sharing the beauty of natural history illustrations by curating the popular @romanceofbooks Instagram account, which currently has over 119,000 worldwide followers.

# PANEL SIX

CONTINUED

Ferdinand Bauer's (1760 – 1826) field drawings at The Natural History Museum Vienna, his “painting by numbers” method, and the importance of historical colour systems regarding standardisation useful for scientific purposes

**Tanja M. Schuster, Natural History Museum Vienna**

The Archive for the History of Science at the Natural History Museum Vienna (NHMW) holds most of Ferdinand Bauer's pencil field-sketches. These record for the first time many Australian species then new to Western science, as he accompanied Matthew Flinders' voyage (1801–1803), the first documented circumnavigation of the continent. The field-drawings were the bases for coloured illustrations (mostly now at The Natural History Museum London), some of which are nomenclatural types fixed to scientific names of organisms. The drawings are important, as they include information omitted from the final, coloured illustrations, such as collection localities, dates, and additional detailed sketches of descriptive morphological characters relevant for species descriptions.

The field-sketches enabled Bauer to produce coloured plates of exceptional aesthetic and scientific quality by employing numerical and other codes, which indicated hue, brightness, opacity, and texture of particular parts of the living organism. Use of illustrations as types is facilitated if they were made using standardised colouration. Bauer's work, with his elaborate “painting by numbers” approach, is an outstanding example of this. Aside from Bauer's drawings, the NHMW Archive holds many illustrations that are types, as some of the herbarium sheets serving as such were destroyed at the end of WWII or lost otherwise. This is, because when a type specimen is lost or destroyed, illustrations prepared from the original material can be candidates for types, and such illustrations are obligate lectotypes when all other original material has been lost. Examples are illustrations used in Jacquin's and Schott's taxon descriptions.

## Biography

Tanja M. Schuster, PhD (ORCID: [0000-0003-0851-3372](https://orcid.org/0000-0003-0851-3372)) is the Curator of Cryptogams at The Natural History Museum Vienna. As a botanist, she has a keen interest in the role of visual media (photography, microscopy-scans, historical illustrations) to accurately and aesthetically document and convey morphological features of plants and other organisms. In this regard, she is fascinated by the work of 18th century natural history illustrator Ferdinand Bauer, who used a “painting by numbers” technique that allowed him to faithfully reproduce a plant's colourings years after having been in the field. This has sparked a collaboration between archivists, artists, botanists, and librarians.

**This paper co-authored by Mario-Dominik Riedl, Sarah M. Fiedler, Martin Krenn, Heimo Rainer, and David J. Mabberley.**

# PANEL SIX

CONTINUED

## Exploring the applications of line drawing in botanical illustration from the eighteenth century to the twenty first century

*Heather Pardoe, Amgueddfa Cymru - Museum Wales*

This paper draws on illustrations from the collection of Amgueddfa Cymru to examine the advantages of line drawing and monochrome to depict plants. Examples of work by eighteenth century artists, including Elizabeth Blackwell, John Miller and Martin Rössler, are used to illustrate the advantages of line drawing for plant identification and critical determinations. The emphasis on fine details in line drawings is contrasted with the total impact of vivid hues of full colour illustrations. The combination of line drawing and colour to convey additional scientific information about the size, form and lifecycle of the plant, whilst maintaining the aesthetic appeal of the illustration, is examined, using as examples finely composed works by Walter Hood Fitch and flamboyant illustrations by Bryan Poole. Furthermore, the role of colour in the reconstruction of extinct fossil plants and past landscapes is considered, particularly in situations where there is limited evidence of the colour or three-dimensional form of the original plant or vegetation type.

### **Biography**

Heather Pardoe (PhD, FLS) is a Principal Curator (Botany) at Amgueddfa Cymru - Museum Wales. She is responsible for curating the Museum's large collection of botanical illustrations. With Maureen Lazarus, she has produced a comprehensive catalogue of the collection and curated several exhibitions of botanical illustrations. She has published several papers on the history of botanical illustration, with the emphasis on work by women artists and works from the eighteenth century and nineteenth century. Her other research interests include palynology, Holocene vegetation change, decolonisation, economic botany, history of botany and arctic-alpine plants.

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