

SOCIETY *for the* HISTORY  
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ASH | Amsterdam  
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ARTECHNE –  
Technique in the  
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HP History of Hermetic Philosophy  
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# COLOURING & Making in Alchemy & Chemistry

7th SHAC Postgraduate Workshop

Wednesday, 26 October 2016, 9:45–18:15 pm | Utrecht University,  
Sweelinckzaal, Drift 21, 3512 BR Utrecht

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## Keynote Lectures

Prof. Ernst Homburg (Maastricht University)

*From Phosphorus to Magenta: Colour in Chemical Science and Industry*

Prof. Tara Nummedal (Brown University)

*Early-Modern Alchemy as the Art of Colour*

This workshop, including lunch and refreshments, is free, but the number of participants is limited. Please register until 15 October by emailing Thijs Hagendijk (Utrecht), [t.hagendijk@uu.nl](mailto:t.hagendijk@uu.nl).

A limited number of travel bursaries are available to participants upon application to Mike A. Zuber (Amsterdam), [studentrep@ambix.org](mailto:studentrep@ambix.org).



# COLOURING & Making in Alchemy & Chemistry

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Wednesday, 26 October 2016, 9:45–18:15 | Utrecht University,  
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## Programme

- 09:45 Registration
- 10:15 Welcome and Introduction | *Chair:* Mike A. Zuber (Amsterdam)
- 10:30 **Chemistry Panel**  
Amélie Bonney (Oxford)  
*Creating Toxic Colours: Explosions, Poisoning and Occupational Hazards in the French and British Colour Industry, 1800–1914*  
Victor de Seauve (Paris, MNHN)  
*Edmond Becquerel's First Colour Photographs: Monitoring the Evolution of Colours*
- 11:30 Coffee Break
- 12:00 **Keynote Lecture** | Prof. Ernst Homburg (Maastricht)  
*From Phosphorus to Magenta: Colour in Chemical Science and Industry, 1680–1860*
- 13:00 Lunch
- 14:00 **Alchemy Panel**  
Vincenzo Carlotta (Berlin, HU)  
*Chromatic References in the Making of the Transmuting Agent as Presented in the Dialogue of the Philosophers and Cleopatra*  
Kathryn Kremnitzer & Siddhartha V. Shah (Columbia)  
*Making Emerald: Imitation as Working Method*  
Thijs Hagendijk (Utrecht)  
*Alchemy, Art and Antwerp: Peeter Coudenberghe's Colour Recipes*
- 15:45 Coffee Break
- 16:15 **Keynote Lecture** | Prof. Tara Nummedal (Brown)  
*Early-Modern Alchemy as the Art of Colour*
- 17:15 Break
- 17:30 Concluding Discussion | *Chair:* Prof. Sven Dupré (Utrecht)
- 18:15 End

For more information, please visit [www.ambix.org](http://www.ambix.org) or contact Mike A. Zuber (Amsterdam), [studentrep@ambix.org](mailto:studentrep@ambix.org).



## *Bios and Abstracts*

### Chemistry Keynote

Prof. Ernst Homburg (Maastricht)

*From Phosphorus to Magenta*

*Colour in Chemical Science and Industry, 1680-1860*

Ernst Homburg is professor for the history of science and technology at Maastricht University, having previously researched doctorates in chemistry and the history of science. His research focuses on the boundary between science and technology as well as interactions between industry and university. Alongside various editorial activities, he served on the Council of SHAC between 1996 and 2016.

<http://www.histech.nl/www/nl/about/bijzondere-leerstoel>

### Alchemy Keynote

Prof. Tara Nummedal (Brown)

*Early-Modern Alchemy as the Art of Colour*

Tara Nummedal teaches early-modern history at Brown University. Having explored alchemical contracts and accusations of fraud in *Alchemy and Authority in the Holy Roman Empire* (2007), she is currently preparing a study on the sixteenth-century alchemist Anna Maria Zieglerin (ca. 1550-75) and previously edited a special issue of *Ambix* on 'Alchemy and Religion in Christian Europe'.

<https://vivo.brown.edu/display/tnummeda>

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# Chemistry Panel

## Amélie Bonney (Oxford)

### *Creating Toxic Colours: Explosions, Poisoning and Occupational Hazards in the French and British Colour Industry, 1800–1914*

Industrialized Britain and France made use of a variety of by-products from the mining industry to create an alternative source of wealth: a range of new dyes and pigments. Colours made with arsenic, zinc or aniline were each marketed as a safer variety than their counterparts, causing specific chemical elements to become fashionable or, on the contrary, undesirable. For example, aniline dyes and pigments were initially marketed as being a safe alternative to colours made with arsenic, but they were later found to be dangerous both for the workers and for the environment.

This paper will investigate why this discourse on the toxicity or the benefits of colours changed throughout the nineteenth century, and argues that this was caused by a combination of the volatility of popular conceptions of toxicity, economic interests and the development of scientific and toxicological knowledge. An investigation of the narratives of workers, scientists and occupational health physicians reveals that the harmful side-effects were often well-known in the working environment long before regulation was implemented. Often these risks were minimized by companies and government authorities in order to make a colour more marketable until a new alternative was found. The effects for workers ranged from skin lesions to acute poisoning, while on an entirely different level there were cases of industrial explosions and large-scale pollution. This paper thus provides a new context in which to discuss the development of aniline dyes as well as pigments and further develops our understanding of risk management during the production of dyes and pigments in the colour industry.

## Victor de Seauve (Paris, MNHN)

### *Edmond Becquerel's First Colour Photographs Monitoring the Evolution of Colours*

In 1848 Edmond Becquerel developed the very first colour-photographic process and was able to record the solar spectrum with its own colours, basing himself on Seebeck's work on silver chloride. A few prints representing still-lives, obtained with the same process, are still conserved in the National Museum of Natural History in Paris. The support is a silver plate similar to those used for daguerreotypes that underwent a sensitization step and the positive colour image is directly formed onto the sensitized plate. The exposure times were quite long, and the resulting photochromatic images could not be fixed which is why this invention was not widely used.

If this process was the first response to the problem of colour in photography, the origin of colours motivated a debate between scientists in the nineteenth century, an issue that remains unresolved in the twenty-first century. In order to gain insights on the colours of the photochromatic images, we try to relate the sub-microstructure to the optical properties of the images.

In this talk we will focus on the steps of the Becquerel's process we reproduced according to his writings. The light exposure step of the process is studied with spectroradiometry and the resulting images with visible reflectance spectrometry. We will attempt to define the spectral sensitivity of the process and to describe the critical parameters to obtain the most beautiful colours.

## Alchemy Panel

Vincenzo Carlotta (Berlin, HU)

*Chromatic References in the Making of the Transmutation Agent as Presented in the Dialogue of the Philosophers and Cleopatra*

In the context offered by the Greco-Egyptian alchemical tradition, the *Dialogue of the Philosophers and Cleopatra* touches on distinctive topics, the importance of which has been progressively highlighted by recent scholarship. Nevertheless, the discussion about the sources of these features – and their possible influence on other works – is still open to debate.

The present paper aims at analyzing two closely related subjects: first, the relationship between the body, spirit and soul of the metallic substances, as presented by Cleopatra and her fellows; second, the role performed in this three-way relationship by the *doxa* of metals. This Greek word is not immediately intelligible, except through a careful analysis of its occurrences in context, and the present paper will point out how this word involves a direct reference to the outer appearance of metallic bodies – specifically, it refers to their ‘brightness’ as opposed to their ‘darkness’. Moreover, this aspect reveals the probable Christian influence on the alchemical text falsely attributed to Cleopatra VII so as to lead up to the more general, and still debated, study of the relationship between Greco-Egyptian alchemy and Christian thought. Finally, this particular case study proves to be especially fruitful since it involves both theoretical and practical issues of the discussion on metallic transmutation throughout the late classical and Byzantine eras.

Kathryn Kremnitzer & Siddhartha V. Shah (Columbia)

*Making Emerald  
Imitation as Working Method*

A recipe for making *esmeraulde* (emerald) appears as an illustrated marginal note under the heading *Pierrerie* (gemstones) in Ms. Fr. 640 at the Bibliothèque nationale de France (Paris), followed by instructions for making other coloured stones, including ruby, hyacinth and topaz. These recipes confirm the larger scope of the author-practitioner’s wide-ranging ambition to reproduce the colour and refractive effects of precious materials, suggesting that imitation is both an artistic aim and a working method to replicate natural processes in form and character.

This paper explores the strong link between coloring and making at the intersection of craft and science, in the production of jewels, bringing together the long-documented history of imitation gemstone production with the findings of our own historical reconstruction. It further reconsiders unstable conceptions of real vs. fake and authentic vs. inauthentic in the early modern period and today, to question how the economic, artistic, and use value of these craft objects was and is determined.

Thijs Hagendijk (Utrecht)

*Alchemy, Art and Antwerp  
Peeter Coudenberghe's Colour Recipes*

From antiquity up to the early modern period, it is hard to tell where alchemical practices ended and artisanal practices began. One of the places where the hybridity between alchemy and art can clearly be

seen at work is in artisanal recipe books that usually covered a wide array of different practices, ranging from colour-making to metallurgy.

In this paper I investigate a late sixteenth-century Antwerp manuscript that contains recipes for the making of different paints, inks and the production of stained glass. Although the manuscript has drawn the attention of several art historians and conservators, little attention has been given to the alchemical notions and recipes that can be found throughout the manuscript. For instance, the manuscript counts eight recipes for the making of the blue pigment azure. While six of these recipes describe historically accurate procedures, two recipes call for quicksilver and sulphur. Such ingredients would never yield a blue pigment, but instead seem to allude to alchemical transmutation as the underlying process of azure-making.

To better understand the interplay between alchemy and art in this manuscript, I will take a closer look at its author – recently identified as Peeter Coudenberghe (1517–99), an apothecary who lived and worked in Antwerp at a time during which the city flourished as an important international market for artists' materials.

## *Acknowledgements*

### Selection Committee

Prof. Hasok Chang (Cambridge)

Dr. Peter Forshaw (Amsterdam)

Prof. Ernst Homburg (Maastricht)

Prof. Tara Nummedal (Brown)

### Financial Support

In addition to the Society for the History of Alchemy and Chemistry, the following institutions have generously made this workshop possible:



*University of Amsterdam*

– ASH: Amsterdam School of Historical Studies

– HHP: History of Hermetic Philosophy and Related Currents



*Utrecht University*

– ARTECHNE: Technique in the Arts, 1500–1950

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